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UNIVERSITY OF SAN DIEGO

Hahn School of Nursing and Health Science

DOCTOR OF PHILOSOPHY IN NURSING

AN EXAMINATION OF ALCOHOL USE

IN THE GASTRIC BYPASS PATIENT

by

Kathleen Winston, MSN, RN

A dissertation presented to the

FACULTY OF THE HAHN SCHOOL OF NURSING AND HEALTH SCIENCE

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In partial fulfillment of the

requirements for the degree

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April, 2009

Dissertation Committee

Cynthia D. Connelly, PhD, RN, FAAN, Chairperson

Betty Ferrell, PhD, MA, FAAN, FPCN

Jane M. Georges, PhD, RN

Abstract

AN EXAMINATION OF ALCOHOL USE IN THE GASTRIC BYPASS PATIENT

Kathleen Winston, PhD., RN
Hahn School of Nursing and Health Science
University of San Diego, San Diego, CA
Cynthia D. Connelly, PhD, RN FAAN, Advisor

Introduction: Obesity and morbid obesity, along with their co-morbidities, are impacting the national and international healthcare delivery systems and policy agendas. Bariatric surgery is a dynamic and fast-changing medical and surgical practice designed to mitigate the consequences of 60 million obese adults in the United States alone. Alcohol consumption after gastric bypass surgery presents potential physiological and psychological problems.

Purpose: Examine the prevalence and incidence of increased alcohol consumption among a group of post-gastric bypass patients; identify the relationship of the alcohol use with time since surgery, psychosocial issues (depressive symptomatology, anxiety, coping) and demographic variables.

Theoretical Framework: Coping serves as an underlying theory that may explain the use of alcohol in the gastric bypass patient and the impact on post-surgery behaviors. Coping theory guided the formation of the research questions and formed the study.

Aim: Characterize alcohol use in a cohort of gastric bypass patients. Examine the relationship between anxiety, depressive symptomatology, coping, alcohol use, and demographic variables in gastric bypass patients. Describe the experience of alcohol use post GB surgery, through patient narratives.

Methods: Descriptive, cross-sectional design with a single open-ended question to add richness to the quantitative findings. Sample = 268 post-gastric bypass surgery patients who completed a self-reported questionnaire consisting of four measures (an investigator developed demographic and personal data survey) and three standardized measures (AUDIT, JCS, & POMS).

Results: Among participants for whom greater time had elapsed since surgery, those who had experienced higher anxiety/tension and had used emotive or palliative coping were found to have had significantly higher alcohol-use scores.

Conclusions: The first generation of gastric bypass surgery research requires advancing the science to examine the complex and multiple psychosocial constructs and their relationships to support evidence-based programs that will facilitate achieving lifelong positive GBS outcomes.

DEDICATION

It is good to have a destination to travel toward; but it is the journey that matters in the end. My life and this particular experience in my life, have been part of a remarkable and unforgettable journey.

In most journeys, as in most of life, there are a constant few who sustain you at every step, at every turn, over every bump, and down every hill. For me, the life journey that brought me to this place was traveled with six siblings, a mother, and the memory of a father lost to war. I dedicate my travels down life's long and winding road to each of them; it was through the struggles of our family I learned to persevere.

I dedicate this work to Tristen, my first and very best research assistant. You are God's greatest gift to me and my life's joy. You are my daughter, my inspiration. I will cherish and love you always.

Most importantly, I dedicate this work to John. Thirty-five years ago I chose my love. Today and always, I love my choice.

Finally, I dedicate this dissertation to the patients who gave freely of their time to share with me their weight struggles, their food challenges, their alcohol and other addictions, their fears, their hopes, their dreams, and their journey toward a life of health and happiness.

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*All journeys have secret destinations
of which the traveler is unaware.*

—Martin Buber

Thank you for taking me to unimagined places.

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CHAPTER 1

Introduction

Obesity is a complex, multifaceted disease impacting national and international healthcare delivery and policy agendas. The term *globesity* was introduced by the World Health Organization (WHO) (World Health Organization, 2002) in response to the epidemic proportion of obesity in the United States that is now spreading throughout the world. Deitel (2003) estimated that overweight and obesity worldwide now involves 1.7 billion people. The WHO, Department of Chronic Diseases and Health Promotion (2005b), projects that by 2015 approximately 2.3 billion adults will be overweight and more than 700 million will be obese. The most recent data released by the Agency for Healthcare Research and Quality (2004) reports that obesity affects 60 million adults in the United States and that approximately 9 million American adults are extremely obese. As a result, gastric bypass surgery (GBS) has become a routine surgical procedure in the United States for effective long-term treatment of morbid obesity.

Bariatric surgery is a dynamic, fast-changing medical and surgical practice. Gastric banding and other less invasive treatments are being developed and introduced rapidly into the medical community. However, for the purposes of the present study, GBS was the focus, since this procedure is considered to be the gold standard for all bariatric surgeries (Carter, Lin, Lee, & Johnstone, 2006).

Though not considered a panacea for everyone with weight problems, GBS continues to gain popularity as a surgical treatment for morbidly obese adults who have been unable to achieve satisfactory and sustained weight loss through dietary, behavior, and/or medication treatments, and for those who suffer from co-morbid conditions that are either life threatening or pose serious impairment to quality of life. Between 1998 and 2004, the number of GBSs increased from 13,386 to 121,055, and 177,600 surgeries were performed in 2006 (American Society for Metabolic & Bariatric Society, 2007). Gastric Bypass surgery has proved to be the most reliable method of attaining and sustaining significant weight loss among morbidly obese individuals (Maggard et al., 2005; Smoot, Xu, Hilsenrath, Kuppersmith, & Singh, 2006).

A primary caution to gastric bypass patients is to avoid alcohol consumption (Buffington, 2006). Currently, no official guidelines have been established pertaining to the use of alcohol after GBS. However, based upon the knowledge of changes in alcohol absorption and metabolism, consumption is routinely prohibited during the 18-month post-surgery, rapid-weight-loss period. Drinking alcohol is discouraged as a lifelong behavior for the GB patient, due to the structural and functional changes created by the surgery (Buffington, 2006). Klockhoff, Naslund, and Jones (2002) found that gastric bypass patients have significantly higher rates of alcohol absorption and blood alcohol content than do age- and weight-matched controls. The medical community consistently reports rapid absorption, sensitivity, and toxicity as physiological consequences of GBS (Buffington, 2005; Lieber, 2005; Palmer, Frank, Nambi, Wetherington, & Fox, 1991).

A reduction in the stomach's functional volume is accompanied by altered physiological and psychological responses to food. Anecdotal reports suggest that an

increase in alcohol consumption may also be a result of GBS (Bechdel, 2006). Lay literature and commercial media suggest that there may be a relationship between the gastric bypass procedure and an increase in alcohol consumption (ABC News: Good Morning America, 2006; Chandler, 2006; Oprah.com Message Boards, 2006; Spencer, 2006). However, a paucity of scientific literature exists regarding the psychological effects of GBS; alcohol use, incidence, and prevalence of alcohol consumption following GBS; and post-surgical changes contributing to increased alcohol consumption. In addition to the physiological effects of alcohol use associated with the surgical procedure, many morbidly obese individuals use food for emotional comfort and to cope with stressful life events (de Zwaan, 2001). Food can no longer serve this purpose, due to the strict post-operative limitations of the diet. Gastric bypass patients must develop new comfort and coping measures. If alcohol is consumed as a source of comfort and coping, the GB patient is susceptible to the harmful consequences of alcohol.

Statement of the Problem

Morbidly obese individuals face significant physical, psychological, social, and economic challenges (Bocchieri, Meana, & Fisher, 2002; Dymek, le Grange, Neven, & Alverdy, 2001). In addition to the co-morbidities leading to chronic medical conditions, morbidly obese individuals experience a wide range of emotional disorders, including depression, anxiety, and low self-esteem (Dixon, Dixon, & O'Brien, 2003; Sarwer, Wadden, & Fabricatore, 2005; Sowemimo et al., 2007).

Socially, obese individuals are stigmatized and may experience discrimination (Bocchieri et al., 2002; Dymek, le Grange, Neven, & Alverdy, 2002). Despite efforts by the medical, psychological, and healthcare community, treatment for morbid obesity has

been largely ineffective. Popular weight-loss programs, including behavior modification and structured exercise programs, often fail to produce substantial, permanent weight loss in the morbidly obese (Bocchieri et al., 2002; Dubovsky, Haddenhorst, Murphy, Liechty, & Coyle, 1985). More importantly, the weight that is lost is usually regained along with additional pounds, rendering these treatments ineffective (Fisher & Schauer, 2002).

Bariatric surgery is the term encompassing all surgical treatments for morbid obesity, which is the severe accumulation of excess weight as fatty tissue. Gastric Bypass Procedures (GBP) are a group of similar operations that provide effective and permanent weight loss and also eliminate most or all of the co-morbid conditions the weight creates (Delin, Watts, & Bassett, 1995). A reduction in the stomach's functional volume is accompanied by an altered physiological and psychological response to food. Although psychological problems associated with morbid obesity may resolve with GBS, the surgery itself has an impact on the individual's physical and emotional well-being (Clark et al., 2003; de Zwaan et al., 2003). Many who have undergone the surgery suffer from depression due to dietary limitations and changes in the role food plays in their emotional well-being (Hsu et al., 1998; Kalarchian, Wilson, Brolin, & Bradley, 2000). Many morbidly obese individuals who have used food for emotional comfort now need to develop new comfort measures. However, removing ineffective coping mechanisms without a plan to build new effective ones leaves these patients unprepared to move forward.

The scientific literature purports a relationship between psychological disorders and obesity (Fabricatore, Wadden, Sarwer, & Myles, 2005; Maddi, Khoshaba, & Persico, 1997), but no predictive surgical outcome models addressing alcohol behaviors in gastric

bypass patients were identified in the literature. Knowledge gained from this study will guide further research to more fully determine, describe, and clarify the relationship between GBS and increased alcohol consumption.

Significance

Obesity is a rapidly increasing healthcare concern, with approximately 60 million obese individuals and another 9 million morbidly obese in the United States (Agency for Healthcare Research and Quality, 2004). Obesity is defined by an individual's body mass index (BMI). This is the ratio between an individual's height and weight and is determined by a mathematical computation developed to assess this ratio for most adults. For example, a BMI of 20–25kg/m² is considered a healthy weight, and a BMI greater than 25kg/m² is considered in the obese range. Morbid obesity is the severe accumulation of excess weight as fatty tissue, defined by a BMI greater than 40kg/m², which is equivalent to 80 to 100 pounds overweight. A group of patients weighing 200 pounds or more are part of a growing population of super-obese, with a BMI exceeding 50kg/m².

Morbidly obese individuals suffer from serious and significant physical co-morbidities that negatively impact their personal, employment, and social lives (Bocchieri et al., 2002; Dixon et al., 2003). The ineffectiveness of traditional weight-loss treatments is documented in the classic literature (Stunkard, Stinnett, & Smoller, 1986; Wadden, 1993), and the need for further obesity research is now a priority for healthcare scientists and clinicians. The physiological problems of obesity and co-morbid conditions are well documented in the scientific literature, and the physical benefits and improvement from surgery have been empirically studied (Buchwald et al., 2004; Shinogle, Owings, & Kozak, 2005). It is also important to understand that morbidly

obese individuals experience emotional and psychosocial problems (Dymek et al., 2001; Goldfein, Devlin, & Spitzer, 2000; Sabbioni et al., 2002), including low self-esteem, depression, anxiety, poor quality of life, negative eating behaviors, social stigma, prejudice, and discrimination (Fabricatore et al., 2006; Ogden, Clementi, & Aylwin, 2006). An understanding of the emotional and psychosocial complexities that present in the obese population will help inform intervention and treatment approaches and facilitate ongoing treatment approaches when gastric bypass patients' physical appearance changes with weight loss.

The concept of morbid obesity was introduced in the 1960s but was not considered a legitimate medical illness requiring safe and effective treatment until the late 1970s (Walen & Owens, 2005). The prevalence of obesity in the United States is well documented in Public Health (U.S. Department of Health and Human Services, 2000a, 2000b), and Centers for Disease Control and Prevention, National Center for Health Statistics (CDC, 2003–2004) literature and the data support that morbid obesity is reaching epidemic proportions. As a primary health concern, morbid obesity contributes to the leading causes of death and disability in American adults from co-morbidities and other chronic diseases (Mokdad, Marks, Stroup, & Gerberding, 2004). Morbid obesity and resulting co-morbidities contribute significantly to the escalating costs associated with chronic disease management. United States healthcare expenditures for the morbidly obese are reported to be 81% higher than for normal-weight adults, and direct and indirect costs to the healthcare system approximate \$117 billion annually (Agren, Narbro, & Jonsson, 2002; Craig, & Tseng, 2002).

Gastric bypass surgery (GBS) is considered the most effective medical treatment for obesity, morbid obesity, and associated co-morbidities due to improved surgical procedures, positive weight-loss outcomes, and insurance reimbursement (Masheb et al., 2007; Sjöström et al., 2007). An increasing number of patients have access to GBS. With the increasing number of GBSs performed, the scientific community is beginning to examine the psychological impact of GBS on patients (Buddeberg-Fischer, Klaghofer, Sigrist, & Buddeberg, 2004; Masheb et al., 2007). However, scientific study of alcohol consumption behaviors by gastric bypass patients is missing from the literature.

The impetus to support psychological research related to GBS evolved from a July 18, 2006, *Wall Street Journal* article that described a new and unusual occurrence being reported by surgical centers across the country. Psychologists were beginning to counsel patients regarding new compulsive behaviors post GBS. After GBS, some patients engaged in compulsive behaviors, including alcohol, gambling, and shopping. The emerging concern that transfer addiction may develop in the gastric bypass patient as a consequence to GBS is largely reflected in anecdotal data, but there appears to be a post-GBS patient population who develop compulsive and addictive behaviors (Moorehead, Buffington, & Marema, 2003).

Between 2006 and 2007, a series of articles published in the peer-reviewed journal *Bariatric Times* summarized early gastric bypass clinical practice and pertinent research. The state of GBS research examining the psychological and social impact on the gastric bypass patient is emerging, but further empirical data is needed. In response to patient reports of alcohol-related problems in her gastric bypass patients, Buffington (2006) conducted a website survey of gastric bypass patients to identify post-surgery

changes in alcohol use and effects. The total number of patients surveyed was not reported; however, 90% of the respondents cited alcohol-related problems. In a second survey (Buffington, 2007) a total of 318 patients (20 males and 298 females) responded from 100 medical practices in the United States, Northern Europe, and Israel. This sample is consistent with the data reporting that females constitute the higher percentage of individuals who undergo bariatric surgery. The majority of survey respondents (84%) were one or more years post GBS, and close to half (40.4%) were between the ages of 36 and 50. Most of the respondents (90%) claimed they were “more sensitive” to alcohol, and 83% reported they were “occasional” or “regular” drinkers. A small number (17%) reported never using alcohol, with 80% of the non-users of alcohol indicating they were 6 months or less post GBS. Pre- and post-surgery alcohol use was not reported in this survey, but it is an important consideration in determining if alcohol use after GBS is a new comfort measure, coping strategy, and/or addiction. Buffington (2007) purports that alcohol use by gastric bypass patients has a more negative impact than previously thought or recognized. She identifies three areas of concern that require further investigation: alcohol absorption/sensitivity, toxicity consequences, and potential addiction.

In an early study, DiGregorio and Moorehead (1994) noted anecdotal and clinical impressions of psychological co-morbidities that included the early onset of depression, anxiety, and phobias followed by various addictions. At the 2006 ASMBS conference, Moorehead’s podium presentation, “Burden of Weight: Psychological Factors of Morbid Obesity,” focused on the need to learn more about morbid obesity and the support of bariatric surgery patients. She suggested that roughly 30% of gastric bypass patients struggle with addictions after surgery, and she urged further study of this phenomenon.

Some gastric bypass surgeons dismiss the observation as coincidence. The large number of surgeries, 177,600, that were performed in 2006 does not support the suggested findings that a relationship exists between GBS and increased alcohol use. Moorehead et al. (2003) argue for the need to continue research to identify and explain transfer addiction.

No published reports exist regarding the addiction potential for GB surgery patients, and no reports exist regarding alcohol addiction before or after surgery. Neither were any studies found reporting the number of gastric bypass patients who transfer their obsession for food to alcohol. Until the Buffington (2007) survey, no information was available regarding the percentage of GBS patients before or after surgery who experienced alcohol-management problems. The significance of the Buffington (2006, 2007) surveys and report is that 28.4% of the respondents felt they had a concern or problem with control of alcohol use.

In response to the *Wall Street Journal* article (Spencer, 2006), the lay literature and commercial media have highlighted the potential effects of alcohol use on GBS outcomes. Healthcare clinicians present anecdotal evidence, case study examples, and preliminary survey findings suggesting adverse health effects on GBS patients due to alcohol use (Schauer & Ashton, 2007; Sheipe, 2006; Wuhl, 2004). The weight-loss benefits are complicated by the compulsive need to drink alcohol, by the nutritional deficiencies resulting from alcohol consumption, and by the rapid alcohol absorption that occurs due to structural changes from surgery.

Research suggests that for most GBS patients the physiological and psychosocial outcomes are positive, with the question about negative outcomes associated with alcohol

use currently unanswered. It is important to be able to predict, prior to surgery, which patients may have difficulty with the lifestyle changes that accompany GBS and which patients will need help in developing new coping skills for the many changes that occur after surgery. Healthcare professionals must educate patients and families about the possibility of transferring from excessive-food-consumption behavior to excessive alcohol consumption. Psychological support can facilitate patient awareness that GBS is a tool to help maintain healthy weight loss over time.

Theoretical Considerations and Conceptual Framework

When faced with a stressful circumstance or experience, some individuals become distressed and respond poorly, while others remain resilient. Coping theorists assume that these outcomes result from the individuals' coping efforts to resolve the stressful situations or regulate their emotional reactions (Lazarus & Folkman, 1984). Coping is described as including different responses to stress. Stress consists of three processes: perception of the threat, potential response to the threat, and executing a response to the threat (Lazarus, 1966). Though linear in sequence, Lazarus emphasized that the entire set of processes may cycle repeatedly in a stressful transaction.

The Ways of Coping measure (Folkman & Lazarus, 1985) embeds two general types of coping. Problem-solving coping is an action designed to alter the source of the stress, and emotion coping is designed to reduce or manage the distress of the situation. Self-regulation in response to a stressful event will influence subsequent outcomes. Obese individuals may use eating to cope and self-regulate the anxiety and depression associated with a stressful event. Obesity is resolved with GBS, leaving the individual vulnerable to employing unhealthy coping strategies when faced with new lifestyles and

the other varied changes that occur post surgery. Coping theory will guide the formation of the research questions and inform the study. Coping may be the underlying theory that explains the use of alcohol in the gastric bypass patient and the impact on post-surgery quality of life, eating behaviors, depression, or other psychosocial variables.

Implications for Nursing

The current understanding of alcohol use by GBS patients is limited. Established scientific evidence exists regarding the physiological benefits and disadvantages of GBS. However, research on the psychological outcomes of GBS and the effects of alcohol use on the gastric bypass patient are scarce, and the research that does exist reports inconsistent findings. Nurses interact with and provide care to all patients in wide and diverse clinical settings, so they are uniquely positioned to improve the health of GBS individuals by helping them make decisions about treatment options, understand long-term effects, and develop strategies for success. Further study is needed regarding (a) the management of the post-GB patient to achieve and sustain weight loss and (b) consideration of the risk for abusing alcohol or substituting alcohol for coping.

The study presented here provides information about the psychological consequences associated with GBS; broadens the understanding of gastric bypass patient needs; and provides information for nurses, mental health professionals, support group leaders, and others. The study serves as the basis for future research and for the development of improved pre- and post-surgery evaluations and comprehensive patient education.

Purpose/Study Aims

The purpose of this descriptive cross-sectional study was twofold: to examine the prevalence of increased alcohol consumption among a group of post-gastric-bypass patients; and to identify the relationship of the alcohol use with time since surgery, psychosocial issues (depressive symptomatology, anxiety, coping), and demographic variables.

The three aims of the study are as follows:

1. Characterize alcohol use in a cohort of gastric bypass patients.
2. Examine the relationship between anxiety, depressive symptomatology, coping, alcohol use, and demographic variables in gastric bypass surgery patients.
3. Describe the experience of alcohol use post GBS, through patient narratives.

CHAPTER TWO

Review of the Literature

This chapter gives a comprehensive overview of the current state of the science regarding obesity, gastric bypass surgery, post-surgery alcohol consumption, and coping. An explanation of the method used for the literature review is presented in the first section. The second section examines obesity and is followed by the historical context of gastric bypass surgery, alcohol consumption, and coping. Gaps in the literature related to alcohol consumption are noted. The final section analyzes and synthesizes the literature on the variables specific to this study.

Literature Review Method

To establish a thorough review of the literature, the following steps were taken. An electronic search was conducted among the following databases, including but not limited to *MEDLINE*, *embase*, *Cinahl*, *eric*, *Ageline*, *PsychInfo*, and *Sociological Abstracts* for published articles that reported on obesity, gastric bypass surgery, physical and psychological surgery outcomes, and stress and coping. The key words used for the article search were sought within titles or abstracts and included *psychological outcomes*, *stress*, *coping*, *alcohol use*, *gastric bypass surgery*, *obesity treatment*. In addition, dissertation and other searches were performed, which yielded further articles. The lay literature, newspaper articles, and media reports were found through Google and

mainstream search engines, and further research was conducted to follow-up on the literature found.

The search list was limited to English-language articles relevant to the topic and key words. The search yielded 156 references categorized as research, report, scholarship, or opinion. After the initial electronic database searches, hand searches were conducted of the citations in the reference lists of relevant articles. Electronically searchable meeting abstracts were examined, including National Society of Bariatric Surgery and Metabolic Disorders conferences and NIH Consensus conferences.

This literature synthesis not only highlights the issues related to the gastric bypass surgery experience and outcomes but also emphasizes the need for further research. It is clear from this literature review that in order to learn more about the experience and the outcomes of individuals undergoing this surgery, additional quantitative and qualitative study is needed.

Obesity

Overweight and obesity are defined as abnormal fat accumulation that may impair health. Body mass index (BMI) is a simple index of weight-for-height that is routinely used in classifying overweight and obesity populations and individuals. According to the latest projections by the World Health Organization (2005b), approximately 1.6 million adults, ages 15 and over, are overweight ($\text{BMI} > 25\text{kg/m}^2$) and 400 million adults are obese ($\text{BMI} > 30\text{kg/m}^2$). The World Health Organization (2005a) further projects that by 2015, close to 2.3 billion adults will be overweight and 700 million will be obese.

The Centers for Disease Control and Prevention, National Center for Health Statistics (Centers for Disease Control, 2003–2004) reported that approximately 64% of

American adults are overweight (BMI > 25kg/m²) or obese (BMI > 30kg/m²), and 25% are considered extremely or morbidly obese (BMI > 30kg/m²). The most recent data reported by the Agency for Healthcare Research and Quality (2004) project indicate that roughly 60 million adults in the United States are obese (BMI > 30kg/m²) and 9 million are extremely/morbidly obese (BMI > 40kg/m²). According to the CDC, National Center for Health Statistics (Centers for Disease Control, 2003–2004), in 1991 no state in the country reported an obesity prevalence rate (BMI > 30kg/m²) greater than 20%. By 2004, however, 33 states reported an obesity prevalence rate between 20% and 24%, and 9 states reported a prevalence rate greater than 25%. In the United States, the increase in obesity and morbid/extreme obesity prevalence was found among all ages, socioeconomic statuses, racial and ethnic groups, and both genders, and the increase has been more rapid in recent decades (Centers for Disease Control, 2003–2004).

Alarming, the prevalence of obesity among youth has nearly tripled in the past two decades, which points to inevitable long-term chronic health consequences. Extreme obesity affects approximately 9 million American adults, making morbid/extreme obesity a significant and rapidly growing problem in the United States. The magnitude of this problem has raised significant concern for various government, health, and civic organizations because obesity has been linked to a variety of medical and psychological conditions and expenditures (Arterburn, Crane, & Sullivan, 2004; Finkelstein, Fiebelkorn, & Wang, 2003).

The concept of morbid obesity (BMI>40kg/m²) was introduced in the 1960s but was not considered a legitimate medical illness requiring safe and effective treatment until the late 1970s. National recognition for the disease came in 1978 with the first NIH

Consensus Conference for Obesity, where the term *morbid obesity* was further clarified and the health conditions associated with the term and treatment approaches were determined. The Centers for Disease Control (2003–2004) data and scientific literature (Flegal, Carroll, Ogden, & Johnsons, 2002) purport that morbid obesity is reaching epidemic proportions.

Healthcare expenditures for the morbidly obese and their associated health problems have a significant impact on an already overburdened healthcare delivery system (U.S. Department of Health and Human Services, 2001). In a study conducted by Wolf and Colditz (1998), expenses associated with morbid obesity reflected both direct and indirect costs. The indirect costs were directly associated with mortality and morbidity of the overweight and obese individual. In 2003, Finklestein, Fiebelkorn, and Wang conducted a study from two sources: the 1998 Medical Expenditure Panel Survey (MEPS) and the 1997 National Health Interview Surveys (NHIS). The data also included health insurance and demographic information. The study found that the national costs attributed to both overweight ($BMI > 25\text{kg/m}^2$) and obesity ($BMI > 30\text{kg/m}^2$) are 9.1%, and the total medical expenditures in the United States reached close to \$78.5 billion in 1998 and \$92.6 billion in 2002. A Center for Disease Control (2002) report estimated the economic cost of morbid obesity and resulting co-morbidities in 2000 to be approaching \$117 billion, contributing significantly to the escalating costs associated with chronic disease management. As a primary health concern, morbid obesity contributes to the leading causes of death and disability in American adults from co-morbidities, including certain types of cancer, type 2 diabetes, hypertension, stroke, heart disease, arthritis, sleep

disorders, breathing problems, and psychological disorders such as depression (Arbaje, 2006; Deitel, 2003).

The World Health Organization (2002) submitted the following statement on obesity: “Overweight and obesity are important deterrents to health, and each year obesity is killing about 320,000 men and women in 20 countries. Obesity is in the list of top ten health risks, globally and regionally, in terms of the burden of disease they cause” (Reports Introduction, Overview, p. 9).

Mokdad et al. (2003) addressed the rising concerns regarding obesity and its most common co-morbid condition, diabetes. The study was a random telephone survey of 195,005 adults 18 years of age or older, randomly selected from across all states to determine the prevalence of obesity ($\text{BMI} > 30\text{kg/m}^2$) in 2000. The cross-sectional study was conducted by the Centers for Disease Control and Prevention and state health departments. The participants self-reported weight and height and diabetes. The study concluded that increases in obesity and diabetes among US adults continues in both genders, all ages, education levels, ethnicity, and smoking levels, and is strongly associated with several major risk factors. This was the largest telephone survey conducted in the U.S. and demonstrated a strong association between overweight, obesity, and several well-established risk factors for mortality and morbidity, confirming that the obesity epidemic is an urgent priority. In a 2004 editorial, Deitel reported, “The last 50 years have witnessed a rise in obesity which has become almost universal.” Hacker and Deitel (1991) conducted an early study of the three common co-morbid conditions associated with obesity: hypertension, diabetes, and heart disease. They found the prevalence of obesity and the severity of its co-morbidities accounting for increased

healthcare spending, diminished quality of life, and immeasurable cost of life lost. The association of obesity with such a high degree of morbidity necessitates an understanding of its causes.

Hacker and Deitel (1991) also examined the etiology of obesity from a biological, social, cultural, and psychological perspective. The researchers examined the relationship of participants' obesity with calorie intake, energy expenditure, genetic factors, basal metabolic rate, body mass, set-point theory, endocrine factors, personality, and psychiatric factors. Their findings included data that supported neurologic and hormonal disorders contributing to obesity and concluded that obesity is the most frequent form of malnutrition in contemporary Western society. Regardless of the exact mechanism, the disorder is complex and multi-faceted.

In 2007, the American Academy of Nursing joined 19 other leading health organizations and 9 members of Congress to sponsor "Public Health 101, Obesity in America: Trends, Federal Action, State and Local Solutions" (American Academy of Nursing, 2007). In response to the mounting evidence surrounding obesity and consistent with the role of AAN to anticipate and track national and international trends in health about care, the Academy serves the public and nursing by disseminating knowledge about obesity and works to eliminate the health disparities associated with the problem.

Nies, Buffington, Cowan, and Hepworth (1998) conducted nursing research to examine the effects of race and obesity on health-promoting behaviors in women. Building upon previous research and findings obtained from the National Health and Nutrition Examination Survey (NHANES) and co-morbidity research conducted by Pender, Walker, Sechrist, and Frank-Stromborg (1990) and Pi-Sunyer (1993), the

researchers conducted a 2 x 2 comparative descriptive study with two obesity size levels (obese and non-obese) and two race categories, evenly dividing the participant numbers ($N = 86$) between the cells. Analysis indicated that all variables were approximately normally distributed. The results found obesity to be a mediating variable between race and health-promoting behaviors and indicated that health promotion counseling interventions regarding nutrition, exercise, self-actualization, health responsibility, interpersonal support, and stress management are valuable for all obese women. The stress-management subscale showed obesity affecting stress management significantly only for the African-American group and not the Euro-Americans. Alcohol use was not examined specifically as a coping or comfort strategy for stressful situations, though the obese women of both races demonstrated fewer health-promoting behaviors than non-obese women, except among Euro-American women regarding stress management.

There are a wide range of studies found in the literature examining the concept of obesity and its co-morbidities, psychological influences, and social consequences. Literature was not identified addressing alcohol consumption and the phenomena of obesity.

Gastric Bypass Surgery and Psychosocial Concerns

Bariatric surgery is the encompassing term for all surgical treatments for morbid obesity. Gastric bypass surgery (GBS) represents a group of similar operations used to treat morbid obesity, which is the severe accumulation of excess weight as fatty tissue and the health problems it causes. Buchwald and Williams (2004) reported that bariatric surgery is expanding to meet the global epidemic of morbid obesity. Specific geographic trends in treatment options are evident, with operative procedures advancing and GBS

becoming a routine surgical procedure in the United States for effective long-term treatment of morbid obesity. There is evidence that GBS is successful from a medical perspective for most patients (Maggard et al., 2005; National Institutes of Health, 1992).

The scientific quest to understand the etiology of obesity and determine the best treatment has led to the recommendation of surgical interventions for this condition. Treatment of obesity and morbid obesity has taken a variety of forms, but surgical intervention is considered the most effective for long-term weight loss (Dymek et al, 2001). For example, the National Institutes of Health, Consensus Development Conference Draft Statement (Buchwald, 2005) supported surgical intervention, stating that treatment modalities such as behavior modification, restrictive diet regimes, and pharmacological strategies, alone and in combination, may allow temporary weight loss but often lead to disappointing long-term results. Dymek et al. (2001) advocated surgical intervention for the morbidly obese, because the research found that severe obesity is an incurable disease with significant consequences and cost to society.

The medical and psychological issues of obesity, morbid obesity, and surgical treatment outcomes have become topics of increasing importance for researchers (Buchwald & Williams, 2004; Fisher & Schauer, 2002). Gastric Bypass surgery has emotional as well as physiological impact on the individual. The dramatic personal, physical, and emotional changes that result require the individual to develop new alternative coping skills when faced with stress. Emotional issues including depression and anxiety negatively impact the quality of life post surgery. There has been documentation associating psychiatric disorders and obesity, but there are no predictive

models for surgical outcomes in the literature regarding post-surgery psychiatric outcomes.

In a review of the empirical literature on consequences and outcomes of gastric bypass surgery, a number of researchers found significant changes on psychosocial variables. These include psychological distress variables such as anxiety (Bull & Legorreta, 1991; Hafner, Rogers & Watts, 1990) and depression (Averbukh, Heshka, & El-Shoreya, 2003; Dymek et al., 2001). Other psychosocial variables examined have been psychiatric diagnoses (Powers, Rosemurgy, & Boyd, 1997), overall and health-related quality of life (Boan, Kolotkin, Westman, McMahon, & Grant, 2004; de Zwaan et al., 2002; Dymek et al., 2001; Sabbioni et al., 2002), self-esteem (Dymek et al., 2001), and coping and social support (Delin, & Watts, 1995; Sabbioni et al., 2002). Eating-related behaviors (Powers, Perez, Boyd, & Rosemurgy, 1999) and body image (Chandarana, Holliday, Conlon & Deslippe, 1987) have provided information about pre- and post-obesity experiences and behaviors.

The link between obesity, anxiety, and depression has been studied by a number of researchers, including Onyike, Crum, Lee, Lyketsos, and Eaton (2003), who found a higher level of pre-operative depression in women than men and a higher level of pre-operative depression in the most obese patients. The study variables were limited to examining depression one month prior to and one month after surgery. The study provided information about the recent emotional state of the participants but did not address long-term post-surgery emotion or consider coping and alcohol use.

The research findings of Mampleku, Komesidou, Bissias, Papkonstantinou, and Melissas (2005) were similar to those of Onyike et al.. (2003), though their measurement

milestone was two years post surgery. This study also found that obese patients displayed anxiety and oversensitivity in interpersonal relationships, both before and after surgery. In both studies, the researchers provided information that further identified the factors relating to obesity, related anxiety, and depression, and promoted the need for pre- and post-surgery evaluation, follow-up, and further study.

Guisado, Vaz, and Alarcon, (2002) conducted an 18-month post-surgery evaluation of psychopathological status and interpersonal functioning of 100 gastric bypass surgery (GBS) patients. This study provided helpful information regarding the general psychological status and level of personal functioning of post-operative patients, as well as information regarding self-reported quality of life following surgery. The researchers reported that a significant number of morbidly obese patients who undergo bariatric surgery suffer from psychiatric disorders, including depression, binge-eating, and trauma, and may require treatment before and after surgery.

DiGregorio and Moorehead (1994) conducted one of the earliest studies that examined the psychological concerns of patients who had undergone bariatric surgery. The study took place between 1986 and 1994 and involved 401 patients. The researchers addressed a number of concerns later reported by Guisado et al. (2002) regarding psychiatric disorders. DiGregorio and Moorehead (1994) reported that the psychological histories of morbidly obese individuals is valuable data to obtain, and they contributed to the finding that patients suffered negative psychological well-being during the major weight-reduction period of 12 to 18 months following the surgical procedure. This information is helpful, but it contradicts research conducted by Kopec-Schrader, Gertler, Ramsey-Stewart, and Beumont (1994), who did not find significant psychopathology

during the acute phase of post-operative recovery in the gastric bypass patients they studied. These inconsistencies support the need for continuing and further research on the mental health of the gastric bypass patient post surgery. These empirical studies do not explore or examine alcohol use as it may relate to the mental health of these patients after surgery, and a measure of coping was not included in the study measures.

The predominant psychosocial constructs/variables emerging from the literature and impacting emotional outcomes for gastric bypass patients include anxiety, depression, improved quality of life, and binge eating (Ogden, Clementi, & Aylwin, 2006; McGuire, Jeffrey, & French, 2002; Stice, Akutagawa, Gaggar & Agras, 2000). Greenberg, Perna, Kaplan, and Sullivan (2005) conducted a literature review, searching for articles related to weight-loss surgery, behavior changes, and mental health. Pertinent abstracts and literature were reviewed to achieve the objective of providing evidence-based guidelines on the psychological and behavioral screening of bariatric patients. A total of 198 research and scholarly articles were identified between 1980 and 2004, and 17 research papers were analyzed in detail. The results yielded a high incidence of depression, negative body image, eating disorders, and low quality of life in severely obese patients, but empirical research examining the stress/coping or alcohol use of gastric bypass patients was missing from the analysis.

Dymek et al. (2001), in a study of 32 morbidly obese patients, found decreased levels of depression 6 months after surgery and also improved quality of life. The researchers reported improvement in depression symptoms at the one-month follow-up visit to the surgeon. In addition, the patients reported improved general health, vitality, and mental health, with additional improvements at 6 months. The findings showed

significant improvement in the subscales of physical functioning, social functioning, and bodily pain.

In a subsequent study, Bocchieri et al. (2002) examined depression and other psychosocial variables in relationship to weight loss as reflected in BMI scores, with similar results to those of Dymek et al. (2001) and a more recent dissertation study conducted by Petrone (2006). In the research of Bocchieri et al. (2002), depression, anxiety, and quality-of-life changes were examined in 30 patients undergoing gastric bypass. Patients were evaluated pre-operatively and post-operatively at 2-, 4-, and 6-month follow-up appointments. The goal of the study was to provide research that determined the presence of any significant changes pre- or post-operatively in the mental health status of patients as the basis for supporting improved mental health treatment. The quantitative study method generated descriptive information using archival data from three measures for depression, anxiety, and quality of life (QOL). The study concluded that a reduction of depression symptoms from the pre-surgery evaluation to the 6-month evaluation was significant. The study supported the pre-surgery existence of depression in the morbidly obese and found a linear reduction of the symptoms throughout the initial recovery period. The secondary finding of anxiety symptoms is consistent with other research (Bocchieri et al., 2002), where fewer numbers of patients reported anxiety when compared to reported depression symptoms. Among patients who reported anxiety symptoms, the rate at which the anxiety diminished was slower than the rate of diminished depression. Finally the quality of life measure indicated improved QOL by the 6-month follow-up appointment, supporting the notion that mental health symptoms for bariatric patients before surgery improve by the 6-month post-recovery stage.

Kalarchian et al. (2007) found that gastric bypass patients suffer from mood disorders, major depression, binge eating disorder, anxiety disorders, and personality disorders at a percentage rate higher than that of the general population. Dixon et al. (2003) reported that a subset of the gastric bypass patient population experienced depression post-operatively. Depression and its relationship to alcohol use in the gastric bypass patient were not considered in these studies, and the findings associated with depression among gastric bypass patients are inconsistent in the literature.

The literature revealed an interest by researchers in determining the quality of life for pre- and post-GBS patients. Some studies determining factors of quality of life included the patient's psychological status, specifically the presentation of symptoms on the Axis I mental health disorders of depression and anxiety. Examining emotional status and reported quality of life have been used as markers of successful surgery experiences. Some studies focused on pre-surgery evaluation with short-term follow-up, while others assessed pre-surgery evaluation compared to more long-term results. Quality of life for morbidly obese individuals is poor and is associated with interpersonal relationships. Dymek et al. (2001) found an overall improvement in general health and mental health 6 months after gastric bypass surgery.

de Zwaan et al. (2002) conducted a study comparing differences in quality of life between pre-op and post-op control groups. They found that quality of life was significantly greater in the post-op group except in the subscale for mental health. Hager (2007) found that a marked overall improvement in quality of life occurred in the gastric bypass population. The relationship and use of alcohol to quality of life before and after surgery was not considered in these QOL studies.

In 2006, Ogden, Clementi and Aylwin conducted a qualitative study to explore the gastric bypass patient surgery experience. In-depth interviews were conducted with 15 men and women who had surgery in the prior four years. Broad psychological themes emerged, including self-esteem and eating behavior. The concept of “control” permeated the interviews as the study’s central theme; however, alcohol use and its relationship to the broad or central themes were not considered.

Bariatric surgery centers are increasing their focus on the psychological profiles of their patients and beginning to compare their pre-surgery and post-surgery mental health status (Fox, Taylor & Jones, 2000; Puzziferri, 2005). The administration of mental health evaluations to determine each patient’s preparedness for surgery and to support post-operative success has become standard practice. To date, there is no common or standardized protocol for mental health evaluations for bariatric patients (Sogg & Mori, 2004). Nurses, psychologists, counselors, and other health professionals will gain important information from this study that will inform future research to enable them to provide better services to this patient population.

Alcohol Use

The impetus supporting further psychological research evolved from the July 18, 2006, *Wall Street Journal* article (Spencer, 2006) that reported a new and unusual occurrence being reported by bariatric centers across the country. Psychologists were beginning to counsel patients regarding descriptions of these new compulsive behaviors post surgery. Spencer reported that researchers and practitioners are observing an unexpected phenomenon in which some patients, following bariatric surgery, engage in compulsive behaviors, including alcohol, gambling, and shopping.

In response to patient reports of alcohol-related problems in her gastric bypass patients, Buffington (2006) conducted a website survey of gastric bypass patients to identify post-surgery changes in alcohol use and effects. The total number of patients surveyed was not reported; however, 90% of the respondents cited alcohol-related problems. In a second survey (Buffington, 2007), a total of 318 patients (20 males and 298 females) responded from 100 medical practices in the United States, Northern Europe, and Israel. This sample is consistent with the data reporting that females constitute the higher percentage of individuals who undergo bariatric surgery. The majority of survey respondents (84%) were one or more years post GBS, and close to half (40.4%) were between the ages of 36 and 50. Most of the respondents (90%) claimed they were “more sensitive” to alcohol, and 83% reported they were “occasional” or “regular” drinkers. A small number (17%) reported never using alcohol, with 80% of the non-users of alcohol indicating they were 6 months or less post GBS. Pre- and post-surgery alcohol use was not reported in this survey, but it is an important consideration in determining if alcohol use after GBS is a new comfort measure, coping strategy, and/or addiction. Buffington (2007) purports that alcohol use by gastric bypass patients has a more negative impact than previously thought or recognized. She identifies three areas of concern that require further investigation: alcohol absorption/sensitivity, toxicity consequences, and potential addiction.

An emerging concern is that gastric bypass patients may develop transfer addiction. This concern is largely reflected in anecdotal data, but there appears to be a post-surgery population of gastric bypass patients who develop compulsive and addictive behaviors.

DiGregorio and Moorehead (1994) reported that 401 patients were interviewed between 1986 and 1994 and comprised the sample for a clinical report. The data from the 401 interviews yielded anecdotal and clinical impressions of psychological co-morbidities included early onset for depression, anxiety, phobias and various addictions. Moorehead, at the ASMBS conference in 2006, cited preliminary data that suggest roughly 30% of bariatric surgery patients struggle with addictions after surgery, and she urged further study (Addiction Transfer, 2006). Some bariatric physicians dismiss the observation as coincidence; among the 140,000 surgeries performed annually, no evidence has emerged to support the suggested findings that a relationship exists between bariatric surgery and alcohol use.

In response to Spencer's (2006) *Wall Street Journal* article, the lay literature and commercial media and literature have highlighted the potential effects of alcohol use on bariatric surgery outcomes. Healthcare clinicians and researchers have anecdotal evidence, case study examples, and preliminary survey findings that suggest adverse health effects on gastric bypass patients due to alcohol use.

Conceptual Framework

The conceptual framework of this study is guided by the theoretical perspective of coping. Coping is defined as the cognitive and behavioral strategies used to master conditions of harm, threat, or challenge when a normal or routine response is not available. Classic research conducted on ways of coping (Folkman & Lazarus, 1985) described two types of coping. The first, termed *problem-focused*, aims at problem solving or doing something to alter or change the source of the stress. The second, termed *emotional coping*, aims at reducing or managing the discomfort or distress that was

associated with the stressful situation or circumstance. Cronkite and Moos (1984) examined the relationship between stress and illness and the moderating factors used to cope. Hull (1981) studied a self-awareness model of causes and consequences of alcohol consumption. In addition, research has been conducted on the outcomes, including coping, on heart surgery and back-surgery patients. A paucity of literature examines the coping strategies of gastric bypass patients, despite the fact that these patients experience incredible physical and psychological transformation from being morbidly obese to becoming normal-weight individuals.

Saunders (1999) reported that binge-eating behaviors persisted after gastric bypass surgery, and a disordered eating among bariatric surgery patients suggested that the problems associated with disordered eating before surgery remain after surgery for some patients. A sample of 198 post-gastric-bypass patients participated in the study by completing online, Internet surveys containing measures of emotional eating, binge eating, perceived stress, and problem-solving ability. The results revealed that higher levels of perceived stress predicted greater emotional eating and binge eating for both pre-operative and post-operative patients. These findings suggest that relationships between perceived stress and emotional and binge eating exist, regardless of pre-operative or post-operative status. This study did not explore perceived stress and problem-solving or coping with alcohol use, but it did explore coping concepts in relationship to binge eating after surgery.

Another study (de Zwaan et al., 2003) was conducted using self-reported data with a sample of 110 morbidly obese pre-surgical patients. Several mental health measures, general psychopathological instruments, and a health-related quality-of-life

(QOL) measure were used. Patients with binge-eating disorder (BED) had higher scores than non-BED patients when measuring eating behavior. The two groups differed significantly on the disease-specific QOL tool. No differences were found in the measures for depressive symptom and impaired self-esteem. The empirical literature pertaining to psychological variables in gastric bypass patients is small and, combined with inconsistent findings regarding depression, anxiety, and self-esteem, makes further study necessary.

Summary

In summary, the literature identifies negative physical and psychological consequences associated with obesity, morbid obesity, and its escalating occurrence nationally and internationally. Empirical evidence supports surgical intervention and treatment, and there is scientific evidence confirming significant and long-term weight-loss and physical benefits of GBS.

Research suggests that for most gastric bypass patients, the psychological and psychosocial outcomes are positive. The question about negative outcomes and alcohol use is currently unanswered. It is important to be able to predict, prior to surgery, which patients may have difficulty with the lifestyle changes that accompany bariatric surgery and which patients will need help in developing new coping skills for the many changes that will occur after surgery. Further study is needed regarding the management of post-bariatric patients to achieve and sustain weight loss and to consider risk for abusing alcohol or substituting alcohol as a coping mechanism.

This study is designed to scientifically establish whether alcohol-use behavior after gastric bypass surgery is a prevalent problem. The study also intends to determine

and clarify the relationship between gastric bypass surgery and alcohol use over post-surgery time intervals. Finally, the study will quantify the role alcohol plays in gastric bypass patients' emotional coping after surgery. Knowledge gained from this study will support care for gastric bypass surgery patients and serve as a basis for pre- and post-surgery evaluation for use of alcohol and other compulsive behaviors. The findings will contribute to the sciences of nursing research and obesity research and to the weight-management literature. It will provide information for nurses and other healthcare providers to include in patient education and a plan of care for gastric bypass patients.

CHAPTER THREE

Methodology

The purpose of this study was to examine the prevalence of increased alcohol consumption among a group of gastric bypass patients and to identify the relationship of the alcohol use with time since surgery, psychosocial issues (depressive symptomatology, anxiety, coping), and demographic variables (age, gender, marital status, etc.). A literature review revealed strong media, lay literature, and anecdotal evidence of a relationship between increased alcohol use and the post-gastric bypass patient; however, observations reported in the media and lay literature are not supported in the scientific literature. This chapter presents the methodology that was used in the study and includes the research design and data collection procedures: sample and setting, power computation, measurement, and statistical analysis. Limitations and ethical considerations, including the protection of human subjects, are also described.

Design

A descriptive, cross-sectional design was used in this study. A descriptive study is conducted in a natural setting without attempting to modify, control, or introduce something new to the environment (Kerlinger & Lee, 2000). Descriptive designs are employed when the researcher intends to obtain information in areas in which little previous investigation has occurred (Kerlinger & Lee, 2000). This design is also valuable for providing descriptive information about prevalence and can be used for examining

associations between variables. The data were gathered using both standardized and non-standardized scales of instruments. This quantitative approach is a traditional, highly systematic mode of research that supports the intent of this study, to generalize from a specific sample to a larger population. A single open-ended narrative question was included to collect qualitative data to add richness to the quantitative findings through the personal experience and story of the gastric bypass surgery (GBS) patient. The qualitative findings can guide future study of the GBS patient and alcohol use.

This study is designed to explore the following research questions:

1. What is the incidence/prevalence of increased alcohol consumption post GBS?
2. What is the relationship between mood states (depressive symptomatology, anxiety), coping, alcohol use, length of time since surgery, age, gender, race/ethnicity, education, occupation, marital status, religion post GBS?
3. Is there a difference in mood states (depressive symptomatology, anxiety), coping, alcohol use, length of time since surgery, between men and women?
4. Is there a difference in mood states (depressive symptomatology, anxiety), coping, alcohol use, age, gender, race/ethnicity, education, occupation, marital status, religion by length of time since surgery?
5. To what extent do anxiety, depressive symptomatology, coping, length of time since surgery, predict alcohol use while controlling for age, gender, race/ethnicity, education, occupation, marital status, religion among GBS patients?

6. What are the experiences of alcohol use, as described through patient narratives?

Sample and Sampling

A purposive sample of GBS patients was recruited from a surgical group in San Diego, California, where a total of 10,867 bariatric surgeries were performed from January 1993 through July 2008. All 10,867 bariatric surgeries met the established criteria of morbid obesity: (a) BMI $35 > \text{kg/m}^2$ and (b) at least one co-morbid condition. Two thousand patients from the total patient population of 10,867 underwent gastric banding and/or gastric bypass revision surgery or were under the age of 18 and were not eligible to participate in this study. A total of 8,867 met the inclusion criteria, and 2,450 were randomly selected from this number to be recruited in to the study.

Minimum sample size requirements were determined by power and effect size. Power reflects the probability that the statistical test will result in rejecting the null hypothesis (Munro, 2005). Cohen (1988) recommends a power of 0.80 for Behavioral Sciences research, which generally utilizes a moderate effect size, and Munro (2005) suggests that the effect size should be based upon previous studies if possible. Fink (1995) recommends, when conducting simple survey sampling, aiming for a 95% confidence interval ($\alpha = 0.05$) in the use of descriptive tables derived from sampling theory formulas.

$$N = \frac{[L] + k + 1}{[f]}$$

where N = estimated number of cases needed (185)
 L = tabled value for a specified α and power (24)
 k = number of predictor variables (23, +1)
 f = estimated effect size (.13)

Selecting a power of 0.80, an alpha of 0.05, moderate effect size of 0.13, and approximately 20 variables in the regression analysis, a total sample of 185 study participants was needed to provide sufficient power for the study (Cohen, 1988).

Data Collection Procedures

Approvals were obtained from the Pacific Bariatric Surgical Medical Group (PBSMG) and the University of San Diego's Institutional Review Board; see Appendices A and B. Data were collected through a direct mailing to patients from PBSMG. The surgical group is the oldest general surgical agency in San Diego, California, has specialized in bariatric gastric bypass surgery since 1993, and is designated by the American Society for Metabolic and Bariatric Surgery (ASMBS) as a Center for Excellence. PBSMG surgeons have performed 10,867 gold-standard Roux-en-Y gastric bypass surgeries (GBSs), including laparoscopic procedures, gastric banding procedures, and revisions. PBSMG employees and consultants include surgeons, medical assistants, nurses, support group coordinators/leaders, health educators, nutritionists, mental health professionals, internal medicine specialists, and volunteers, all working together to provide a comprehensive program of pre-operative assessment, evaluation and education, and post-operative and lifetime aftercare.

For this study, the survey was conducted under the cover of the Pacific Bariatric Surgical Medical Group letterhead. PBSMG employees were instructed regarding the

patient-packet mailing procedure. The instruction followed the same procedure currently in place for PBSMG postal communication with patients. This researcher worked with the PBSMG Office Manager and Data Collection Officer, who created the patient participant list using the researcher's established sample-inclusion criteria. Each patient/respondent's package was prepared by the researcher and included (a) a participant introduction-and-instruction letter, (b) a survey consisting of four measures and instructions for completing the questionnaire, (c) a list of resources and PBSMG contact information, and (d) a prepaid-postage return envelope (Appendix C). All patient identifiers were excluded, and patient mailing information was limited to PBSMG employees preparing and conducting the mailing. Personal information remained confidential with PBSMG and undisclosed to the researcher or others. The introduction/instruction letter defined participant informed consent. Informed consent was further confirmed by the participant's agreement to complete and return the survey standardized and non-standardized instruments. Participants signed and returned a consent form and also retained a personal copy.

Instrumentation

A questionnaire containing four sections (an investigator developed demographic and personal data section) and three standardized measures (The AUDIT, The Profile of Mood States [POMS] and The Jalowiec Coping Scale [JCS]) was utilized in this study to collect information on the dependent variable alcohol use and independent variables of emotional issues (anxiety, depression), coping, and personal characteristics, including age, ethnicity, gender, marital status, education, occupation, BMI, and length of time since surgery. Informed consent was defined and described in the introduction-and-

instruction letter, and obtained by participants' returning one of the two informed consent forms provided. Participants further understood and acknowledged consent by completing and returning the study measures.

Alcohol Use is defined in the United States by the measurement of a standard drink. A standard drink is determined by serving size and equivalent grams of alcohol. The alcohol content of a drink depends on the strength of the beverage and volume of the container. For the purpose of this study, a standard drink was defined as 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of alcohol. The Alcohol Use Disorders Identification Test, or AUDIT (Saunders, Aasland, Babor, de la Fuente, & Grant, 1993), was used to collect alcohol-use data.

The AUDIT (Appendix D) is a 10-item screening instrument developed by the World Health Organization (WHO) in the mid-1980s. It detects risky drinking, including quantity and frequency, and includes three subscales: (a) dependence symptoms, (b) problems caused by alcohol use, and (c) hazardous alcohol use or consumption. The AUDIT differs from other self-report tests in that the psychometric data were collected from large multinational samples and emphasize hazardous drinking. Reliability studies indicate that there is high internal consistency, suggesting that the AUDIT is measuring a single construct in a reliable fashion; it is relatively free of age, cultural, and gender bias, although the evidence with females is limited; and it is easy to score, with a set of responses ranging from 0 to 4; and advantages to administering the AUDIT as a questionnaire rather than an interview are reflected in time savings, cost savings, and the potential for more accurate patient answers. The total score is obtained by adding all the

numbers in the column. The scoring key provides a guideline for both scoring and patient intervention.

Mood States are defined as the state or quality of feeling at a particular time or the prevailing, fluctuating affective emotional tone and were measured with the use of the Profile of Mood States-Brief (POMS-Brief) (McNair, Lorr, & Droppleman, 2003); see Appendix E.

The POMS-Brief is based upon the original POMS (McNair, Lorr, & Droppleman, 1971), which was designed to measure the effects of psychotropic drugs and various therapeutic approaches on mood states and changes in adults and psychiatric outpatients. The POMS-Brief consists of 65 adjectives describing feeling and mood, which are rated using a Likert-like five-point scale. It can be self-administered and takes no longer than five minutes to complete. McNair et al. (1971) developed the scale, further proving it to be an excellent measure of mood states on medical patients, normal adults, and college students. The assessment measures six identifiable or affective states. A study by Bohachick et al. (1992), relating to the psychosocial outcome of heart-transplant patients six months post surgery, reported internal consistency reliability for the total scale (coefficient alpha = 0.95) and internal consistencies for the six subscales: anxiety (0.85), depression (0.88), confusion (0.80), hostility (0.77), fatigue (0.90), and vigor (0.88).

The POMS-Brief also measures the six mood states, is easy to understand and self-administer, and was used in this study to measure the sub-scales of anxiety and depression in this group of gastric bypass patients who are essentially considered to be healthy, normal adults. Adult norms for the POMS-Brief were established from a group

of 400 volunteers ages 18 through 94. Normative data is based upon the respondents' series of self-reported mood states over the timeframe "during the past week, including today." Numerous studies have provided evidence for predictive and construct validity of the POMS (Cupples, 1991; Nyenhuis, Yamamoto, Luchetta, Terrien, & Parmentier, 1999).

Coping is defined as the response to a stressful experience or circumstance and was measured by the Revised Jalowiec Coping Scale (Jalowiec, Murphy, & Powers, 1984) originally developed between 1977 and 1981 and validated with hypertensive emergency room patients (Jalowiec & Powers, 1981).

The revised JCS measures the degree of use and the perceived effectiveness of 60 cognitive and behavior coping strategies, which are rated on the four-point Likert-type scale with choices of "never used," "seldom used," "sometimes used," and "often used." The items are classified into eight coping styles: confrontive, evasive, optimistic, fatalistic, emotive, palliative, supportant, and self-reliant. The revised JCS has well-documented reliability and validity and has a fifth- to sixth-grade reading level, making it easy to self-administer (Jalowiec et al., 1984). It is widely used nationally and internationally for examining the different kinds of coping, as well as the relationship of coping to quality of life and health functioning. The measure (Appendix F) was selected for the present study to obtain self-reported use and perceived effectiveness of coping after gastric bypass surgery.

In summary, the three standardized measures selected for use in this study take no more than 15 minutes each to complete, with easy-to-read instructions and items constructed at the fifth- and/or sixth-grade level. The items on all scales are judgment

free and designed for minimum respondent burden. The psychometrics of the measures demonstrate reliability and validity, and the content of each instrument solicited data from the participants that answered the research question and achieved the aims of the proposed study. The demographic section collected data on age, gender, race/ethnicity, marital status, level of education, occupation, annual income, living circumstances, religious preference, state of residence, length of time since surgery, and pre- and post-surgery BMI height and weight.

Finally, a single open-ended question was included at the end of the survey questionnaire, asking respondents to write a short paragraph about their personal experience associated with gastric bypass surgery and the use of alcohol. The narrative information also remained anonymous and was used anecdotally.

Data Analysis

The Statistical Package for the Social Sciences (SPSS), version 15, was used for statistical analysis. Data were analyzed using descriptive frequencies, Pearson correlations, contingency table analysis, *t*-tests, Analysis of Variance (ANOVA), and multiple linear regression analysis.

Human Rights Protection

Approval was obtained from the Institutional Review Board of the University of San Diego. Pacific Bariatric Surgical Medical Group agreed to serve as cover for the research study and reported that patients routinely respond to PBSMG questionnaires and inquiries. Prospective subjects were asked to participate voluntarily. Participants were told in the introduction-and-instruction letter that they could choose not to participate in

the study by not completing or returning the surveys. Participants were also told that they could withdraw from the study at any time, whether or not they had completed the questionnaires, and that participation/nonparticipation had no effect on their patient status with PBSMG or the quality of their patient care.

A potential risk to the patient was increased anxiety and/or stress associated with self-disclosure about the use of alcohol. Benefits included an important contribution to the state of the science for care and successful psychological outcome of GBS patients. In addition, it was anticipated that respondents would experience a sense of altruism and fulfillment by participating in research to improve healthcare delivery and to improve the quality of the PBSMG program for their lifelong aftercare and for future patients.

The Institutional Review Board application was submitted to and approved by the IRB at the University of San Diego for this study. Pacific Bariatric Surgical Medical Group surgeons approved the study with a letter of support, and patient participation was voluntary. The Pacific Bariatric Medical Group does not utilize an independent IRB, so the previously mentioned approval was sufficient. No risks were anticipated. The patient participants were provided with contact information for the PBSMG Office Manager and researcher to answer any questions or discuss concerns about the research study, the participant package materials, or anything else participants wanted to address prior to or during their participation in the study. Written consent was obtained from all participants, and contact was made with the researcher directly on several occasions. Consent forms will be held on file and in confidence and in a locked file by the researcher through 2013.

In anticipation of a participant's expressing and disclosing distress associated with participation in this study, a list of resources was provided in the research materials

packet and contact information for PBMSG. Tables illustrate the study findings and serve as the basis for presenting the findings, conclusions, implications for nursing, and recommendations for future research.

CHAPTER FOUR

Results

The purpose of this descriptive, cross-sectional study was to examine the prevalence of increased alcohol consumption among a group of gastric bypass patients and to identify the relationship of the alcohol use with time since surgery, psychosocial issues (depressive symptomatology, anxiety, and coping), and demographic variables (e.g., age, gender, and marital status). The study results are organized in three sections: (a) the demographic characteristics of the sample, (b) psychometrics and descriptive statistics for each study instrument, and (c) findings according to each Research Question.

Characteristics of the Sample

A total of 268 post gastric bypass patients provided data for this study by completing the investigator-developed Gastric Bypass Patient Survey, including demographic data (age, gender, race/ethnicity, marital status, level of education, occupation, annual income, living circumstances, religious preference, state of residence, length of time since surgery, pre- and post-surgery BMI height and weight) and personal data (emotions, eating, other coping behaviors, and alcohol use before and after surgery).

Respondents' ages ranged from 20 to 73 years, with a mean age of 51.6 ($SD = 10.4$), and most (86.5%) were female. Table 1 summarizes, through frequency distributions, the characteristics of the sample. The respondents were predominantly

middle aged, female, Caucasian, living in California, and married, with 0 to 2 children.

Most respondents lived with their spouse and/or children. The modal religion was

Protestant, the highest level of education was college (39.4%) or high school completion

(35.2%), and the majority of respondents were employed full time and had incomes of

\$21,000 to \$75,000 (50.4%). Approximately one-third of the respondents had had their

GBS surgery more than five years ago.

Table 1

Demographic and Study-Variable Characteristics

Characteristic	No. of cases	% of total
Age in Years		
70–79	5	1.9
60–69	65	24.3
50–59	95	35.6
40–49	65	24.3
30–39	31	11.6
20–29	6	2.3
Gender		
Female	231	86.5
Male	36	13.5
Ethnicity/Race		
Caucasian	188	70.4
Hispanic Latino	37	13.9
African American	28	10.5
Middle Eastern	2	.7
Native American	2	.7
Asian	1	.4
Other	9	3.4
Highest Education Level		
Graduate-professional	60	22.7
College	104	39.4
High school	93	35.2
High school not completed	7	2.7

Characteristic	No. of cases	% of total
Marital Status		
Never married	36	13.5
Married	158	59.4
Living with partner	9	3.4
Separated	7	2.6
Divorced	42	15.8
Widowed	14	5.3
Number of Children		
0–2	231	87.3
3–5	32	11.9
6–8	2	.8
Living Circumstances		
Spouse	61	41.1
Children	122	31.1
Live alone	45	11.5
Parents	22	5.6
Other relatives	22	5.6
Friends/significant other	20	5.1
Religious Preference		
Protestant	88	33.8
Catholic	66	25.4
Mormon	7	2.7
Jewish	6	2.3
Seventh Day Adventist	4	1.5
Jehovah's Witness	3	1.2
Buddhist	2	.8
Muslim	1	.4
None	36	13.8
Other	47	18.1
Employment Status		
Employed full time	149	57.5
Retired	44	17.0
Unemployed due to disability or illness	22	8.5
Employed part time	20	7.7
Homemaker	16	6.2
Unemployed, looking for work	7	2.7
Student	1	.4

Characteristic	No. of cases	% of total
Annual Household Income		
Less than \$20,000	28	10.9
\$21,000–\$50,000	68	26.4
\$51,000–\$75,000	62	24.0
\$76,000–\$100,000	52	20.2
More than \$100,000	48	18.6
State of Residence		
California	257	92.0
Nevada	2	0.8
Texas	2	0.8
Arizona	1	0.4
Montana	1	0.4
Oregon	1	0.4
Utah	1	0.4
Time Since Surgery		
6–18 months	47	17.8
19–36 months	51	19.3
37–60 months	73	27.7
More than 5 years ago	93	35.2
Family Alcohol Use Problem		
Yes	123	46.2
No	143	53.8

Table 2 provides a summary of the continuous descriptive variables in the study. Only 53.7% of participants reported their pre-surgery BMI. However, 98% of participants reported their height in inches and weight in pounds. Heights ranged from 54 inches to 75 inches, and weights ranged from 172 pounds to 525 pounds. The high percentage of height-and-weight responses provided the data to input a BMI for the subjects. The mean BMI before surgery was 51.13 and after surgery was 33.13, resulting in a mean BMI decrease of 18.0. Current weight ranges were 110 to 369 pounds.

Table 2

Descriptive Variables

Variable	<i>N</i>	Mean	<i>SD</i>
Age at last birthday	267	51.56	10.432
Number of children	268	0.96	1.320
BMI before surgery (self-report)	144	45.86	8.248
Height (inches)	263	65.46	3.847
Weight before surgery (lbs.)	265	311.62	60.903
Weight now (lbs.)	267	202.55	47.349
BMI before surgery (computed)	260	51.13	9.09
BMI after GBS (computed)	262	33.13	7.07
Change in BMI	259	17.96	7.86

Eating Behaviors

In the Gastric Bypass Patient Survey, 85.6% of the subjects reported that before surgery they ate in response to emotional stress, with 78.9% eating sweet and starchy foods. When the subjects felt angry, frustrated, anxious, or depressed, 68.4% felt better after eating, while 14.1% reported not eating food in response to feelings of anger, frustration, anxiety or depression. Prior to GBS, 93.2% of participants reported having a problem managing the amount and type of food they ate, with 54.5% eating excessive amounts, rapidly and in a manner that was out of control. For those respondents who

reported eating excessive amounts, rapidly and in a manner out of control, 49.6% engaged in binge-eating behavior more than three times per week. The post-GBS reports indicated that the subjects rarely (36.0%) or occasionally (47.0%) feel emotionally stressed, sad, unworthy, anxious, or out of control, with only 1.5% feeling enough stress to use food for coping.

Other Compulsive/Addictive Behaviors

The researcher was also interested in examining the differences between the total number of compulsive/addictive (CA) behaviors reported pre and post GBS. Sixty percent of the population had at least one CA behavior pre-GBS, and 55% of the population had at least one CA behavior post-GBS. The correlation between the number of pre- and post-GBS CA behaviors was moderate ($r = .451$) and statistically significant ($p < .001$). A paired t -test, performed to compare the pre and post responses, revealed that the reduction in the number of CA behaviors was not statistically significant ($t [267] = 1.268, p = .206$), and the behaviors remained the same after surgery.

In addition to eating and their emotions, respondents reported difficulty with additional CA behaviors before and after GBS. Table 3 shows that 73 subjects had prior CA behaviors unrelated to eating, for a total of 126 addictions. Among these 73 subjects, the most prevalent CA behaviors were related to spending money (51 subjects) and shopping (39 subjects). Fewer respondents ($n = 61$) reported CA behaviors unrelated to eating after GBS. For those subjects with current CA behaviors, the most prevalent addictions remained spending money and shopping. Table 4 breaks down the category “Other” from Table 3. Among the nine respondents who reported “Other” CA behaviors

Table 3

Prior and Current Compulsive/Addictive Behaviors

Behavior	Prior (N = 73)			Current (N = 61)		
	<i>n</i>	% of responses	% of cases	<i>n</i>	% of responses	% of cases
Spending money	51	40.5	69.9	38	35.5	62.3
Shopping	39	31.0	53.4	22	20.6	36.1
Drugs	11	8.7	15.1	4	3.7	6.6
Sex	8	6.3	11.0	13	12.1	21.3
Gambling	5	4.0	6.8	8	7.5	13.1
Excessive exercise	3	2.4	4.1	4	3.7	6.6
Other	9	7.1	12.3	18	16.8	29.5

Note. For prior compulsive/addictive behaviors, there were 195 missing cases. For current compulsive/addictive behaviors, there were 207 missing cases.

prior to GBS, 10 CA behaviors were reported, with alcohol use (four subjects) being the most frequent. Table 4 shows twice as many people with “Other” CA behaviors currently ($n = 18$), compared to “Other” CA behaviors prior to surgery, with at least one CA behavior per person. The same proportion of respondents were addicted to alcohol both pre and post GBS.

Table 4

Other Prior and Current Compulsive/Addictive Behaviors

Behavior	Prior (N = 9)			Current (N = 18)		
	<i>n</i>	% of responses	% of cases	<i>n</i>	% of responses	% of cases
Alcohol	4	40.0	44.4	8	40.0	44.4
Smoking	1	10.0	11.1	3	15.0	16.7
Work	0	0.0	0.0	2	10.0	11.1
Eating	0	0.0	0.0	1	5.0	5.6
Prescription medications	1	10.0	11.1	1	5.0	5.6
Cleaning	0	0.0	0.0	1	5.0	5.6
Online shopping	1	10.0	11.1	1	5.0	5.6
Cutting	1	10.0	11.1	0	0.0	0.0
Obsessive-compulsive disorder (OCD)	1	10.0	11.1	0	0.0	0.0
Nail biting	1	10.0	11.1	1	5.0	5.6
Sweets	0	0.0	0.0	1	5.0	5.6
Avoidance	0	0.0	0.0	1	5.0	5.6

Note. For other prior compulsive/addictive behaviors, there were 259 missing cases. For other current compulsive/addictive behaviors, there were 250 missing cases.

Psychometric and Descriptive Statistics for Each Study Instrument

The self-administered survey contained three standardized measures, including the Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993), the Jalowiec Coping Scale-Revised (Jalowiec et al., 1984), and the Profile of Mood States-Brief (POMS-Brief; McNair et al., 2003). Cronbach's alpha is a coefficient of reliability (or internal consistency) and the average intercorrelation among the items, which is a measure of internal consistency of the instrument (Nunnally & Bernstein, 1994). Reliability coefficients were computed for each of the three standardized instruments and study sample. The computed coefficients (AUDIT .952, JCS Use .934, JCS Effectiveness .951, and POMS .961) were compared with published reliabilities (AUDIT .951, JCS Use .932, JCS Effectiveness .949, and POMS .961) and descriptive statistics.

The Alcohol Use Disorders Identification Test, or AUDIT (Saunders et al., 1993), is a 10-item screening instrument that is relatively free of gender, age, and culture-bias. It was developed by the World Health Organization (WHO) to detect risky drinking, including quantity and frequency, and it includes three subscales: (a) hazardous alcohol use or consumption, (b) dependence symptoms, and (c) problems caused by alcohol use. The AUDIT was embedded in the Gastric Bypass Patient Survey and measured the respondent's current use of alcohol. Also included in the Gastric Bypass Patient Survey were the three questions about hazardous alcohol use prior to GBS. Thus four scale scores were computed for this study (pre-hazard, hazard, dependency, and current problems). Only a low percentage of respondents (9% to 14%) were classified as having high scores on any of the scales according to AUDIT scoring guidelines.

The Profile of Mood States (POMS-Brief) (McNair et al., 2003) was used to assess the respondents' depression and anxiety. The instrument was originally designed to measure the effects of psychotropic drugs and various therapeutic approaches on mood states in adults and psychiatric outpatients (McNair et al., 1971). McNair et al. (2003) developed the instrument further by using it with other populations, including medical patients, normal adults, and college students. The assessment measured six identifiable or affective states, including tension (anxiety), depression, anger, vigor, fatigue, and confusion.

The current study reliabilities are consistent with the previously published results of McNair et al. (1971). The overall alpha score was .961 in both the published and the current study.

Standardized T scores for anxiety ($M = 43.33$, $SD = 8.86$) and depression ($M = 48.18$, $SD = 11.40$) were also calculated according to POMS-Brief norm tables (raw score is $M/SD(10) = T$), indicating that depression was somewhat higher than anxiety. Fifteen percent of the sample had mean scores exceeding 50 for anxiety, while 39% of the sample had T scores exceeding 50 for depression.

The Jalowiec Coping Scale-Revised (Jalowiec et al., 1984) was used to measure coping styles and perceived effectiveness. The 4-point Likert scale assessed eight self-reported coping mechanisms. For this study, the measure obtained self-reported use and perceived effectiveness of coping after GBS. Cronbach's alpha scores are consistent with published standardized coefficients, with the overall scale score Cronbach's alpha = .934 and coping effectiveness score = .951. In this sample, respondents used the confrontive coping style most often, with a mean of 2.12 ($SD = .60$) and used the

fatalistic coping style least often, with a mean of 1.14 ($SD = .65$). Confrontive was the most effective coping style, with a mean of 1.95 ($SD = .60$); emotive was the least effective style, with a mean of .72 ($SD = .64$).

Findings by Research Question

Descriptive and inferential statistics were applied to examine the relationships between the independent and the dependent variable to answer the following research questions:

1. What is the incidence/prevalence of increased alcohol consumption post GBS?
2. What is the relationship between mood states (depression, anxiety), coping, alcohol use, length of time since surgery, age, gender, race/ethnicity, marital status, level of education, occupation, annual income, living circumstances, religious preference after GBS?
3. Is there a difference in the mood states (depression, anxiety), coping, alcohol use, length of time since surgery, between men and women?
4. Is there a difference in mood states (depression, anxiety), coping, alcohol use, age, gender, race/ethnicity, marital status, level of education, occupation, annual income, living circumstances, religious preference, state of residence, and pre- and post-surgery BMI height and weight, by length of time since surgery?
5. To what extent do the variables of anxiety, depressive symptomatology, coping, length of time since surgery, predict alcohol use while controlling for

age, gender, race/ethnicity, education, occupation, marital status, religion among GBS patients?

6. What are the experiences of alcohol use, as described through patient narratives?

Aim 1. Characterize alcohol use in a cohort of gastric bypass patients.

- RQ1. What is the incidence/prevalence of increased alcohol consumption among GBS patients?

AUDIT results were displayed in Table 5, and although pre- and post-GBS hazard results were similar, a 2% decrease was seen after surgery. In order to create a composite dependent variable representing current alcohol use, the classification into high risk was coded as 1, whereas “normal” was coded as 0, and the codes were added together for each subject, with a possible range of 0 to 3. Most of the subjects (84.7%) had no AUDIT subscales classified as high; 6% had a score of 1, 2.6% had a score of 2, and 6.7% had a score of 3 high classifications. There was a statistically significant moderate correlation ($r = .51, p < .05$) between pre- and post-GBS hazard scores.

Data were also collected on the following items, with the following findings: 46.2% of the participants have parents or siblings with alcohol management problems. The study participants reported that prior to surgery, 46.6% drank monthly or less frequently, and 29.5% reported that they never drank alcohol. Regarding current drinking among study participants, 11% reported drinking more alcohol after GBS than prior to surgery, 15.6% reported consuming about the same amount of alcohol as before, and 45% reported that after GBS they do not drink alcohol. Of the 183 individuals who reported the number of alcohol drinks consumed in a typical day when drinking, 70.5% reported

Table 5

Pre-AUDIT and AUDIT Results

Drinking Behavior Score	<i>N</i>	Mean	<i>SD</i>	% scoring high
Pre hazard (drinking hazardous amounts before GBS)	265	1.75	2.08	14
Hazard (drinking hazardous amounts now)	265	1.42	2.25	12
Dependency (psychological or physical dependence on alcohol)	258	0.97	2.87	9
Current problem (significant problem with alcohol)	262	0.96	2.66	10

drinking 1–2 drinks. When asked if they ever consumed 6 or more drinks on one occasion, 258 individuals responded. Among them, 77.9% reported that they never do, whereas 15.1% reported that they engage in that drinking behavior less often than monthly.

Aim 2: Examine the relationship between anxiety, depressive symptomatology, coping, alcohol use, and demographic variables in gastric bypass surgery patients.

RQ2. What is the relationship between mood states (depression, anxiety), coping, alcohol use, length of time since surgery, age, gender, race ethnicity, education, occupation, marital status, religion after GBS?

A correlation matrix was computed to examine the relationship of coping use and coping effectiveness in eight subscales, mood states (anxiety and depression), demographic variables of continuous measurement level (age, education, and time since GBS), and alcohol use. The correlations between AUDIT scales with mood states and coping styles ranged from $r = -.18$ ($p = .005$), with effectiveness of optimistic coping, to $r = +0.25$ ($p < .001$), with use of emotive coping. Correlations between AUDIT scales and age were $r = -0.19$ ($p = .02$) to $+0.23$ ($p < .001$), whereas correlations between AUDIT scales and education and time since GBS were low and not significant ($p > .05$), with the exception of Hazardous Drinking and Time Since GBS ($r = .13$, $p = .029$).

In summary, the nearly universally low, although often statistically significant, correlations between AUDIT, mood states, coping, and selected demographics suggest that alcohol use is largely unrelated to the variables of interest. However, scatterplots that were examined suggest a nonlinear relationship between AUDIT scores and other study variables, requiring a more complex study design for future research.

RQ3. Is there a difference in mood states (depression, anxiety), coping, alcohol use, and age between men and women?

Table 6 presents mean and standard deviation of mood states, coping, alcohol use, hazardous drinking scores, and age variables by gender. An independent t -test conducted on the study variables by gender demonstrated significant differences between men and women on age, mood states, and some coping styles. Males were an average of four years older than women in the study ($t[264] = 2.07$, $p = .04$). Females scored significantly higher than males on tension ($t[54.60] = -3.02$, $p = .004$) and depression ($t[51.43] = -3.55$,

$p = .001$), but the groups did not meet the assumption of equal variance on these two scales, accounting for the modified computation of degrees of freedom.

Multivariate one-way analysis of variance (MANOVA) with Hotelling's T^2 statistic was used to examine significant differences between males and females on coping styles used, and again on effectiveness of coping styles. In both cases, neither the assumption of equality of covariance matrices (Box's M test) nor the equal error variance (Levene's test) were violated. The multivariate results for these two tests were $F(8.246) = 7.06$ ($p < .001$) and $F(8.229) = 2.90$ ($p = .004$), respectively, allowing for examination of the individual ANOVAs for each scale. Significant differences were found only by gender. Females used the evasive, optimistic, fatalistic, emotive, and palliative styles significantly more than did males, as shown in Table 6. Males used the supportant style significantly more than did females. Females, however, found the supportant style significantly more effective than did males.

RQ4. Is there a difference in mood states (depression, anxiety), coping, alcohol use, age, gender, race/ethnicity, education, occupation, marital status, and religion, by length of time since surgery?

ANOVA was performed to test the differences between various amounts of time since surgery (Table 7) and the variables of tension, depression, overall coping use and effectiveness, drinking hazardous amounts before and after surgery, alcohol dependence, significant alcohol problems, and age. As in RQ3, MANOVA was used to test for differences in use of coping styles and effectiveness of coping styles by length of time post GBS, except that the multivariate Pillai's statistic was used in this case of a polytomous independent variable. While no significant differences were found, it is

Table 6

Mean and Standard Deviation of Mood, Coping Alcohol Use, and Age by Gender

Style scale/subscale	Males		Females	
	Mean (<i>SD</i>)	<i>n</i>	Mean (<i>SD</i>)	<i>n</i>
Tension	5.51 (3.64)	35	7.61 (4.87)	229
Depression	5.71 (5.01)	35	9.05 (6.20)	229
Overall coping use	1.48 (0.47)	34	1.71 (6.42)	227
Overall coping effectiveness	1.42 (0.54)	34	1.45 (0.48)	220
Drinking hazardous amounts	1.25 (2.10)	36	1.45 (0.28)	231
Drinking hazardous amounts before GBS	1.86 (1.91)	36	1.72 (2.09)	230
Psychological or physical dependence on ETOH	0.50 (1.82)	36	1.04 (2.78)	224
Significant problems with Alcohol	0.65 (1.92)	35	1.00 (2.76)	223
Age at last birthday	54.83 (9.03)	36	51.00 (10.55)	230

interesting to note that $M = 1.04$ for current hazardous drinking for 6 to 18 months post-GBS, and the mean doubles ($M = 1.9$) during the 60 months following GBS, indicating that drinking increases 60 months after surgery. Dependence for the 6- to 18-month time period post-GBS was $M = .755$ and for the time period greater than 60 months, $M = 1.48$. There was no significant association between length of time since surgery and gender,

Table 7

Mean and Standard Deviation of Time Since Surgery

Scale	6–18 Mos.		19–36 Mos.		37–60 Mos.		> 60 Mos.		Total	
	Mean	SD Δ	Mean	SD Δ	Mean	SD Δ	Mean	SD Δ	Mean	SD Δ
Tension	6.53	4.11	7.75	4.98	7.60	4.66	7.26	5.11	7.31	4.79
Depression	7.70	5.8	9.22	6.41	8.54	6.24	8.65	6.27	8.56	6.19
Overall coping use	1.55	.49	1.78	.34	1.65	.51	1.71	.36	1.68	.43
Overall coping effectiveness	1.52	.43	1.47	.55	1.46	.54	1.41	.45	1.45	.49
Drinking hazardous amounts	1.04	1.81	1.27	2.41	1.21	1.70	1.90	2.70	1.44	2.27
Drinking hazardous Amounts before GBS	1.57	1.72	1.75	2.29	1.44	1.74	2.12	2.31	1.79	2.07
Psychological or physical dependence on alcohol	.76	2.49	1.06	2.64	.41	1.64	1.48	3.34	.98	2.69
Significant problems with alcohol	.60	1.91	1.28	2.89	.59	2.55	1.27	2.96	.97	2.68
Age at last birthday	50.23	11.30	48.98	12.06	53.16	9.07	52.38	9.84	51.56	10.44

race/ethnicity, education, occupation, marital status, or religion, as tested using contingency table analysis and the chi-square statistics.

To examine cutoff for hazardous drinking pre GBS and cutoff for current hazardous drinking, a non-parametric test of change using chi-square ($\chi^2 = .658$) found $p = .417$, indicating no significance in hazard levels pre and post GBS. This indicates that, although there was no increase in hazardous drinking post GBS, there was no decrease in those respondents who scored in the hazardous drinking pre-operatively.

RQ5. To what extent do anxiety, depressive symptomatology, coping, length of time since surgery, predict alcohol use while controlling for age, gender, race/ethnicity, education, employment status, marital status, and religion among GBS patients?

Multiple regression analyses were used to predict alcohol use post surgery. Hierarchical regression analysis was conducted to predict alcohol use after first controlling for the following client characteristics (gender, age, race/ethnicity, religion, education, marital status, and employment status).

Categorical variables (gender, race/ethnicity, employment, marital status, and religion) required dummy coding prior to analysis. Males were coded as 1 and females as 0. Those who were employed full-time employed accounted for more than half the respondents and were coded as 1, whereas all other employment categories were coded as 0. Likewise, those who were married accounted for more than half of the respondents and were coded as 1, while all other marital categories were coded as 0. Three race/ethnicity variables were created by dummy-coding the original variables as follows: Non-Latino Caucasians 1 and all others 0; African Americans 1 and all others 0; and Latinos 1 and all others 0. Likewise, four religions were created through dummy coding: Catholics,

Protestants, those who claimed they had no religion, and those who identified themselves as members of traditionally alcohol-abstaining religions (Mormon, Seventh Day Adventist, and Jehovah's Witness). These variables were entered in the first step of the analysis to control the confounding effects of these variables on client alcohol consumption. The results of this initial step indicated that these personal characteristics when entered accounted for 10.2% of the variance in alcohol consumption (adjusted $R^2 = 5.5\%$, $F[12,233] = 2.20$, $p = .013$). In the second block, 11 variables, including time since surgery, anxiety, depression, and eight coping styles, when entered accounted for an additional 15.8% of the variance in alcohol consumption (F change $[11,222] = 4.30$, $p < .001$). The full model accounted for 25.9% of the variance (adjusted $R^2 = 18.3\%$, $F[23,222] = 3.38$, $p < .001$).

Table 8 displays the regression coefficients and p values for each variable. A review of the Beta weights (β) specify that only 4 variables—time since GBS ($\beta = .143$, $F = 5.011$, $p = .026$), anxiety (tension) ($\beta = -.214$, $F = 5.196$, $p = .024$), use of emotive style ($\beta = .240$, $F = 7.941$, $p = .005$), and palliative style ($\beta = .259$, $F = 11.257$, $p = .001$)—significantly contributed to the model.

In other words, those further away from their GBS, those experiencing higher anxiety/tension, and those with higher scores in use of Emotive or Palliative Coping Styles had significantly higher alcohol-use scores.

Table 8

Regression Analysis Coefficients, Final Model of Hierarchical Regression

	Unstandardized Coefficients		Standardized Coefficients	<i>F</i>	Sig
	B	Std. Error	Beta		
Constant	6.057	3.835		2.495	.116
<u>Variables Block 1</u>					
Sex	.995	1.444	.045	.437	.509
Age	-.106	.045	-.160	5.448	.020
Education	-.101	.537	-.011	.035	.851
Caucasian (not Latino)	.520	1.807	.033	.083	.774
African American	.678	2.260	.029	.090	.764
Latino	3.322	2.206	.157	2.267	.134
Employed FT	.278	.891	.020	.097	.755
Catholic	-2.491	1.308	-.151	3.625	.058
Protestant	.898	1.180	.060	.579	.448
No Religion	-1.105	1.430	-.055	.597	.440
Alcohol-Abstaining Religion	-3.040	1.926	-.104	2.491	.116
Marital Status	-.353	.893	-.025	.156	.693
<u>Variables Block 2</u>					
Time since GBS	.909	.406	.143	5.011	.026
Anxiety	-.310	.136	-.214	5.196	.024
Depression	.149	.108	.132	1.875	.172
Use of Confrontive Style	-2.095	1.111	-.181	3.555	.061
Use of Evasive Style	.635	1.194	.051	.283	.595
Use of Optimistic Style	-2.223	1.205	-.179	3.404	.066
Use of Fatalistic Style	-.870	.861	-.080	1.021	.313
Use of Emotive Style	2.751	.976	.240	7.941	.005
Use of Palliative Style	3.648	1.087	.259	11.257	.001
Use of Supportant Style	-.091	.948	-.008	.009	.924
Use of Self-Reliant Style	.938	1.138	.076	.678	.411

^a Dependent Variable: Total AUDIT Score.

Qualitative Analysis of Themes

Aim 3: *Describe the experiences of alcohol use, post GBS, through patient narratives.*

RQ6. What are the experiences of alcohol use, as described through patient narratives?

In addition to the quantitative results described previously in this chapter, this study also included a qualitative measure. A single qualitative question was asked to extend the researcher's understanding of the phenomenon under investigation. The open-ended question was placed at the end of the Gastric Bypass Patient Survey and read, "Using your own words and in a few sentences or a paragraph, briefly describe your personal experience using alcohol before gastric bypass surgery and during the time following your surgery."

Analysis for the qualitative method employed a Simple Thematic Analysis (Braun & Clarke, 2006). The handwritten responses were transcribed and placed in a spreadsheet for examination, coding and evaluating for the presence of themes. A simple thematic analysis was performed with the goal of identifying cogent themes that were pertinent to alcohol use by the gastric bypass patient. Respondents to the Gastric Bypass Survey totaled 268. The themes emerged from 204 responses to the open-ended question listed at the end of the survey. The identified themes were reviewed by a second reviewer, and the final themes are described to provide an additional understanding of the quantitative results. The five themes reflect the complexity of the emotional and psychological composition of the morbidly obese and the population of gastric bypass patients.

Theme 1: No alcohol intake. Subjects described their alcohol experience as a non issue and of little concern. More than one response simply was, “I don’t drink.” Others reported they don’t drink and also indicated it was due to religious beliefs.

Theme 2: Social/occasional drinker and balanced life. Subjects described their drinking as social, defining the context of their social drinking. One subject reported, “I have enjoyed alcohol in a celebratory way—birthdays, anniversaries, and weddings. The year following surgery I did not have any alcohol except on my 30th wedding anniversary. Even then it was only one glass of champagne. I still take the occasional drink, but I usually nurse it through an entire evening.”

Many subjects reported being “occasional drinkers” before surgery and remaining occasional drinkers after surgery. Many of these subjects also added comments about being happy with their lives. One individual wrote, “I have no problem with drinking. My health has improved and so has my well-being.” Others felt that their improved health was a reason to refrain from alcohol except on rare occasions. “I might have a drink every five years. I’m a diabetic and my blood sugar is now in better control.” Another wrote, “I did drink several times a week before surgery and through my fifth year after surgery. At my sixth year after surgery, I was feeling good and decided to eliminate alcohol from my now very satisfying life.”

Theme 3: Fear of consequence associated with drinking. Subjects chose not to drink because they feared becoming alcoholics. Expressions of fear related to their past experience with alcohol, family use of alcohol, and fear of returning to alcohol-abuse behaviors. “I was fortunate to see the negative effects of alcohol on my sister and mother and I didn’t want to be like them.” Another reported being “a recovering alcoholic; I

know I can never take a drink.” Subjects feared that drinking might become a new addiction to replace that of food, which previously had served as a personal coping mechanism.

Theme 4: Absorption versus consumption. Subjects discussed their use of alcohol directly in relationship to their tolerance. They reported feeling that they became intoxicated easily sometimes after only a “few sips of wine,” and they “enjoyed the buzz” because it would “wear off quickly.” These subjects described their experience as not being a problem, because they could not consume “too much” alcohol. It was the “effects” of alcohol that created moderation in their consumption.

Theme 5: Food and other addictions. Subjects wrote about their continuing “desire” for food. One subject said, “Food, not alcohol, is still my drug of choice.” Others wrote about the change in other behaviors and attributed it to not using food in the same way anymore:

Alcohol has never been a problem for me. Mother, father, and two younger brothers do struggle with alcohol, but eating and overspending are my issues, not alcohol.

When I stuff feelings, I want to shop. Shopping is a blaring red light warning for me.

Since my surgery, I have become a chocolate freak.

Another subject voiced concern that she never drank and continues not to drink, but “I cope now when I am upset with occasional overspending and sex. I don’t have multiple partners (just my spouse), but I do enjoy sex a lot.” Others also listed spending and sex as replacements for food and always in the context of pressures from work, and pressure from being around food that they can no longer eat in large amounts.

CHAPTER 5

Discussion

The primary purpose of this research was to examine the prevalence of increased alcohol consumption among a group of gastric bypass patients and to identify the relationship of the alcohol use with time since surgery, psychosocial issues (depressive symptomatology, anxiety, coping) and demographic variables.

A profile of the typical respondent to the research study was a 52-year-old Caucasian female who is Protestant, married, living with a spouse and a child, employed, and having an annual household income between \$21,000 and \$50,000. The general conclusions from the study support the medical community's assertion that a small percentage of gastric bypass patients as represented in this study have difficulty with alcohol after gastric bypass surgery (GBS). The quantitative analysis failed to support the anecdotal evidence purported by the psychological community that 30% of gastric bypass patients struggle with addictions after surgery. However, findings revealed continuing problems with alcohol after surgery if an alcohol problem existed previously.

Both the qualitative and quantitative findings suggest that GBS patients are at risk for transferring their compulsive and addictive food behaviors after surgery. Primarily, however, the data support that the positive psychological benefits are similar to the physical benefits of the extraordinary weight loss. Continuing issues associated with food

and weight gains are potential consequences that resemble the consequences of non-surgical treatments for obesity. The qualitative analysis supports the improved quality of life, physical well-being, and emotional satisfaction and happiness. Life stressors and coping continue to present challenges to post-gastric-bypass patients, and the transfer from food addiction to other addictions is clearly present for some. The study found depression after surgery to be higher in females, which supports findings from previous research conducted on GBS and depression (deZwaan et al., 2003).

For the subjects who drink, the change in alcohol consumption over time is variable, and the strong recommendations during pre- and post-surgery education to abstain from alcohol as a lifetime behavior appear to generate strong compliance. The post-surgical effects of alcohol also contribute to the choice to avoid or limit alcohol consumption.

Statistical analysis examined a variety of relationships. Only moderate relationships were found between variables, with coping differences found primarily between genders.

Limitations

A limitation of this study is the low response rate of 10.9%, resulting in margin of error of $\pm 4\%$. While the response rate appears low, it far exceeds the number required to achieve a power of .81. Another potential limitation is the inability to control for patient reactions or for patients' failure to respond to questions pertaining to alcohol use, due to their feelings of negative stigma and/or fear. Obese patients can suffer from co-morbid psychological conditions such as depression, anxiety, and low self-esteem; these may remain unresolved after GBS and may influence the participant's self-report of alcohol

use and coping. The medical group participating in the study was conveniently selected, and the participants were selected within the surgery time periods of the convenience sample.

The science and technology for obesity treatment is changing rapidly and continuously. Gastric banding and other minimally invasive treatments are being introduced, though they were not considered in this study. The structural and physiological changes that occur with other bariatric procedures may yield different findings than those associated with Roux-en-Y gastric bypass surgery. The present study may be further limited by the demographic makeup of the patient population, though the medical group reports serving patients from diverse ethnic backgrounds and geographic areas throughout California and neighboring states.

In the literature (Averbukh et al., 2003; Dymek et al., 2002; Kalnins, 2005), time since surgery was a consideration, and it was suggested that problems with alcohol develop after 18 months post surgery. Patients whose surgery occurred after 18 months and as long ago as 3 to 5 years may have limited memory or accurate recollection about their struggle early in their post-operative experience.

Implications for the Nursing Profession

The science of obesity is relatively new, and the psychosocial factors affecting GB patient outcomes are part of a dynamic, growing, and rich field for nursing research. Psychological co-morbidities are equally important and as potentially dangerous to the individual as the physiological co-morbidities attributed to obesity and GBS. Therefore, identifying GB surgery patients' actual and potential social, psychological, emotional, and mental health problems will help clinicians formulate improved pre-surgical

assessment measures and post-surgical interventions. The research findings support the development of multidisciplinary intervention activities and programs for the small number of patients with identified alcohol use and emotional problems.

Alcohol use after GB surgery increases patients' risk for alcohol toxicity, due to the rapid absorption caused by the surgical procedure and the alcohol carbohydrate intake that interferes with rapid weight loss. In cases where alcohol becomes a substitute for food to cope with life's challenges and stressors, GB patients increase their risk for abuse and/or addiction, which may be as destructive as the problem of obesity itself.

Nurses are positioned to assess, plan, and develop interventions to minimize and/or mitigate both the physiological and psychological risks associated with obesity and GBS. Nurses are also positioned, by virtue of their intimate connection with patients, to be the healthcare providers who will offer the continuing and long-term support.

Future Research

A paucity of scientific literature exists regarding the psychological effects of GBS, and this research study provides the basis for much needed future research. Findings and data from this study will guide future research to more fully determine, describe, and clarify the complex psychological composition and experiences of gastric bypass patients. Obesity and healthcare costs associated with obesity are important economic considerations, and research that supports GBS and other successful obesity treatments is necessary to alleviate the current and future burden on the healthcare system that is created by obesity.

This study described and examined a single compulsive/addictive behavior. Future research should examine the phenomenon of addiction comprehensively and both

physiologically and psychologically. The state of GBS is emerging, and the need for more empirical study is clear. Equally important is the need for qualitative research that provides patients an opportunity to tell their story. The richness of patient stories may provide greater insight into gastric bypass patients' experiences, which may not be solely measured quantitatively.

A clinical trial in which GBS patients may enroll and participate, including a detailed pre-op survey, regularly scheduled follow-up at discharge, 30 days, 60 days, 90 days, 180 days, 1 year, 3 years and 5 years, will yield good results with respect to alcohol use over time. The covariates of depression and anxiety can be considered when mental health professionals and nurses conduct the patient visits. Other standard wellness variables, including BMI, weight, heart rate, cholesterol, blood pressure, etc., will determine physical success.

A clinical trial that emphasizes treatment and is related to coping will also provide healthcare providers with important and useful information. Once the presence of compulsive/addictive behaviors is established, the problems associated with these findings become paramount. A suggested clinical trial will randomize patients into three treatment groups: medication treatment, psychological treatment, and both medication and psychological treatment.

Generally, future research should address the identified study limitations and new research conducted based upon the findings of this study. The findings of this study failed to answer the research questions as expected, making the recommendation for clinical trials appropriate.

Risk-assessment and targeted-interventions research will provide comprehensive treatment approaches. Research that identifies both needs and risks will support a lifelong-care approach for GB patients. Interdisciplinary pre- and post-surgery assessment and education, provided at specific pre- and post-surgery intervals, results in positive and permanent patient outcomes. Instrument development research may yield clinical assessment tools to help surgeons determine which GBS procedure best meets individual patients' needs, both physiologically and psychologically. Development of an alcohol risk-assessment measure or addiction scale may provide an opportunity for early and ongoing intervention, as well as criteria for continuing patient education. A comprehensive patient assessment program would help clinicians identify the extent to which patients will cope successfully with food restrictions, difficulties in relationships, or lifestyle. Risk-factor identification can effectively screen to make appropriate decisions related to surgery. Interventions geared toward learning and coping skills provided after surgery, through individual therapy or taught in post-surgery support group meetings, support positive patient outcomes.

Summary

The first generation of gastric bypass surgery research has focused primarily on surgical outcomes, including physiological consequences and weight loss. The advancement of gastric bypass science will extend the research to examine multiple psychosocial constructs and their relationships. The research will evolve to include development of risk assessments, intervention and coping strategies, and ultimately evidence-based programs that will facilitate patients' achieving lifelong positive GBS outcomes.

APPENDICES

A. PBMSG Letter of Support to Institutional Review Board

B. University of San Diego Institutional Review Board Approval Letter

C. Investigator-Developed Questionnaire

D. Alcohol Use Disorders Identification Test (AUDIT)

E. Profile of Mood States (POMS)

F. Jalowiec Coping Scale

APPENDIX A

PBMSG LETTER OF SUPPORT TO INSTITUTIONAL REVIEW BOARD

Pacific Bariatric Surgical Medical Group

October 6, 2008

Dear Institutional Review Board,

Pacific Bariatric Surgical Medical Group is pleased to support Kathleen Winston, RN, PhD candidate at the University of San Diego as she completes her doctoral dissertation and program of study.

As a Center for Excellence for Bariatric Surgery it is appropriate for the Pacific Bariatric Surgical Medical Group to assist Ms. Winston in her research examining the use of alcohol by gastric bypass patients.

PBSMG has agreed to assist in conducting the research by facilitating the mailing of the research survey instruments to the research participants.

The participant sample is being obtained from the PBSMG patient population as described in the dissertation proposal.

Ms. Winston has provided us the opportunity to read and review the dissertation proposal where she has outlined the data collection procedures.

Please feel free to contact us directly if you have additional questions.

Sincerely,

George Zorn, M.D.

George Zorn, M.D.

4060 Fourth Avenue, Suite 330, San Diego, CA 92103

APPENDIX C

INVESTIGATOR-DEVELOPED QUESTIONNAIRE PACKET

KEEP THIS FOR YOUR RECORDS

October 22, 2008

Dear PBSMG Patient,

Kathleen Winston is a Registered Nurse and doctoral candidate at the Hahn School of Nursing and Health Science at the University of San Diego. You are invited to participate in a dissertation study she is conducting for the purpose of learning how gastric bypass patients feel, how they cope with stress and how they use alcohol.

While Dr. Zorn and his staff at Pacific Bariatric Surgical Medical Group have mailed these envelopes to clinic patients who might be interested in a study like this, **this study is not being sponsored by Dr. Zorn or the PBSMG.** Nothing about your care from Dr. Zorn, PBSMG, or anything about your medical care/social services will change if you decide not to do this.

Your participation is **completely voluntary. You do not have to participate. If you decide this is not for you, simply tear up these materials and throw them away.** If you are interested in participating, this study will involve approximately **30-45 minutes** of your time to complete the enclosed surveys. There are **three** surveys to complete:

- The **first** survey has approximately 42 items and is labeled **Gastric Bypass Patient Survey**. This survey will ask you to provide demographic information. **There will be no way to identify you** through the demographic information, and **your responses will be included as anonymous and aggregate data** in the research report. This survey will also ask questions about your use of alcohol and food, as well as your emotional well-being, before and after surgery.
- The **second** survey has 60 items and is labeled **Coping Survey**. This survey will ask about your coping strategies when faced with a stressful situation.
- The **third** survey has 30 items and is labeled **Mood Survey**. This survey will ask you about your emotions, such as anxiety and depression.

It is important for you to **complete all three surveys** and return them in the pre-addressed and prepaid envelope **NO LATER THAN Friday, November 14, 2008.**

There may be a risk that you may feel tired or fatigued while filling out the questionnaires. You can stop at anytime to rest, decide not to answer any of the questions or just decide you don't want to do this.

Sometimes when people are asked to think about their feelings, they feel sad or anxious. If you would like to talk to someone about your feelings at any time, you can call toll-free 24 hours a day:

San Diego Mental Health Hotline at 1-800-479-3339

By participating in this research project you will provide important information and make an important contribution to helping healthcare providers like your doctors at PBSMG and nurses to provide excellent education, treatment, and support to future patients.

(OVER)

ALL three surveys are confidential and no further attempts will be made to try to contact you.
Please do not write your name anywhere on the surveys or provide any identifying information.

Please read this letter/consent carefully. Keep the letter/consent for your records.

Sign the second page *Signature Form* and return it along with the completed surveys.

Confidentiality will be maintained by separating your consent page from the surveys and safeguarded in a locked file in Kathleen Winston's home for a minimum of five years.

By not completing and returning the surveys you are declining to participate, and your care or treatment will in no way be affected. No one will be able to determine whether you elected to participate or declined to participate in the study.

I hope you will be interested in participating and thank you in advance.

If you have any additional questions about this research project, please contact Kathleen Winston at (949) 661-7133 or her email at kwinston-09@sandiego.edu.

You may also contact Dr. Cynthia Connelly, the professor who is supervising Kathleen's research, at the University of San Diego School of Nursing (619) 260-7938

Sincerely,

Kathleen Winston, RN PhD(c)

SIGNATURE FORM

CONSENT TO PARTICIPATE

Please return this SIGNED consent along with the three completed surveys in the pre-paid envelope provided in the packet. Please keep the Cover Letter/Consent Form for your records.

I have read the Cover Letter/Consent Form carefully and understand this form. I consent to the research described to me in this Cover Letter/Consent Form. I have received a copy of this Cover Letter/Consent Form for my records.

If you have any additional questions about this research project, please contact Kathleen Winston at (949) 661-7133 or her email at: kwinston-09@sandiego.edu You may also contact Dr. Cynthia Connelly, the professor who is supervising Kathleen's research, at the University of San Diego School of Nursing (619) 260-7938 or her email: cconnelly@sandiego.edu

I have read and understand this form, and consent to the research it describes to me. I have received a copy of this consent form for my records.

Signature of Participant

Date

Name of Participant (Printed)

Signature of Investigator

Date

SIGNATURE FORM**CONSENT TO PARTICIPATE****RETURN WITH SURVEYS**

Please return this SIGNED consent along with the three completed surveys in the pre-paid envelope provided in the packet. Please keep the Cover Letter/Consent Form for your records.

I have read the Cover Letter/Consent Form carefully and understand this form. I consent to the research described to me in this Cover Letter/Consent Form. I have received a copy of this Cover Letter/Consent Form for my records.

If you have any additional questions about this research project, please contact Kathleen Winston at (949) 661-7133 or her email at: kwinston@san Diego.edu

You may also contact Dr. Cynthia Connelly, the professor who is supervising Kathleen's research, at the University of San Diego School of Nursing (619) 260-7938 or her email: cconnelly@san Diego.edu

I have read and understand this form, and consent to the research it describes to me. I have received a copy of this consent form for my records.

Signature of Participant	Date
--------------------------	------

Name of Participant (Printed)

Signature of Investigator	Date
---------------------------	------

Gastric Bypass Patient Survey

Thank you for taking the time to complete this survey. Your participation in this research will help patients receive the *best* possible healthcare. The information learned will be used to help past, current and future patients.

The researcher wishes to (a) learn more about gastric bypass surgery patients before and after their surgery and (b) learn about alcohol use by gastric bypass patients.

It is understood that alcohol use is very personal; but be assured that the survey is anonymous and your answers will be included ONLY as group data. Remember, by filling out this survey completely, you are making a major contribution to the care of gastric bypass patients.

Directions

Please answer the questions honestly and to the best of your ability, and please be sure to answer ALL of the items.

* * * * *

Please provide some information about yourself:

1. What is your state of residence? _____
2. What was your age at your last birthday? _____
3. What is your gender? ☐ Male ☐ Female
4. What is your race/ethnicity?

☐ Caucasian	☐ African American	☐ Asian	☐ Middle Eastern
☐ Native American	☐ Hispanic/Latino	☐ Other—Explain: _____	
5. What is the highest level of education you completed?

☐ Did not complete high school	☐ High school	☐ College	☐ Graduate/Professional school
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6. What is your current marital status?

☐ Never married	☐ Married	☐ Living with Partner
☐ Separated	☐ Divorced	☐ Widowed
7. What is your religious preference?

☐ Protestant	☐ Catholic	☐ Jewish	☐ Muslim
☐ Buddhist	☐ Mormon	☐ Jehovah's Witness	☐ Seventh Day Adventist
☐ None	☐ Other—Explain: _____		
8. Who lives with you?

☐ Spouse	☐ Parents	☐ Children—How many? _____
☐ Friends/Significant other	☐ Other relatives	☐ Live alone

20. How often did you have six or more drinks on one occasion?

- ☐ Never ☐ Less than monthly ☐ Monthly ☐ Weekly ☐ Daily or almost daily

Here are a few questions about your alcohol use NOW:

21.* How often do you have a drink containing alcohol?

- ☐ Never ☐ Monthly or less ☐ 2–4 times a month
☐ 2–3 times a week ☐ 4 or more times a week

22. How many drinks containing alcohol do you have on a typical day when you are drinking?

- ☐ 1 or 2 ☐ 3 or 4 ☐ 5 or 6 ☐ 7 or 8 ☐ 10 or more

23. How often do you have six or more drinks on one occasion?

- ☐ Never ☐ Less than monthly ☐ Monthly ☐ Weekly ☐ Daily or almost daily

Now here are a few questions about your alcohol use during the past year.

(Note: If your surgery took place *less than* a year ago, please interpret the phrases “during the last year” and “in the last year” to mean “during the time since the surgery.”)

24. How often during the last year have you found it difficult to get the thought of alcohol out of your mind?

- ☐ Never ☐ Less than monthly ☐ Monthly ☐ Weekly ☐ Daily or almost daily

25. How often during the last year have you found that you were not able to stop drinking once you had started?

- ☐ Never ☐ Less than monthly ☐ Monthly ☐ Weekly ☐ Daily or almost daily

26. How often during the last year have you been unable to remember what happened the night before because you had been drinking?

- ☐ Never ☐ Less than monthly ☐ Monthly ☐ Weekly ☐ Daily or almost daily

27. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

- ☐ Never ☐ Less than monthly ☐ Monthly ☐ Weekly ☐ Daily or almost daily

28. How often during the last year have you had a feeling of guilt or remorse after drinking?

- ☐ Never ☐ Less than monthly ☐ Monthly ☐ Weekly ☐ Daily or almost daily

29. Have you or someone else been injured as a result of your drinking?

- ☐ No ☐ Yes, but not in the last year ☐ Yes, during the last year

* Items 21–30 are the Alcohol Use Disorders Identification Test (AUDIT). The AUDIT questionnaire was developed by the World Health Organization (1993).

30. Has a relative, friend, doctor, or any health worker been concerned about our drinking or suggested you cut down?

☐ No ☐ Yes, but not in the last year ☐ Yes, during the last year

Please provide some information about your eating and your emotions:

31. *Prior to gastric bypass surgery*, did you eat in response to emotional stress? ☐ Yes ☐ No

32. *Prior to gastric bypass surgery*, in response to emotional stress, did you crave sweets and starchy foods like cookies, ice cream, bread or chips?

☐ Yes, in response to emotional stress I ate those foods
☐ No, in response to emotional stress I ate other foods
☐ No, I did not eat in response to emotional stress

33. *Prior to gastric bypass surgery*, when you were feeling angry, frustrated, anxious, or depressed, did eating make you feel better?

☐ Yes, eating made me feel better
☐ No, eating did not make me feel better
☐ No, I did not eat in response to feeling angry, frustrated, anxious, or depressed

34. *Prior to gastric bypass surgery*, did you feel you had a problem managing the amount and type of food that you ate?

☐ Yes ☐ No

35. *Prior to gastric bypass surgery*, did you ever eat excessive amounts of food very rapidly, in a manner that was out of control?

☐ Yes ☐ No

36. If you answered "Yes" to the previous question, how often did you engage in this binge-eating behavior?

☐ 3 or more times per week ☐ 1–2 times per week ☐ 3 times per month
☐ 2 times per month ☐ 1 time per month ☐ On holidays or special occasions
☐ I did not answer "Yes" to the previous question

37. *Currently*, how often do you feel emotionally stressed, sad, unworthy, anxious, or out of control?

☐ I feel this rarely ☐ I feel this occasionally ☐ I feel this most days ☐ I find it difficult to cope

38. *Prior to gastric bypass surgery*, did you have any behaviors **other than food** that you would classify as addictive, such as gambling, shopping, sex, drugs, overspending, or excessive exercise?

☐ Yes
☐ No, I only had difficulties with food
☐ No, I did not have food or other addictive behaviors

39. If you answered "Yes" to the previous question, then, *prior* to gastric bypass surgery, which behavior(s) did you feel was/were addictive?
- ☐ Gambling ☐ Shopping ☐ Sex
☐ Drugs ☐ Spending money ☐ Excessive exercise
☐ Other—Explain: _____
40. *Currently*, do you now have any behaviors **other than food** that you would classify as addictive, such as gambling, shopping, sex, drugs, overspending, or excessive exercise?
- ☐ Yes ☐ No
41. If you answered "Yes" to the previous question, which behavior(s) do you feel is/are addictive?
- ☐ Gambling ☐ Shopping ☐ Sex
☐ Drugs ☐ Spending money ☐ Excessive exercise
☐ Other—Explain: _____

Please add your own comments:

42. Using your own words and in a few sentences or a paragraph, briefly describe your personal experience using alcohol before gastric bypass surgery and during the time following your surgery.

[illegible]

Thank you so much for your help.

APPENDIX D

ALCOHOL USE DISORDERS IDENTIFICATION TEST (AUDIT)

Alcohol Use Disorders Identification Test

Please circle the answer that is correct for you:

1. How often do you have a drink containing alcohol?
☐ Never ☐ Monthly or less ☐ 2-4 times a month ☐ 2-3 times a week ☐ 4 or more times a week
2. How many drinks containing alcohol do you have on a typical day when you are drinking?
☐ 1 or 2 ☐ 3 or 4 ☐ 5 or 6 ☐ 7 to 9 ☐ 10 or more
3. How often do you have six or more drinks on one occasion?
☐ Never ☐ Less than monthly ☐ Monthly ☐ Weekly ☐ Daily or almost daily
4. How often during the last year have you found it difficult to get the thought of alcohol out of your mind?
☐ Never ☐ Less than monthly ☐ Monthly ☐ Weekly ☐ Daily or almost daily
5. How often during the last year have you found that you were not able to stop drinking once you had started?
☐ Never ☐ Less than monthly ☐ Monthly ☐ Weekly ☐ Daily or almost daily
6. How often during the last year have you been unable to remember what happened the night before because you had been drinking?
☐ Never ☐ Less than monthly ☐ Monthly ☐ Weekly ☐ Daily or almost daily
7. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?
☐ Never ☐ Less than monthly ☐ Monthly ☐ Weekly ☐ Daily or almost daily
8. How often during the last year have you had a feeling of guilt or remorse after drinking?
☐ Never ☐ Less than monthly ☐ Monthly ☐ Weekly ☐ Daily or almost daily
9. Have you or someone else been injured as a result of your drinking?
☐ No ☐ Yes, but not in the last year ☐ Yes, during the last year
10. Has a relative, friend, doctor or any other health worker been concerned about your drinking or suggested you cut down?
☐ No ☐ Yes, but not in the last year ☐ Yes, during the last year

The AUDIT questionnaire was developed by the World Health Organisation (1993)

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How to Score Audit...

Questions 1 - 8	0	1	2	3	4
Questions 9 - 10	0		2		4

To find the total score, add up the scores from Questions 1 to 10. The maximum score is 40.

For more information look at the answers to each section;

Questions 1 to 3:

A combined score of 4 or more for women or 5 or more for men suggests a level of drinking which is **hazardous**.

Questions 4 to six:

A combined score of 4 or more suggests that a person may be **psychologically or physically dependent on alcohol**.

Questions 7 to 10:

A combined score of 4 or more suggests **significant problems already exist**.

A total score of 8 or more on the questionnaire suggests that the person has a pattern of hazardous or harmful alcohol consumption.

This should be confirmed by checking the responses and by asking some supplementary questions.

What to do Now...

If the person scores 8 or more and has no dependence or harmful consequences (or only minor ones) suggest they cut down on drinking.

SAFE DRINKING:

Males – no more than 4 drinks, 4 times a week

Females – no more than 3 drinks, 3 times a week

There is no definite cut off score for dependence.

As a general guide, if a score is 13 or more it is likely that the person is alcohol dependent. Recommend that they abstain from drinking alcohol and refer for further assessment.

APPENDIX E

PROFILE OF MOOD STATES (POMS)

Mood Survey*

Directions. Below is a list of words that describe feelings that people have. Please read each word carefully. Then circle the number that best describes your feelings, generally, during the past year. (Note: If your surgery took place *less than* a year ago, please circle the number that best describes your feelings, generally, only from the time of your surgery to the present.)

	Not at all	A little	Moderately	Quite a bit	Extremely
1. Tense	0	1	2	3	4
2. Angry	0	1	2	3	4
3. Worn out	0	1	2	3	4
4. Lively	0	1	2	3	4
5. Confused	0	1	2	3	4
6. Shaky	0	1	2	3	4
7. Sad	0	1	2	3	4
8. Active	0	1	2	3	4
9. Grouchy	0	1	2	3	4
10. Energetic	0	1	2	3	4
11. Unworthy	0	1	2	3	4
12. Uneasy	0	1	2	3	4
13. Fatigued	0	1	2	3	4
14. Annoyed	0	1	2	3	4
15. Discouraged	0	1	2	3	4
16. Nervous	0	1	2	3	4
17. Lonely	0	1	2	3	4
18. Muddled	0	1	2	3	4
19. Exhausted	0	1	2	3	4
20. Anxious	0	1	2	3	4
21. Gloomy	0	1	2	3	4
22. Sluggish	0	1	2	3	4
23. Weary	0	1	2	3	4
24. Bewildered	0	1	2	3	4
25. Furious	0	1	2	3	4
26. Efficient	0	1	2	3	4
27. Full of pep	0	1	2	3	4
28. Bad-tempered	0	1	2	3	4
29. Forgetful	0	1	2	3	4
30. Vigorous	0	1	2	3	

Thank you so much for your help.

* This is the POMS Brief Form, by Douglas M. McNair, Ph.D., Maurice Lorr, Ph.D., JW P. Heuchert, Ph.D., and Leo E. Droppleman, Ph.D. Multi-Health System (MHS) Copyright © 1989, 2003. Douglas M. McNair, Ph.D., Jenn Lowe, Ph.D., and Lee F. Droppleman, Ph.D. under exclusive license to Multi-Health Systems Inc. All rights reserved. Contents used with written permission.

APPENDIX F

JALOWIEC COPING SCALE

Jalowiec Coping Scale, © 1977, 1987 by Anne Jalowiec, PhD, RN;
scale used with written permission

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