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Factors and Pre-/Post bariatric Surgery Alcohol Behaviors and Attitudes

Tyrease T. Hammond
Walden University

Walden University

College of Health Professions

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Tyrease Hammond

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Review Committee
Dr. Shari Jorissen, Committee Chairperson, Health Services Faculty
Dr. Michael Brunet, Committee Member, Health Services Faculty
Dr. Ji Shen, University Reviewer, Health Services Faculty

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

Walden University
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Abstract

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Tyrease Hammond

MA, University of Baltimore, 2011

BS, University of Baltimore, 2008

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Bariatric surgery is the only long-term effective treatment for severe obesity and as the use of bariatric surgery has increased there has been an increase in cases of onset and transfer addictions to alcohol. The purpose of this quantitative, correlational study was to examine the relationship between demographics and pre and post bariatric surgery alcohol use consumption behavior. The Alcohol Use Disorder Test (AUDIT) and Alcohol Self-Regulated Questionnaire were used to measure pre and post-surgery alcohol use behaviors and attitudes respectively. The health belief model and theory of planned behavior provided the theoretical framework for this study. Purposeful convenience and snowball sampling were used to recruit participants (N=143). Data were collected electronically using the SurveyMonkey. The multiple linear regression for RQ1 results showed a statistically significant relationship between gender, education level, number of months post-surgery, pre-AUDIT total, and post-surgery alcohol use consumption behavior. RQ2 results showed a statistically significant relationship between education level and post-surgery Self-Regulated Alcohol Questionnaire score. The results of this study have the potential to provide public health professionals and policy makers with data that could assist with increasing awareness through education about the relationship between bariatric surgery and postoperative alcohol use problems. Additionally, this study could provide healthcare policy makers with information they can use to make changes or improvements to the bariatric surgery preoperative process.

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Dedication

I would like to dedicate this dissertation to my friends and family. First, to my husband, who supported me through thick and thin during my research, and writing. Not only did he provide emotional support, but he also was by my side to reduce any mindset of being alone throughout this process. Thank you, Roderick!

Acknowledgments

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Chapter 1: Introduction to the Study

Bariatric surgery is the only long-term effective treatment for the severely obese, according to researchers (Caceres, Moskowitz, & O'Connell, 2015; Dombrowski, Knittle, Avenell, Araujo, & Sniehotta, 2014; King et al., 2012; Ogden, Carroll, Fryar, & Flegal, 2014). However, as the use of bariatric surgery has increased there has been an increase in the number of onset and transfer addictions to alcohol cases with post-operative bariatric surgery patients (Bak, Simpson, & Darling, 2016; Cuellar-Barboza et al., 2015; Lent et al., 2013; Parikh, Johnson, & Ballem, 2015; Spadola et al., 2015; Steffen et al., 2015). The World Health Organization (WHO, 2016) indicated that obesity is a progressive and chronic disease that accounts for approximately 300,000 deaths annually (see also Cao, 2011). In the United States approximately 37% of adults, 26% of children, and 21% of adolescents are obese (Ogden et al., 2014). The rate of obesity is predicted to increase 50% by 2030s, according to the American Society for Metabolic and Bariatric Surgery (ASMBS, 2015). The organization indicated that there were 196,000 bariatric surgeries performed as of 2015 in the United States (ASMBS 2016).

Experts have indicated that there is a lack of research about the increased risk of drinking alcohol for this population (King, 2017; Mitchell et al., 2015). I conducted this study to address this gap in the literature. I explored the relationship between demographic factors (age, gender, type of bariatric surgery, number of years since surgery, education level), type of information about post-surgery alcohol use that was provided before surgery, pre surgery alcohol consumption behavior as measured by the Alcohol Use Disorder Test (pre-AUDIT), post-surgery alcohol consumption behavior as

measured by the Alcohol Use Disorder Test (post-AUDIT), and post-surgery alcohol use attitude as measured by the Alcohol Self-Regulated Questionnaire (ASRQ).

The study's implications for positive social change involve providing prevention and awareness about the potential increased risk of alcohol use, abuse, and problems associated with bariatric surgery to patients, the public health community and leaders and legislative lawmakers. Specifically, this study's results could be used by the healthcare community, leaders, and legislators to understand the relationship between postoperative surgery and alcoholism to ensure patients are provided the appropriate resources for prevention and awareness and public health and safety is not compromised (see Jones, Bates, McCoy, & Bellis, 2015; King et al., 2012; Wee et al., 2014; Yin, 2015). The study may provide data and research to assist stakeholders with policy changes to healthcare and public safety.

I begin this chapter by providing background information on the study topic. Then, I state the problem and purpose of the study and the research questions (RQs) and hypotheses. Overviews of the theoretical framework and nature of the study and definitions of key terms follow. I then discuss the assumptions, scope and delimitations, limitations, and significance of the study. The chapter concludes with a summary of key points.

Background

Obesity is a risk factor and cause for chronic illnesses and diseases such as cancer, diabetes, cardiovascular disease, kidney and liver malfunctions, and inflammation (Ogden & Clementi, 2010). Obesity is a treatable disease that relates to someone having

an excess amount of body fat (Orehek & Vazeou-Neuwehuis, 2016). Bariatric surgery has been found to be the most effective in treating the morbidly obese (Caceres et al., 2015; Dombrowski et al., 2014; King et al., 2012). Obesity is a treatable disease that relates to someone having an excess amount of body fat (Orehek & Vazeou-Neuwehuis, 2016). As the diagnosed cases of obesity have increased in the United States, bariatric surgery has become a more common treatment (Caceres et al., 2015; King et al., 2012). There has also been an increase in the number of cases of postoperative onset of alcohol use and abuse and alcohol use problems among bariatric surgery patients. (King et al., 2012; Mitchell et al., 2015; Reslan, Karen, Saules, Greenwald, & Schuh, 2014; Yin 2015). Roux-en-Y-gastric bypass (RYGB) patients' risk of post-surgery alcohol abuse/addiction is doubled compared to patients who had gastric banding or other procedures performed (Szalavitz & Yin, 2015). Szalavitz (2012) and Yin (2015) indicated that researchers have found RYGB to be related to post surgery alcohol problems and dependencies including onset alcohol dependency or addiction transfers.

Alcohol abuse and disorders can impact any population, but post bariatric surgery patients have additional issues and risks associated with alcohol consumption such as ingestion of excessive liquid calories; unsuccessful weight loss; weight gain; adverse impact on quality of life; and more serious behaviors such as alcohol misuse, driving while intoxicated, and self-injuries (King, 2012; Kudsi et al., 2013; Pepino, 2015; Yin, 2015). King et al. (2012) indicated that there is a relationship between alcohol use disorder (AUD) and bariatric surgery, but more studies are needed because there is insufficient data on this topic. Both King et al. (2017) and Alizai (2015) concluded that

there is a lack of consistent processes and practices for educating bariatric surgery patient on the increased risk of post-surgery alcohol use. This study provides information that has the potential to make health care professionals, public health policy makers, and legislators more aware about the increased risk of alcohol misuse and abuse in postoperative bariatric surgery patients. Using study findings, health care professionals and leaders may be able to develop appropriate resources for post-surgery alcohol use awareness and misuse and abuse prevention.

Problem Statement

Obesity is a pressing issue in the United States with 37% of adults, 21% of adolescents, and 26% of children considered obese, according to 2010] data (Ogden et al., 2014). Researchers have found bariatric surgery to be effective in treating obesity although the approval to get the surgery may be difficult to obtain as many insurance providers do not cover the procedure (King, 2012; Reslan et al., 2014; Spadola et al., 2015). As the prevalence and diagnosis of obesity have risen, with little success in weight loss for the morbidly obese using traditional weight loss measures, the use of bariatric surgery has become more common (Caceres et al., 2015; King, 2012). Morbid obesity is a person that is 100 pounds over his/her ideal body weight (Caceres et al., 2015; Dombrowski et al., 2014; King et al., 2012). According to the ASMBS (2016), as of 2015 approximately 196,000 bariatric surgeries have been performed.

As the use of bariatric surgery has increased, there has also been an increase in the number of cases of onset and transfer addictions in post-operative surgery patients. These include onset and transfer addictions to alcohol (Backman, Stockeld, Rasmussen,

Naslund, & Marsk, 2016; Bak et al., 2016; Cuellar-Barboza et al., 2015; Lent et al., 2013; Parikh et al., 2015; Spadola et al., 2015; Steffen et al., 2015). Use of alcohol by post bariatric surgery patients can lead to issues such as ingestion of excessive liquid calories, malnourishment, and weight gain as well as the more serious issue of an increased risk of alcoholism due to a change in the way that the body digests, absorbs, and metabolizes alcohol post-surgery (King, 2012; Pepino, 2015; Yin, 2015). In addition, false perceptions of the effects of alcohol in the bloodstream could lead to an increased risk of the loss of relationships, employment, or other quality of life factors as well as more serious behaviors such as driving while intoxicated which could lead to the harm of others (King, 2012; Pepino, 2015; Yin, 2015). Alcohol abuse has been shown to be related to a decreased quality of life, social problems, chronic illnesses/ diseases, self-injuries, a threat to public safety, and death (Jones et al., 2015; National Institute of Alcohol Abuse and Alcoholism [NIAAA], 2017). Therefore, the problem that was addressed through this study was the potential for an increased risk of alcohol abuse in patients who have had bariatric surgery and the negative impacts of that behavior including weight gain/malnutrition, negative impacts on quality of life factors, and more serious behaviors related to alcohol abuse (McNamara, 2017).

Although the research that I have summarized about bariatric surgery and alcohol use and abuse illuminates important findings, I have found no studies of the alcohol-related behaviors specifically of post-operative bariatric surgery patients. As such, further research is warranted to address the documented problem. I hope that the results of this research will be used to further educate this population about the risks of alcohol use after

surgery as the current research is minimal and there is a lack of understanding about the phenomenon (Gregorio et al., 2016; King, 2012, Wee et al., 2014; Yin, 2015).

Purpose of the Study

The purpose of this quantitative, correlational study was to examine the relationship between demographic factors (age, gender, type of bariatric surgery, number of years since surgery, education level), type of information about post-surgery alcohol use that was provided before surgery, pre surgery alcohol consumption behavior as measured by the pre-AUDIT, post-surgery alcohol consumption behavior as measured by the post-AUDIT, and post-surgery alcohol use attitude as measured by the ASRQ. I wanted to raise awareness about the potential increased risk of alcohol use abuse and disorders with this population. An addition, this study aim was to provide healthcare professionals, leaders, and legislators with information to understand the relationship between demographic factors, information provided to patients before surgery, and patient's pre surgery behaviors and post-surgery attitudes related to alcohol use. Access to this information may ensure that patients are provided the appropriate resources and support (see King et al., 2012).

Research Questions and Hypotheses

RQ 1: What is the relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided, pre-surgery alcohol use consumption behavior as measured by the Alcohol Use Disorder Test and the post-surgery alcohol use consumption behavior as measured by the Alcohol Use Disorder Test?

$H_0$1: There is no statistically significant relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided, pre-surgery alcohol use consumption behaviors as measured by the Alcohol Use Disorder Test, and the post-surgery alcohol use consumption behavior as measured by the Alcohol Use Disorder Test.

H_a1: There is a statistically significant relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided pre-surgery alcohol consumption behavior as measured by the Alcohol Use Disorder Test, and the post-surgery alcohol use consumption behavior a measured by the Alcohol Use Disorder Test.

RQ 2: What is the relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided and post-surgery alcohol use attitude as measured by the Alcohol Self-Regulated Questionnaire?

$H_0$2: There is no statistically significant relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided and post-surgery alcohol use attitude as measured by the Alcohol Self -Regulated Questionnaire.

H_a2: There is a statistically significant relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type

of information about post-surgery alcohol use provided and post-surgery alcohol use attitude as measured by the Alcohol Self -Regulated Questionnaire.

The independent variables included demographic variables (RQ 1 and RQ 2; current age, gender, education level, length of time since bariatric surgery, type of bariatric surgery), the type of information about post-surgery alcohol use provided (RQ 1 and RQ 2), and pre surgery alcohol behavior as measured by the Pre-AUDIT (RQ 1). The dependent variables were post-surgery alcohol consumption behavior as measured by the post-AUDIT (RQ 1) and post-surgery alcohol use attitude as measured by the ASRQ (RQ 2).

Theoretical Framework

The two theories used for this study were the health belief model (HBM) and the theory of planned behavior (TPB). Both theories are widely used to explain and predict health behavior (Glanz, Rimer, & Viswanath 2015; Jones et al., 2015). The HBM suggests that health behavior is determined by personal beliefs or perceptions about diseases and strategies available to decrease their occurrence (Hochbaum, 1958). The TPB is an extension of the theory of reasoned action (TRA). TRA focuses on prediction of behavior intention, and TPB extends the control belief or perceived behavior control (Ajzen, 1991). Both HBM and TPB are associated with five principles: (a) levels of influence on health behavior, (b) environmental contexts are significant determinants of health behaviors, (c) influences on behaviors engaged across levels, (d) ecological models should be gear towards the specific behavior, and (e) multiple interventions

should be effective in changing behaviors (Glanz et al., 2015). Chapter 2 will include a full overview of both theories.

Health Belief Model (HBM)

Hoch Baum, Rosenstock, and Keges developed the HBM in the 1950s. This model is known for the ability to assist with health education and health promotion (Glanz et al., 2015). The HBM assisted this study with understanding bariatric surgery beliefs, attitudes, and behaviors as it relates to alcohol use and consumption after surgery and the potential risk and illnesses of onset alcohol use, abuse, and addiction. Beliefs about threats to well-being and the effectiveness and outcome of an action or behavior change is the foundation of an individual's behavior, which can relate to a patient's belief of potential risk of alcohol problems after surgery (decisions & actions) (Montanaro, & Bryan, 2014).

The HBM premise is centered on predicting health behaviors to promote good health and to reduce or eliminate potential risk that can impact the quality of an individual's health (Jones et al., 2015). This theory is one of many health behavioral and promotion theories that focus on personal beliefs, perceptions of severity, health status or problems, benefits and barriers; and readiness to change (Montanaro, & Bryan, 2014). The perceptions of the HBM will contribute to this study's body of knowledge by: (1) perceived susceptibility, which involves the patient's belief or opinion whether the potential risk of onset alcohol use, abuse or addiction have an impact on their life; (2) perceived severity, is relative to the patient's belief and attitude towards the risk of alcohol problems and will the consequences of the result of alcohol use have a negative

impact on their life; (3) perceived benefits, is the belief and attitude of the patient's decision to practice abstinence, and being educated about the potential risk of alcohol problem post-surgery will be rewarding and compliment their post-surgery outcome; (4) perceived barriers, can involve a patient not receiving adequate pre surgery or post-surgery information on the potential risk of alcohol use after surgery; (5) cues to action, involves a patient level of awareness about post-surgery alcohol use and the negative impact alcohol use problems will have on their overall health and weight loss efforts; (6) self-efficacy, involves a patient's after surgery behavior modifications according to the health providers information and resource influence and mentorship in making positive and successful changes or taking action. (Rosenstock, 1974).

With obesity being associated with food addiction (King et al.2012), post-bariatric surgery patients could be exposed to situations where their belief, attitudes, and behavior toward post-surgery alcohol use will need to be strengthened or reinforced. The principles relative to health promotion theories can explain how beliefs, attitude, and behavior can be associated with post-surgery patient's decisions involving alcohol use or consumption (Rosenstock, 1974). The HBM provided a roadmap that will assist with examining the relationship between bariatric surgery and alcohol use as well as determine if there is a substantial relationship.

Theory of Planned Behavior (TPB)

The theory of planned behavior (TPB) was developed by Ajzen in 1991 (Glanz et al., 2015). TPB was developed to extend the theory of reasoned (TRA) developed by Ajzen and Fishbein in 1975 (Ajzen & Fishbein, 1980). This theory assisted this study in

examining the relationship between post bariatric surgery and alcohol use and assist with understanding post bariatric surgery patient's behavior as it relates to alcohol use after surgery and their attitudes surrounding alcohol use.

The constructions of the TPB include behavior intentions, attitudes, subject norms, and perceived behavioral control. These constructs aim at providing understanding towards an individual's motivational factor in making decisions for specific behaviors towards alcohol use and belief about the information provided about the increase risk factors and outcome of using alcohol after surgery (Asare, 2015; Caudill et al., 2016; Glanz et al., 2015). Behavior intentions and attitude could provide an influence in preventing post-surgery alcohol use problems as well as assess or evaluate patient's attitude towards the belief of the potential risk relative to post-surgery alcohol use (Asare, 2015; Caudell et al., 2016). Subjective norm constructs can influence a patient's behavior or decision on complying with post-surgery recommendations as well as making decisions that are aligned with society's expectations that are relative to their weight loss and their level of compliance with post-surgery information and recommendations. This theory framework provides a lens to understanding the behavior intention benefits to understanding the bariatric surgery patient's attitude and intended behavior post-surgery about alcohol use (Caudell et al., 2016; Glanz et al., 2015).

Nature of the Study

I used a correlational research design of a cross-sectional study nature. This design approach provided a resource to gather numerical data to analyze the relationship between the independent and dependent variables (Creswell, 2005; Starcevic & Khazaal,

2017). This design allowed the use of statistical strategies to illustrate numbers and descriptive data of relationship pattern findings (Frankfort-Nachmias & Nachmias, 2008; Rudestam & Newton, 2016). The correlational approach also allowed for examining and establishing a statistical relationship between variables without stating a causal relationship (Creswell, 2005; Starcevic & Khazaal, 2017). The approach to the study provided a low cost, time friendly opportunity to collect data from participants at one point in time. Even though cross-sectional research is limited to collecting data at one point and time, this limitation could be advantageous by reducing or eliminating participant withdrawals oppose to longitudinal studies which would have a higher probability of participant withdrawal (Creswell, 2013; Frankfort-Nachmias & Nachmias, 2008; Setia, 2016; Shivaji & Ford, 2015; Simonetti et al., 2015). The independent variables for this study included demographic factors (current age, gender, education level, length of time since bariatric surgery, type of bariatric surgery, the type of information about post-surgery alcohol use provided) collected through the demographic form and pre-surgery alcohol behavior as measured by the Alcohol Use Disorder Test. The dependent variables for the research question 1 are post-surgery alcohol consumption behavior as measured by the Alcohol Use Disorder Test and for research question 2, post-surgery alcohol use attitude as measured by the Alcohol Self-Regulated Questionnaire.

I collected the data for this study using the electronic online data collection tool called the SurveyMonkey. Electronic and online survey platforms are considered low cost, reliable, and effective in collecting data from participants (Settanni, Prino, Fabrics, & Langobardi, 2018). When using online, electronic data collection tools, as well as

surveys, there is the potential of participants either not truthfully answering questions, recollecting information incorrectly/inaccurately, and no opportunity for them to ask the researcher questions if they do not understand an item (Explorable, 2015. The study included two questionnaires within the survey and one researcher created demographic form. One of the questionnaires was the Alcohol Use Disorder Test (AUDIT), which is a 10-item assessment tool questionnaire that was developed by the WHO (Babor et al., 2001) and the other questionnaire was the Alcohol Self-Regulated Questionnaire which is a 15-item assessment tool (Levesque et al., 2007). The Alcohol Use Disorder Test (AUDIT) has been shown to be reliable and effective in assessing potential hazardous drinking behaviors and was appropriate for this study as it provided screening questions that measured pre-surgery and post-surgery alcohol consumption behavior (Adewuya, 2005; Babor et al., 2001); and The Alcohol Self-Regulated Questionnaire instrument was used to measure the post-surgery alcohol use attitude by asking questions measured by level of degree with "why would you drink alcohol responsibly." Data from all three data collection tools was used to examine the relationship between the independent variables and the dependent variables. The data was extracted from the electronic survey tool and exported to SPSS to conduct a Pearson r correlational statistical test that measured the relationship between at least one or more independent variables and a linear dependent variable (Champion, Lewis & Myers, 2015; Chen & Popovich, 2002; Creswell, 2015; Simpson, 2015).

Definitions

Addiction transfer: A term coined by psychologists involved in substance abuse treatment. It refers to the tendency for people who relapse after being treated for one form of substance abuse to develop a compulsion for another substance or harmful behavior (OAC, 2016; OAC, 2018). For example, a person with a history of alcoholism may give up drinking but may start using prescription painkillers or gambling excessively (National Council on Alcoholism and Drug Dependency, 2018).

Alcohol abuse and dependence: A primary, chronic disease that is associated with genetic, psychosocial, and environmental factors. These factors also influence the development and manifestation of this disease (NIAAA, 2017). The nature of dependence is relative to the individuals use and dependency on alcohol (NIAAA, 2017).

Alcohol use: The amount and frequency (level) in which an individual consumes alcohol (NIAAA, 2017)

Alcohol use disorder: A chronic relapsing brain disease characterized by compulsive alcohol use and loss of control over alcohol intake (NIAAA, 2017).

Bariatric surgery: A surgical procedure that causes weight loss. Bariatric surgery restricts the amount of food the stomach can consume and hold. There are four common bariatric performed in the United States: RYGB, sleeve gastrectomy, adjustable gastric band, and biliopancreatic diversion with duodenal switch (Jumbe, Hamlet, & Meyrick, 2017).

Obese/obesity: A body mass index (BMI) of 30kg/m2 or higher, excessive weight or fat can contribute to health problems such as obesity (CDC, 2013; Funghetto et al., 2015).

Overweight: A body mass index (BMI) between 25kg/m2 through 30.kg/m2 (Funghetto, et al., 2015).

Substance abuse: Harmful or hazardous use of psychoactive substances--substances when taken, consumed, injected in an individual system will have an effect on the mental process (WHO, 2016).

Assumptions

I assumed that all respondents to the survey met all inclusion criteria. Since participants are not required to provide any identifying information, I am assuming that all respondents/participants willingly and truthfully answer all questions, as their identity is anonymous. I also assumed that the three instruments captured appropriate data to analyze and answer the research question and hypotheses. I also assumed that all respondents' computer and literacy levels was good enough to use the computer and able to read and comprehend the questions. Lastly, I assumed that the electronic version of the survey will be appropriate to collect data on the variables while maintaining the reliability and validity of the published instruments (Settanni, Prino, Fabrics, & Langobardi, 2018).

Scope and Delimitations

I examined the relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-

surgery alcohol use provided, pre-surgery alcohol use consumption behavior as measured by the Alcohol Use Disorder Test, the post-surgery alcohol use consumption behavior as measured by the Alcohol Use Disorder Test, and post-surgery alcohol use attitude as measured by the Alcohol Self-Regulated Questionnaires.

Even though obese individuals may be a candidate or have a choice to utilize bariatric surgery treatment options (King et al. 2012), this study targeted population included post-bariatric surgery patients at least 18 years of age. This requirement can limit the number of participants, however using convenience and snowball sampling assisted with ensuring adequate participation by potentially letting other potential participants know about the study who may not have been the initial individual who sees the study information (Laerd, 2012). The data was collected for one point in time and a pretest or posttest for a participant to follow up or researcher to follow up to complete the study was not used. Using proposed research design and not requiring a pre or post follow up assisted with eliminating or reducing the internal threat of mortality (Shivaji & Ford, 2015; Simonetti et al., 2015. This population was appropriate because of the increased cases of onset alcohol use problems with bariatric surgery patients (Bak et al., 2016; Cuellar-Barboza et al., 2015; Lent et al., 2013; Parikh et al., 2015; Spadola et al., 2015; Steffen et al., 2015). Prior researchers indicated that there is a minimal level of awareness, studies, and information associated with the relationship between bariatric surgery and alcohol misuse (King et al., 2012; Wee et al., 2014; Yin, 2015). I was only able to generalize findings to groups of individuals who align to the inclusion criteria for the study.

Limitations

As the design of this study was quantitative, correlational, and cross-sectional in nature, there was limitation to the type of data gathered, analyzed and illustrated as results (Creswell, 2015). Because quantitative methods include numeric data, data was limited to analyzing numerical data. This limitation did not impact this study because the incorporated statistical test displayed numbers and descriptive data that is aligned with the patterns for the gathered quantitative data and the two published instruments that was used have been found to be reliable and valid instruments to measure alcohol consumption behavior and attitude about alcohol use (Connelly, 2016; Frankfort-Nachmias & Nachmias, 2008; Rudestam & Newton, 2016). Limitations associated with self-reported data and recall bias was considered when interpreting the data. This is because I asked participants to remember and report behavior and experiences in the past (receiving information about alcohol use before having bariatric surgery and alcohol consumption behaviors before having bariatric surgery). Grimes and Shultz (2002) explained that recall bias can be both intentional and unintentional and using strategies to avoid or limit bias can minimize the impact of bias to the study. Recall bias had a potential to impact this study because the participant may have felt embarrassed answering honestly or does not recall exact or actual alcohol use. This study included instruction that promoted responding to questions honestly and to the best of knowledge to assist with reducing biases and untruthful responses. Even though the level of bias could not be independently verified or controlled (Creswell, 2013), awareness of the presence of bias did allow for a careful critique of results (Sica, 2006).

Lastly, the study was only completed using electronic devices connected to an internet source. Possible resources such as public library and schools may have been used by participants and this could have impacted their willingness to answer questions honestly as they may have felt that others could see their answers and can compromise being anonymous. In addition, the need for computer and internet access to participate may also result in those who cannot afford a computer or the internet not participating.

Significance

This study can potentially contribute to (a) increased awareness and education about bariatric surgery and its relationship with post-operative alcohol use, abuse, and disorders; (b) a reduction in potential cases of alcoholism and addiction transfer and alcohol problem after bariatric surgery; (c) public health and safety legislation and policy; and (d) positive behavioral health research outcomes. The potential implications for positive social change are associated with healthcare and public health community and legislative parties pertaining to healthcare practices and policies. Results have the potential to provide different perspectives of awareness and prevention in understanding the relationship between bariatric surgery and post-surgery alcohol use and behaviors and potentially provide findings and create policies to execute a more effective or improve bariatric surgery preoperative and postoperative healthcare mandates or recommendations. Additionally, bringing awareness of the potential risk of post-surgery alcohol use to public safety can also contribute to self-injury prevention (alcohol poison, trip and fall) and public safety threats (driving or operating machinery while under the influence).

Summary

Chapter 1 provided a straightforward description of obesity and the medically approved tools that have evolved to treat and combat the obesity epidemic: The purpose of this study, the problem statement, and nature of the study, the hypothesis, and research questions, limitations, delimitations and assumptions was provided. In Chapter 2, I provided a background of obesity and the increase risk and potential problems of alcohol use after bariatric surgery.

Chapter 2: Literature Review

Introduction

Bariatric surgery is the only long-term effective tool in treating the obese and severely obese (Caceres et al., 2015; King et al., 2012; Ogden et al., 2014). However, there is an increased risk of alcohol use disorder post-surgery that could lead to personal and public safety issues and concerns (King et al., 2012; King et al., 2017; Preidt, 2017). Post-surgery use of alcohol in bariatric surgery patients may lead to problems such as an increased risk of alcoholism due to the changes in the way the body processes alcohol, malnourishment, ingestion of excessive liquid calories, and weight gain (King et al., 2012; King et al., 2017; Preidt, 2017). Being unaware of, or having false perceptions of, the effects of alcohol in the bloodstream post bariatric surgery could have a negative impact on relationships, employment, and other quality of life factors including risky behaviors such as driving while intoxicated (King et al., 2012; Pepino et al., 2015; Yin, 2015).

In Year, 37% of adults, 21% of adolescents, and 26% of children were considered obese in the United States (Ogden et al., 2014). It is estimated that 48% of the U.S. adult population will be considered obese by the year 2018 (CDC, 2016). ASMBS (2016) indicated that there were 196,000 bariatric surgeries performed in the United States as of 2015. As the use of bariatric surgery has increased, there has also been an increase in cases of onset and transfer addictions to alcohol in post-surgery patients (Bak et al., 2016; Cuellar-Barboza et al., 2015; Lent et al., 2013; Parikh et al., 2015; Preidt, 2017; Spadola et al., 2015; Steffen et al., 2015). Excessive use of alcohol and alcohol addiction have

been associated with social problems, a decreased quality of life, illnesses and disease, self-injury, threats to public safety, and even death (Jones et al., 2015; NIAAA, 2017). The problem that was addressed in this study is the potential for an increased risk of alcohol use and abuse in patients who have had bariatric surgery and the negative impact on quality of life.

The purpose of this quantitative study was to examine the relationship between demographic factors (age, gender, type of bariatric surgery, number of years since surgery, education level), the type of information about post-surgery alcohol use that was provided before surgery, pre surgery alcohol consumption behavior as measured by the pre-AUDIT, post-surgery alcohol consumption behavior as measured by the post-AUDIT, and post-surgery alcohol use attitude as measured by the ASRQ. Health care professionals, leaders, and legislators could benefit from a better understanding of the relationship between these variables. With this knowledge, advocates may be able to make a case for patients to be provided the appropriate resources and support for awareness and prevention of alcohol use post-surgery (King et al., 2012).

Szalavitz (2012) demonstrated how RYGB bypass surgery increases the risk of alcohol dependency, which can result in alcohol-related problems. Szalavitz also concluded that there is evidence that indicates RYGB gastric bypass surgery patients experience alcohol use and abuse problems post-surgery. Szalavitz also explained that research is limited as it pertains to this population's characteristics, drinking patterns, and possible risk factors. Researchers have indicated that there is a gap relevant to the processes and procedures on educating bariatric surgery patients and candidates pre- and

post-surgery regarding the risk of alcohol use (Alizai, 2015; King et al., 2012). Researchers have also found that while alcohol abuse is a negative outcome related to decreased quality of life, chronic illnesses and diseases, self-injuries, threats to public safety, and death, there is minimal understanding of the phenomenon especially in post-surgery bariatric patients (King, 2017; Mitchell et al., 2015).

Literature Search Strategy

I searched for literature using the Walden University Library. The search engine used was Thoreau, which is a multi-database search engine. The search terms were related to health services, obesity, bariatric surgery, addiction awareness and prevention, health literacy and education. I conducted the health sciences searches using CINAHL, MEDLINE (full-text database and simultaneous search), and PubMed databases. The primary date range used in this study was 2013 to the present. However, there are references from as early as 1980 used in a discussion of the history of obesity. There are also publications from 2001 to 2007 to identify assessment instruments used in the study. I used peer-reviewed journals retrieved from Walden University and public health journals associated with bariatric surgery, obesity, and alcohol use. The key search terms included *bariatric surgery*, *substance use and bariatric surgery*, *alcohol use*, *obesity*, *onset addiction*, *addiction transfer, the prevalence of obesity*, *health belief model theory*, *and theory of planned behavior*, *bariatric surgery education*, and *literacy*.

Theoretical Foundation

The theoretical foundations used for this study included the HBM and the TPB. Health behaviors are associated with five principles: (a) have a level of influence on

health behavior, (b) environmental contexts are significant determinants of health behaviors, (c) influences on behavior is engaged across levels, (d) ecological models should be gear towards the specific behavior, and (e) multiple interventions should be effective in changing behaviors (Glanz et al., 2015). Prevention and awareness of alcohol use, abuse, and addictions is relative to health behavior and health behavior change. Because it involves health education professionals, psychology, social work, and multiple health and wellness specialists and programs to aim for positive and informed agendas to accomplished goals and objectives with specific population or targeted audiences (Ajzen, 1991; Glanz et al., 2015).

I applied the (HBM) to this study as a roadmap to understanding the beliefs, attitudes, and behaviors related to not consuming alcohol after surgery and the potential risk and illnesses of acquiring onset alcohol use, abuse, and addiction. The HBM concept is centered on predicting health behaviors to reduce or eliminate potential risks that compromise health (Jones et al., 2015). The (TPB includes constructs that can explain cognitive behaviors that are related to individual's attitude and beliefs (Ajzen, 1991). Researchers use the TPB to predict an individual's intention to engage in an action or behavior at a specific time and place (Ajzen, 1991). The TPB posits that an individual's behavior is influenced by determinants: attitude toward behavior, subject norms, perceived behavioral, and control (Ajzen, 1991; Cooke, 2016).

Health Belief Model (HBM)

Hochbaum, Rosenstock, and Keges developed the HBM in the 1950s. The HBM was developed to understand why individuals failed to participate in free or minimal cost-

preventive screenings for tuberculosis, polio, and cervical cancer (Hochbaum et el., 1958; Rosenstock, 1966). The model's focus is on attitudes and beliefs related to the reasoning behind why individuals decide to engage in unhealthy lifestyles and refuse to engage in preventive measures to reduce or eliminate potential risk of illnesses, diseases, or injuries (Gilliver, Beach, & Williams, 2015; Jones, Jensen, Scherr, Brown, Christy, & Weaver, 2015; Rosenstock, 1974). This model has attributes of, and is associated with, theories related to the value expectancy theory, which is part of the efficacy expectation (Rosenstock, 1974). The HBM assumption is that individuals are likely to engage in health behavior if they believe that they are at risk, have serious consequences, can benefit from the action, and the good outweighs the bad (Glanz et al., 2015). Figure 1 shows the constructs that are associated with the HBM.

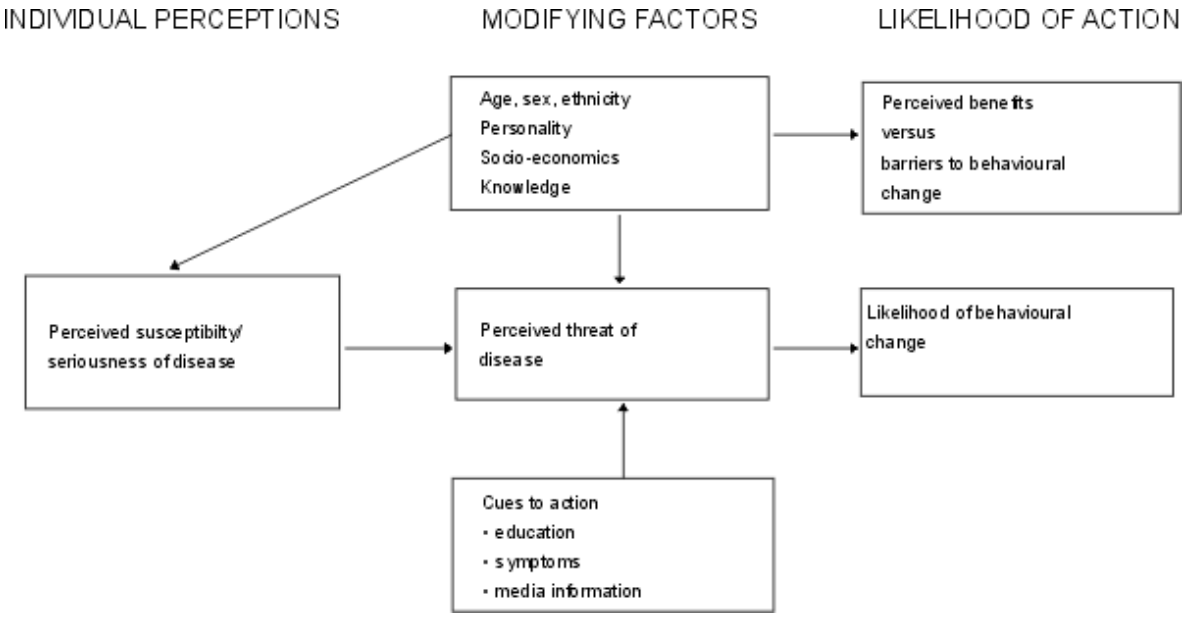


Figure 1. Health belief model. (Rosenstock, 1974).

Below are explanations of the different elements illustrated in the figure:

- Perceived susceptibility is an individual's belief or opinion of whether or not they would get an illness or condition (Glanz et al., 2015). A bariatric patient would have to believe to be at risk of onset alcoholism or disorder after surgery.
- Perceived severity is an individual's belief or opinion on how serious illness or condition is along with the consequences (Glanz et al., 2015). Bariatric patients will have to believe that they are at greater risk of alcoholism or disorder post-surgery and that the consequences of consuming alcohol and adopting an addiction will comprise health and quality of life.
- Perceived benefit is an individual belief that benefits will come from taking action to improve health and reduce and eliminate risk. The bariatric patient will have to believe that practicing abstinence and being educated on alcohol use after surgery will reduce potential risk and eliminating the risk of alcoholism or disorder as well as knowing that there is a greater potential of being successful in their weight loss and improving quality of life (Glanz et al., 2015).
- Perceived barriers are an individual's opinion or belief on obstacles or barriers that will be associated with taking action or making the change (Glanz et al., 2015). The bariatric patient may not obtain adequate information before surgery or post-surgery because they may feel their clearance for surgery may be compromised if prior alcohol use or alcohol

problems are disclosed. Not getting adequate information or support can compromise decisions or choices of health behavior related to consuming alcohol.

- Cues to action are an individual's plan or idea in making the change (Glanz et al., 2015). This construct involves what triggers or influences the individual to make behavior changes. The bariatric patient will need to be provided awareness information on post-surgery alcoholism and the impact this problem will have on their weight loss efforts and their overall health.
- Self-efficacy. Self-Efficacy is an individual's belief of being successful in taking action or making the change (Glanz et al., 2015). The after-surgery health behaviors will need to be modified. However, health care providers will need to provide adequate information and resources to influence and assist with being successful in making the appropriate changes or acting.

El-Rahman, Mahmoud, Amal, and Mahmoud (2014) utilized the HBM to examine the influence of alcohol use and intervention, the goal and objective were to educate and improve the knowledge on how alcohol use and abuse can impact lives. The HBM components were used to present information and predict the behavioral and belief about alcohol use which relates to the susceptibility of the adverse health of alcohol use, the severity of alcohol use, benefits of non-alcohol use, barrier related to quitting alcohol and cues of action (Cunningham, Hendershot, & Rehm, 2015; Dowdell

& Santucci, 2004; El-Raham Mona et al., 2014). El-Rahman et al. (2014) demonstrated that the HBM was beneficial in influencing change with alcohol use, an increased belief of the impact of alcohol use and abuse in alcoholic and alcohol disorder patients.

Jones et al. (2015) used the HBM to study the effectiveness in using a public service announcement (PSA) to communicate the benefits of the H1N1 vaccine and communicate the effects of influenza (flu) outbreak and pandemic. The HBM constructs of perceived barriers, benefits, efficacy, and threat were used as part of the framework to communicate any false myths about the flu shot and the potential risk and threats of influenza. The PSA also promoted how getting the H1N1 vaccines should be used as preventive measures from acquiring or minimizing the effects of influenza. Using the HBM as a guide to examine the study's variable relationship with the type of information patients received about alcohol use after surgery will be useful (Jones et al., 2015; Yoder, Mac Neela, Conway, & Henry, 2017).

El-Raham Mona et al. (2014) conducted a brief intervention to influence change in alcohol use and disorder patients using the HBM concepts. The model's construct was used as a basis for the intervention used to attempt to change attitudes toward addiction and acknowledging the severity of the alcohol use and the consequences of harm with continued alcohol use. The three 30-minute sessions with alcohol use and disorder patients included an overview of alcohol abuse, the effects of alcohol, and the consequences of use and addiction as well as skills and practice in self-motivating change. The outcome of the intervention demonstrated an improvement in patient's

attitude and belief of addictions, behavior change, and the benefit of change (El-Raham Mona et al., 2014).

Behavior is determined by beliefs about threats to well-being and the effectiveness and outcome of a particular action or behavior change. The HBM is one of many health behavioral theories that focus on personal beliefs, perceptions of severity, health status or problems, benefits and barriers; and readiness to change (Caudell, Mullah, & Hagger, 2016; Montanaro, & Bryan, 2014). Each construct of the HBM has unique reasoning and analysis related to the relevancy of the model's effectiveness.

Theory of Planned Behavior (TPB)

The theory of planned behavior (TPB) was developed by Ajzen in 1991 (Glanz et al., 2015). The TPB is a continuation of the theory of reasoned action (TRA), which was developed by Ajzen and Fishbein in 1975 (Ajzen & Fishbein, 1980). The TRA explains that the essential part of a determinant of behavior is the behavioral intention (Glanz et al., 2015). TPB was developed to extend TRA and include the addition of deliberate behavior with the addition of the control belief, or perceived behavior control relative to an individual's perception of control over particular behaviors are control belief, normative belief, and behavioral belief (Ajzen, 1991). Both the TRA and TPB have the same theoretical constructs relative to an individual's motivational factor as a determinate of deciding to perform a particular behavior (Glanz et al., 2015).

The model's assumptions included that a person's behavior is influenced or determined by their intention to perform the behavior action or change and their attitude toward whether behaviors are normal. However, the TPB has an additional construct that posits on perceived control over the particular behavior (Ajzen, 1991; Glanz et al., 2015)

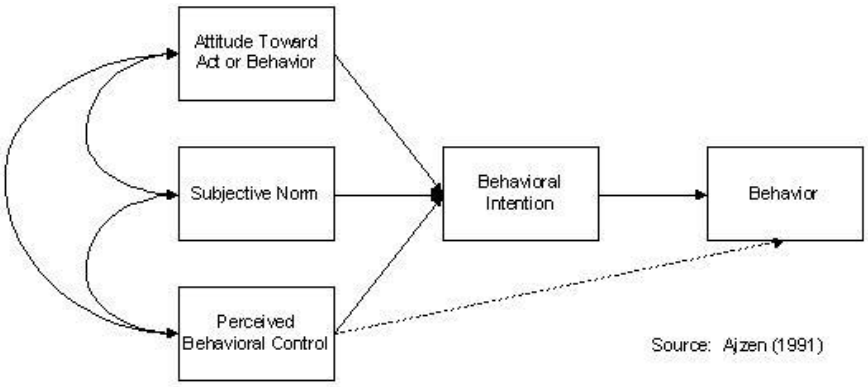


Figure 2. The Theory of Planned behavior (Ajzen, 1991).

The TPB is associated with the following constructs:

- Behavior intentions. This relates to factors that influence behavior. Ajzen (1991) and Caudell, Mullen, and Hagger (2016) explained that desired behavior is more likely to be performed by using motivation as an influencing strategy. More so, the stronger the influence, the more likely the action or behavior will be performed. This construct provides a framework to provide strategies to promote literacy and information about prevention and awareness of alcohol use and abuse after bariatric surgery. The information could be influential in preventing onset alcohol use or alcoholism (Asare, 2015; Caudell et al., 2016; Hasking & Schofield, 2015).
- Attitudes. This construct is greatly relative to the belief and outcome of behavior. The individual would have either a favorable or not favorable measures of the specific behavior. This component would provide an evaluation of a bariatric surgery patient's attitude toward believing the potential risk associated with alcohol use after surgery and his or her thought or measure of the making the change or avoiding alcohol (Asare, 2015; Caudell et al., 2016).
- Subject norms. This construct is relative to both normative and subjective normative. Norms refers to an individual's pressure from society to act or perform a specific behavior (Asare, 2015; Caudell et al., 2016). This component would relate to bariatric surgery patient's expectations from others in society to lose weight and complying with post-surgery information, requirement, and recommendations.

- Perceived behavioral control. This construct is essential in the model's framework because it involves an individual's belief or perception of taking action or performing the behavior (Asare, 2015; Caudell et al., 2016). This construct will be essential to bariatric surgery patient receiving the support or resource to assist with adhering to post-surgery health behavior to reduce or eliminate the potential risk of onset addictions or alcohol problems.

The TPB has been used successfully in studying a wide range of health behaviors and intentions (Ajzen & Fishbein, 1980). The TPB was used in studying health behaviors associated with smoking, alcohol use and substance use, disease and illness screenings and health services utilization, and breastfeeding (Ajzen, 1991; Albarracin, Johnson, Fishbein, Muellerleile 2001; Gallucci, Martin, Beaujean, & Usdan, 2015; Lee, Bowen, Mosely, & Turner, 2017). Behavioral intention, attitude, subjective normative, and perceived behavioral control frameworks have been used in designing a variety of studies relative to health behaviors. Albarracin, Johnson, Fishbein, & Muellerleile, (2001) and Asare (2015) measured a population's health behavior related to condom use, and Ayodele (2017) provided data relative to predicting an individual's behavior intentions in screenings and testing for human immunodeficiency syndrome virus (HIV) screening or testing. The TPB constructs were beneficial to the researchers who attempted to educate individuals about the potential harm of alcohol use, excessive alcohol use, and the associated increased risk of acute and chronic illnesses and disease by providing assistance with planning, implementation and evaluating the educational intervention on

alcohol use and harm (Asare, 2015; Ayodele, 2017; Caudell et al., 2016; Roncancio, et al., 2015).

Using the TPB constructs in this study was relevant to prevention and awareness of alcohol use in bariatric patients because the theory's constructs; behavioral intention, attitude, subject normative and perceived behavioral control of alcohol consumption or use would be essential and beneficial to public health professional assessing patient's alcohol use and addictive personalities prior to bariatric surgery (Asare, 2015; Ayodele, 2017; Caudell et al., 2016; Roncancio, et al., 2015). The researchers used the TPB constructs of attitude, subject norm, perceived behavior control as the framework and strategy to educate the population on the awareness of pre-drinking sessions, pre-drinking harm. The authors used a questionnaire as the tool to measure the variables outcomes associated with individuals and the population's beliefs and attitude about pre-drinking sessions after intervention (Caudell et al., 2016).

The framework used by Caudewll et al. (2016) could be used in understanding and predicting attitudes toward quitting drinking or predicting quitting before surgery or after surgery. Subject normative would be relative to bariatric surgery patient's belief or environmental and social factors that can influence or pressure post-surgery drinking. This framework will be beneficial to understanding bariatric surgery patient's intended behavior post-surgery about alcohol use.

Asare (2015) used the TPB in their study where they measured condom use among college student was based on the behavioral intention, and attitude subjective normative and perceived behavioral control. These constructs provide relevancy to

predicting or establishing the behavioral intention to adhering to post-surgery alcohol use and consumption recommendations. To further conclude the essential component of the TPB behavioral intention, Ayodele (2017) tested the theory as a predictor of individuals' intentions to be tested for the human immunodeficiency syndrome virus (HIV) for a specific population. Ayodele (2017), explained that strong influential factors such as attitude and perceived behavioral control impacts individual's intention of perceived risk of being infected by HIV, the behavioral control can influence decision to take HIV preventive measures, and screenings.

Literature Review Related to Key Variables and/or Concepts

The topics in the literature review include obesity and the prevalence of obesity as a disease. I also discuss bariatric surgery and the potentially increased risk of alcohol abuse, and addiction. Additionally, the literature review will include onset and addiction transfer of alcohol use, and health literacy and education provided to bariatric surgery preoperative and postoperative patients.

Categorization of Normal Body Weight, Overweight, and Obesity

An individual human body is comprised of fat and nonfat areas or compartments. To obtain an accurate measurement of fat in particular areas or component involves obtaining a body composition assessment. Body composition can be assessed at the tissue level, molecular and cellular (Beechy, Galpern, Patron, & Das, 2012; Nissen, Holm, & Baarts, 2015; Flegal et al. 2016). Measuring body composition can be done in different ways. However, there are limitations associated with the different methods specifically associated with the obese population. Assessing an obese individual's body composition

is challenging because of the increased body fat. Assessing body fat in an obese individual is different than assessing the body composition in a non-obese individual (Beechy, Galpern, Petrone, & Das, 2012; Kemmerer, Porter, Beekly, & Techansky, 2105). Obese individual and a normal body weight individual are assumed to have different physiological changes and the same assessment methods will not apply and will affect the accuracy of a body composition tool (Beechy, Galpern, Petrone, & Das, 2012).

One method used is Body Mass Index (BMI). This method has a formula that is utilized determines a healthy weight, normal body weight, or ideal weight of an individual. The BMI formula includes an individual height and weight (WHO, 2015). The BMI formula pertains to both men and women. The BMI formula includes dividing weight in pounds by height in inches (in) squared and multiplying by a conversion factor of 703 (i.e. Weight = 150 pounds, Height = 5'5″ (65″) Calculation: $[150 \div (65)^2] \times 703 = 24.96$) (CDC, 2016). The limitation for this method is that it does not have the capability to diagnostic health status or body fatness (CDC, 2016).

Another body composition method is Anthropometrics. Anthropometry is considered a basic method and is utilized to determine an individual's body composition such as mass, size, shape, and fat level. Even though it is an easy and less expensive method, there is an expectation of the skill level of the person conducting the body part measurements. The body composition results are determined with the measurement set in a regression equation. This method limitation is associated with completing an obese individual's body composition; this method cannot determine subcutaneous fat versus

visceral adipose tissue, which is needed to assess obesity risk factors (Beechy, Galpern, Petrone, Das, 2012).

A third method is Skin fold thickness (SKF). This method is used to assess subcutaneous fat in specific areas of the body. The areas that are normally used to measure are the biceps, triceps, subscapular and suprailac. The tool used for this method is called a caliper. The tools are available in different sizes. However, the larger the measuring tool, the more difficult it is for the person measuring to get accurate measures. Once the calculated measurements are obtained, the figures are put into a regression equation to obtain a prediction for total body fat. The limitations to the use of this method involve skin elasticity, fat and the level of discomfort during the measuring process. These limitations are associated with using this method on the obese population (Beechy, Galpern, Petrone, Das, 2012).

The body mass index (BMI) method is a preferred method of use within the public health community to determine health risk levels with diabetes, heart diseases and other critical illnesses (Muller, 2016; WHO, 2016). However, there is controversy with whether BMI should be the preferred method standard for determining normal body weight, overweight, or obese illnesses (Olfert et al., 2018; Muller, 2016). Currently, the WHO and CDC do recognize the BMI as a method to determine the health and weight status (CDC, 2016: WHO, 2016).

Normal body weight. Height and weight are the established nutrition assessment variables (WHO, 2016). Muller (2016) explained that ideal body weight (IBW) is considered a healthy weight and is normally associated with a low mortality rate

compared to being overweight or obese. The individual's gender does not play a role in BMI formula, but ideal weight differs with gender (WHO, 2016). Researchers have demonstrated that there was minimal evidence that indicates men and women should adopt different weight loss strategies (William, Wood, Collins, & Calliser, 2015). The ideal weights of men and women are different, and there are different cultural norms for body weight based on gender. An average number of men indicate their ideal weight is 185 pounds, but with an average actual weight of 196 (Gallup News, 2012). An average number of women indicate that their ideal weight is 140 pounds, but their average actual weight at 156 pounds (Gallup News, 2012).

Pellegrini, Hoffman, and spring (2014) concluded that promoting individuals to attain ideal body weight using the BMI measures is not an attainable goal and does not promote the characteristic of modern biomedical sciences advances. Additionally, Muller (2016) indicated that since modern biomedical sciences have advanced there should be a more advanced method of determining BMI and whether an individual is at an ideal weight or normal body weight and found it difficult to accept the current formula. Critics explained that culture which is what an individual live can influence their eating, activity and body weight and body image perceptions. Culture differs among ethnic groups (Frederick, Saguy, & Gyrus, 2016; Sobal, 2001). Cultures, beliefs, and attitude can play a significant role in how individuals perceive their body and weight (Frederick, Saguy, & Gruys, 2016).

Overweight and obese. Being overweight is defined as a BMI of 25.0 to 29.9 and obese is defined as 30.0 to 35.9 and severe and morbid obese 40.0 or greater. Obesity is considered a disease (Orehek & Vazeou-Neuwehuis, 2016). According to the CDC (2013), this disease has many factors related to it such as genetic, epigenetic, physiological, cultural, and environmental factors that produce an imbalance between energy intake and expenditures for a period of time (Bray, Fruhbeck, Ryan, & Wilding, 2016). Individuals that have an excessive amount of body fat or are considered to be overweight or obese carry a risk of potential health problems associated morbidity and mortality such as cancer, high blood pressure, mental health, Type 2 diabetes, and cardiovascular diseases (Bray et al., 2016; Fouse & Schauer, 2016; Orehek & Vazeou-Neuwehuis, 2016).

Body weight is a mechanism that found highly related to illnesses such as diabetes mellitus (DM) and coronary heart disease (CHD). A 5% to 10% weight loss can control an individual's risk factors pertaining to being diagnosed with DM and or CHD, controlling insulin sensitivity, blood pressure, glycaemia control, inflammatory defenses, and diseases and ultimately reducing the risk of mortality (Alharbi, Gallagher, Kirkness, Sibbritt & Tofler, 2016). Females are more likely to be obese (59%) than males (44%) (Jonikas et al., 2015) and social stigmatization has been associated with individuals being obese or overweight as it is assumed that these individuals are lazy, lack motivation, and willpower (Cori, Petty, & Alvarenga, 2015).

Prevalence of obesity. Worldwide the obesity rate has tripled since the 1970s. Obesity, as well as its related illnesses and diseases, have increased in the last 50 years

(WHO, 2016). Health professionals determine unhealthy dietary and nutritional intake and decrease, or lack of physical activities contributes to obesity (Papandreau et al., 2016). The WHO (2016) indicated that globally the obesity rate for both adults and children continue to grow and has doubled since 1980. In 2014, over 1.9 billion individuals were overweight, and 600 million adults were obese and 43 million children under five years of age were considered overweight or obese in 2013 (WHO, 2016). Due to the significant increases in obesity prevalence during the 90s, the CDC considered obesity in the United States an epidemic (CDC, 1999).

As the obesity epidemic has increased the initiatives originated from the federal government such as Healthy People 2020, called for the public health community to participate in an initiative called Healthy People 2020. This initiative includes a multiyear national objective to improve health (Healthy People 2020, 2014; Lagerros & Rossner, 2013). Obesity is one of the Healthy People 2020 initiative's health indicators with one of the goals is to reduce the obesity rate by 2020. The objectives are in response to the increase in the occurrence of obesity, poor nutrition, and inadequate physical activity (Healthy People 2020, 2014). The initiative is based on a position that the contributing factor associated with excessive body weight and obesity is resources and environment. An individual's environmental factors such as access to fresh fruits and vegetables, accessibility to safe and pleasurable places to play or be active and social factors can influence eating behaviors, being physically active and obesity (Healthy People 2020, 2014).

The WHO (2016) indicated that obesity is a progressive and chronic disease. The disease is associated with an individual's genetic factors and different environment, and the rate of obesity is predicted to increase 50% by 2030s (Abdelaal, Rounb, & Docherty 2017; ASMBS, 2016). Obesity is a complex public health issue and is known to account for approximately 300,000 deaths annually (Goode et al., 2017). The CDC (2016) has estimated that over 47% of adults in the United States will be considered obese by the year 2018. The prevalence of obesity exists in all ages, genders, race, and ethnicity (CDC, 2014). Furthermore, the CDC (2016) indicated that the overall prevalence of obesity in adults was 36% and in youths 17%. Specifically, the prevalence of obesity in women was higher at a rate of 38% than men with a rate of 34%. The prevalence of obesity in youth had no statistically significant differences by gender. The prevalence of obesity by race indicated 34% in non-Hispanic whites, 48% in non-Hispanic blacks 36% and 43% in Hispanics. Non-Hispanic women have the highest prevalence of obesity, and Hispanic men have the lowest (CDC, 2016).

Obesity and the illnesses associated with the disease have threatened the financial sustainability of the United States healthcare delivery system. Due to over two-thirds of the nation’s population being considered overweight or obese, the impact the affordability and access to healthcare throughout the continuum of care will continue to be substantial (Cecchini & Sassi, 2015). Thirty-seven percent of adults, 20% of adolescents, and 26% of children are considered obese in the United States (CDC, 2016). Tremmel, Gerdtham, Nilsson, and Saha (2017) credited obesity with a large part of the economic burden to society and the rising health care cost in the United States healthcare

system. Peterson and Mahmoudi (2015) predicted that by the year 2030, obesity prevalence (at least 50% of the population) would account for 16%-18% of healthcare expenditures. However, this prediction does not include the cost of the chronic physical disabled, obese population; if included the prevalence and expenditures of obesity will be significantly greater (Peterson & Mahmoudi, 2015). However, the healthcare expenditures for the chronic physically disabled obese population and the obese population account for $23.9 billion a year in healthcare cost (Peterson & Mahmoudi, 2015).

Nonsurgical Weight Loss Methods

Different weight loss approaches have been used to reduce body weight and BMI (Williams, Wood, Collins & Callister, 2015). Commercial counseling, physical activity, nutritional counseling, and medically supervised programs can be the foundations for weight loss. However, behavioral lifestyle changes will need to occur for long-term weight loss (Trilk & Kennedy, 2015; Williams, Wood, Collins & Callister, 2015).

Dietary and nutritional methods. The amount and type of foods consume plays an important role in weight control and obesity (CDC, 2012). One major contributor to weight gain and obesity is an energy imbalance. Energy imbalance occurs with more calories is consumed than your body exhaust or use daily (CDC, 2012). Nutritional guidelines include recommendations to eat fresh fruits, vegetables, lean meat, and poultry as well as foods enriched in fiber. It is also important to reduce or eliminate foods high in saturated fat, moderate sweets, and reduce or eliminate sugary beverages (Healthy People 2020, 2014; Houston Obesity Surgery, 2016).

The American Public Health Association (APHA) supports the efforts made by organizations and mandates such as WHO and the Patients Protection and Affordable Care Act (PPAC). WHO, promoted diet, physical activity, and health (APHA, 2005), and PPAC of 2010 adopted the menu and vending machine labeling law. According to the Public Health Law Center (PHLC, 2016), this law required restaurant chains and vending machines to disclose calories on food and beverages; the mandates were included in the Patient Protection and Affordable Care Act. Set laws dictates or mandates the limits and requirement that local and state government is requiring to impose (PHLC, 2016).

Physical activity. Daily physical activity can provide benefits in maintaining and improving health and reducing and eliminating overweight and obesity. (Healthy People 2020, 2014). Generally, engaging in at least one hour of physical activity is recommended to improve and maintain a good healthy lifestyle (WHO, 2016). Using body muscles to exhaust energy is considered being physically active (CDC, 2016; WHO, 2016).

Swift et.al., (2014) indicated that very high aerobic exercise training (ET) is needed to obtain and sustain the benefit of weight loss with physical activity. Weight loss is determined by different factors. For example, after 12 weeks of physical activity (aerobic) without any calorie reductions or restriction resulted in 8% weight loss in obese men and after 14 weeks of aerobics with overweight pre-menopausal women resulted in a 7% weight loss (Swift et al.,2014). Swift et al. (2014) concluded that if substantial weigh loss is desired with physical activity (PA), including caloric restriction will improve the

chances of a greater weight loss. More so, including caloric restrictions and PA can plan an important role in maintaining weight loss or the amount of weight regained.

Commercial weight loss and programs. Commercial weight loss programs such as NutriSystem, Jenny Craig, and Weight Watchers provide an option that is widely recommended for individuals suffering from or affected by obesity (Yeager & Still, 2018). Commercial weight loss programs require specific protocols to accomplish weight loss. Protocols include eating prepackage foods, support groups, and calorie restrictions, and low glycemic diets and other controlled components (Yeager & Still, 2018). The protocols of commercial weight loss programs are typically designed to consume 1,000 to 1,500 calories per day which can result in a 1 to 2 pound per week weight loss. The weight loss program's protocol either requires signature meal (pre-package) replacements or does not require signature meal replacements (Yeager & Still 2018).

Currently, commercial weight loss program (NutriSystem & Jenny Craig) has an online and telephone program to administer the program and requires signature meal replacements that are pre-packaged. The program also includes nutritional counseling. The meals are controlled with high protein and have a low glycemic index (GI) (Yeager & Still, 2018). The benefit of a low glycemic indexes is associated with eliminating a high rise in blood sugar which results in keeping blood glucose in control for potential Type 2 diabetics or diagnosed Type 2 diabetics with an average weight loss of 1 to 2 pound a week. Additionally, studies indicated that NutriSystem customers had an average weight-loss of 18 pounds by three months and 27 pounds by six months (Gudzune et al., 2015; Yeager & Still, 2018).

Another commercial weight loss program that requires signature meals replacements is Jenny Craig (Gudzune et al., 2015). This program was founded over 30 years ago and is considered a comprehensive weight loss approach that includes behavior modification, nutrition, and physical activity. The program protocol requires the use of Jenny Craig's signature meals until the maintenance portion of the program. Jenny Craig's clients average a one to two pounds of weight loss per week. The program provides one on one counseling as well as support group sessions (Gudzune et al., 2015). According to the Obesity Action Coalition, Jenny Craig weight loss program participants had averaged a 10% weight loss within their first year and 7% weight loss around year two. Additionally, in 2014 there was a report that demonstrated a 9% weight loss at year one with Type 2 diabetics, which resulted in improvement in diabetes control and heart risk factors (Yeager & Still, 2018).

One commercial program's protocol that does not require pre-packaged foods but requires the participant to adhere to a point system, is Weight Watchers (WW). The WW weight loss program has evolved since being founded in the 1960s. The program provides a protocol that promotes calories restrictions and high fiber. However, it does require health behavior by practicing moderation and exercise. The program also promotes participants balance diet and recommendations due to the use of pre-packaged controlled foods. Participants are assigned a number of points to potentially lose one to two pounds a week; however, weight loss can be custom to participants desired preference. WW offer virtual or brick and mortar location support (Gudzune et al., 2015; Yeager & Still, & Still, 2018).

Bariatric Surgery

Bariatric surgery is a group of surgical procedures that are utilized to assist the obese with weight loss. The different types of procedures associated with this surgery have components that alter the human's body natural gastrointestinal anatomy and digestive system (Jumbe, Hamlet, & Meyrick, 2017). These modifications to an individual's gastrointestinal and digestive system by way of bariatric surgery provides the benefit of the procedure such as weight loss, eliminating and reducing prior comorbidities and illnesses diagnosed before surgery. Further experts explain that the goal of obesity treatment is to reduce body weight, establish and improve glycemic control and insulin sensitivity, surgical interventions that modify the intestinal physiology has proven to be effective for long-term success (Goode, Styn, Mendez, Gary-Webb, 2017; Mosinski & Kirwin, 2016). These modifications affect how foods, liquids, alcohol, and medications are digested and metabolized and the amount of food that can be consumed (Jumbe, Hamlet, & Meyrick, 2017).

According to Bello (2017), nearly 200,000 bariatric procedures are performed each year. Bariatric surgery can reduce calorie and nutritional absorption, reduce stomach capacity for food and liquids and modify gastrointestinal anatomy (Caceres et al., 2015; King, 2012; Reslan et al., 2014). A patient can lose 45% to 70% of their excessive body weight. The success of the surgery depends on different factors such as the type of procedure, patient's nutritional intake and compliance as well as literacy about the surgery and post-operative care, and behavioral choices after surgery (Odom, et al., 2010).

Critics expressed that bariatric surgery should be considered an option for patients who quality of life is compromised due to an excessive amount of bodyweight or obesity (Krimpuri et.al, 2018; Odom, et al., 2010). Bariatric surgery is known to be very effective in treating obesity compared to the traditional method of weight loss such complying with nutritional recommendations and guidelines, physical exercise and activity; calorie reduction and well-balanced diet (Harvard Health Publication, 2016). Treating obesity provides health improvements to different co morbidities such as cardio vascular diseases, arthritis and Type 2 diabetes (Koliaki et al., 2017; Mehari et al., 2015).

Types of bariatric surgery. The first weight loss operation designed specifically for weight loss was performed in the 1950s and continued into the 1970s. The procedure was called Jejunoileal bypass (JIB) (ASMBS, 2015). This method was effective for weight loss, but the complication rate was excessively high, and the consequences of the complications resulted in patients needing to have their procedure reversed (ASMBS, 2015; Singh, Laya, Clarkston, Allen, 2009). The complications were associated with vitamin and nutrition malnourishment, diarrhea, kidney stones and bacterial infections that caused liver failure, bone disease, and skin problems and in many cases led to death (ASMBS, 2015). Singh, Laya, Clarkston, and Allen, (2009) noted renal failures of which included approximately 40% diarrhea, and 30% electrolyte imbalances, 29% of calcium oxalate nephrolithiasis, and 10% liver disease, malnutrition, fat-soluble vitamin deficiencies, and loss of life and acute liver failure are known to be the most severe early complications in post-operative patients.

As bariatric surgery became more popular and, advancements in science and technology have allowed these surgeries to become safer with a low mortality rate compared to other commonly performed surgical procedures such as; hip replacements and gallbladder removal (Bello, 2017; Fouse & Schauer, 2016). Currently, the JIB has been excluded from the list of recommended bariatric surgery procedures (ASMBS, 2015) and the laparoscopic sleeve gastrectomy (VSG), RYGB, Adjustable Gastric Band (AGB), and Biliopancreatic Diversion with Duodenal Switch (BPD/DS) with Gastric Bypass have emerged (ASMBS, 2015). The complications associated with these surgeries are minimal and are associated primarily with (1) staple line leaks as approximately 2% of patient may experience staple line leaks; (2) bleeding as 1.2% of patient may experience bleeding; (3) stenosis/strictures as 0.6% patient experience stenosis/strictures and; (4) band erosion or slippage as 10% of AGB patients experience this complication (Busko, 2013). The overall mortality rate for these procedures is below 2% (Bello, 2017). Pories (2008) noted the mortality rate by procedures are Adjustable Gastric Band, 0.1%; Vertical Sleeve Gastrectomy, 0.1%; RYGB, 0.5%; and Biliopancreatic Diversion with Duodenal Switch, 1.1%. The two most commonly used procedures currently are the VSG and the RYGB which account for 90% of all bariatric procedures (The Harvard Health Publication, 2016).

The RYGB procedure has been performed for over 40 years and VSG almost 14 years. Adjustable Gastric Band (AGB) and Biliopancreatic Diversion with Duodenal Switch (BPD/DS) procedures have been utilized. The AGB has been around for over ten years, but use decreased from 35% in 2011 to 6% in 2015 (Schroeder, 2017). Critics

explained that the AGB procedure is not adequate to assist patients in effective weight loss and health improvement. The complication associated with this procedure are band slippage which accounts for last than 5% and band erosion 11% (Eid et al., 2011; Bello, 2017; Schroeder, 2017).

Roux-en Y gastric bypass surgery (RYGB). This procedure is known as gastric bypass and is one of the most common bariatric surgeries performed (Koliaki et al., 2017). This method is known to have the best results with an expected 60% to 80% loss of excessive body weight (ASMBS, 2015; Kaliaki et al., 2017) and 85% of patients lose the excessive weight and maintaining at least 50% of weight loss up to 60 months (Golomb et al., 2015). This procedure provides restriction of absorption of nutrition consumed due to the modification of gastric and bowel anatomy (Koliaki et al., 2017). The anatomy modification involves rearranging the small intestine and reducing the stomach size to a 15-30 ML capacity. This reduction in the stomach size allows an individual to eat less and feel full faster and the rerouting of the small intestine provide a mal-absorption of nutrition in the digestive tract to ingest less food nutrition that is being consumed (Koliaki et al., 2017). Steffen et al., (2015) further explained there is data with animal research that indicates an increased risk of alcohol dependency with post-surgery patients, specifically with RYGB.

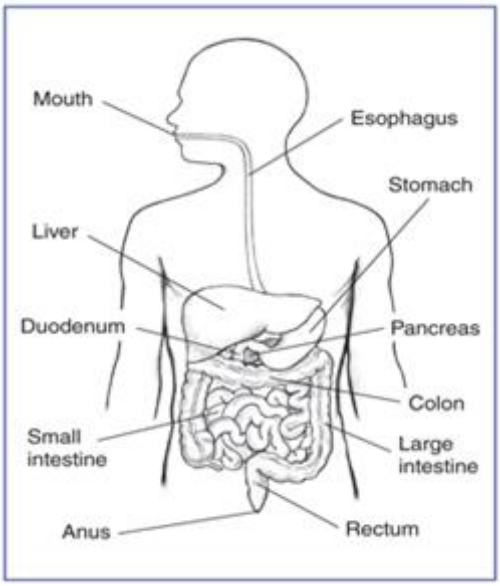


Figure 3. The parts of the Gastrointestinal Tract that food and or liquid passes through to get to the duodenum (NIDDK, 2013).

The physiological aspect of RYGB is associated with the rerouting of the small intestine, and the overall changes of the anatomy (Lutz & Bueter, 2014). This procedure has the ability to reduce or eliminate the desire to eat specific foods such as sweets or sugary drinks. Ingesting these types of foods will bring on the side effect called dumping syndrome. This occur when certain sugary of liquids and high fatty foods are consumed or if overextending food consumptions beyond stomach capacity. Dumping occurs due to the foods or liquids flowing too quickly to the duodenum, which is the upper part of the small intestine and the first part of the gastrointestinal tract (Koliaki et al., 2017). Dumping syndrome causes unpleasant side effects. There are two types of dumping syndromes: (1) early dumping which happens 10 to 30 minutes after consuming a large amount of food and drinking too soon after, and (2) late dumping which happens two to three hours after consuming the sugary food and or beverages (Koliaki et al., 2017). Both

early dumping and late dumping is associated with nausea, vomiting, diarrhea, sweating, weakness, dizziness, flushing and a rapid heartbeat. Additionally, late dumping is associated with hypoglycemia (ASMBS, 2015; Koliaki et al., 2017).

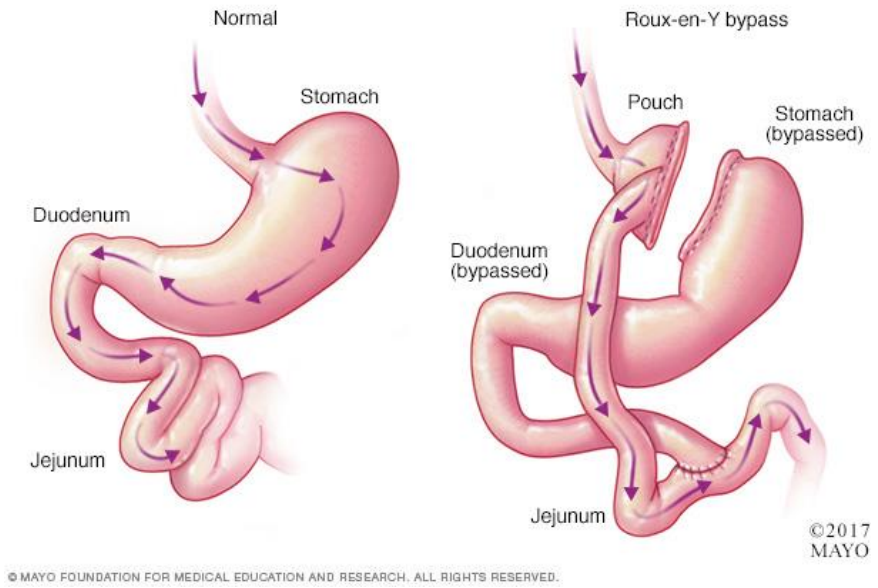


Figure 4. Display the Gastrointestinal Tract Preoperative and Post Gastric Bypass Surgery (MAYO Clinic 2017).

Vertical sleeve gastrectomy (VSG). This procedure is commonly performed and one of the most effective bariatric surgeries (Bello, 2017; Doheny, 2016). This procedure is irreversible with an expected loss of 50-60% of excessive body weight in two years (ASMBS, 2015). Data indicated that patients maintained their excessive weight loss up 60 months (Golomb et al., 2015). The physiological aspect of VSG, unlike RYGB, does not include rerouting of the small intestines, but it does include removing 75% of the natural stomach and forming the remaining stomach in a "banana shape" and the rest of the gastrointestinal (Koliaki et al., 2017). This procedure significantly reduces the amount of food an individual can consume while eating by providing a fullness feeling after

eating a much smaller portion of food than assumed pre-operatively (Koliaki et al., 2017) and this method reduces a patient's Ghrelin, also known as the "hunger hormone" which results in a positive relationship change between the patient and food (Bello, 2017). Even though the components of this procedure do not have the capability to cause the "dumping syndrome" it does have side effects if a patient extends food capacity such as vomiting.

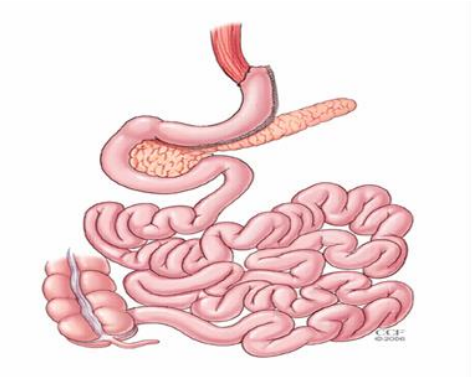


Figure 5. Display the Gastrointestinal Tract Post-VSG (ASMBS, 2015).

Adjustable gastric band (AGB). This procedure was considered popular ten years ago, but the frequency has declined from 35% in 2011 to 6% in 2015 (Schroeder, 2017). The initial popularity was due to the minimum risk of complications and low mortality rate as well as the procedure was reversible and adjustable. There also was a low risk for vitamin and mineral deficiencies with this procedure (ASMBS, 2015). AGB involves a band placed around the stomach with a balloon attached to one end of a fill able port that provides the restrictive component (Bello, 2017; Schroeder, 2017). This procedure reduces the stomach capacity for food and provides the ability for 40% - 50% of excessive weight loss (Bello, 2017; Schroeder, 2017). The AGB procedure was found not to be adequate to assist patients in effective weight loss and health improvement. The

Bariatric and Metabolic Center of Colorado (BMCC) (2017) explained that 40% of patient indicated that less than expected excess weight loss was obtained. Patients reported a 25% of excessive weight loss. The physiological aspect of this surgery is less than the RYGB and VSG. This procedure does not require modification of the human anatomy such as removing or readjustment of internal gastrointestinal organs. Eliminating those modifications reduce or eliminate specific side effects and risk of changing the natural intestinal tract or functions such as physical and mental reactions in consuming sugary and high-fat foods. However, the benefit of the anatomy modifications does provide a reduction in calorie and nutrients absorbed which results in maximum and extensive weight loss. Those components provide an element of deterrent or enforcement to reduce consumption of high sugary and fatty foods to obtain the maximum weight loss (Koliaki et al., 2017).

There are also concerns and complication with the AGB device malfunctioning (Bello, 2017; Schroeder, 2017). This devise is vulnerable to band slippage as the band which is the main function of the procedure can slip out of place without warning or effort, the band is associated with the device port. The port is vulnerable to movement that can make the device inaccessible to the doctor, and this can delay the patient's filing of saline for the restriction component to be effective for weight loss. Lastly, complications with infection are possible due to excessive but needed exposure to the saline pump to fill the device (Bello, 2017; Schroeder, 2017).

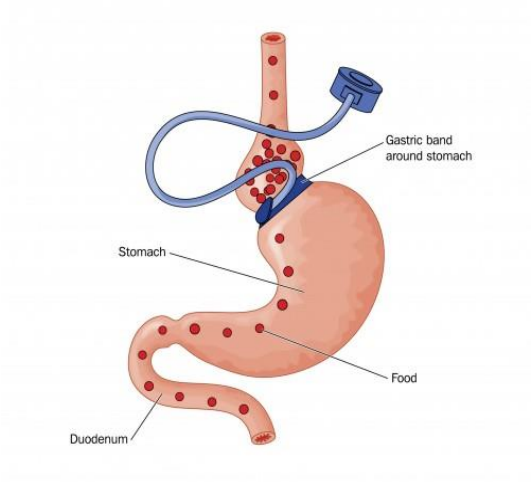


Figure 6. Display the Gastrointestinal Tract Post-AGB (ASMBS, 2015).

Biliopancreatic diversion with duodenal switch (BPD/DS). This procedure is less commonly used due to the complexity and the potential higher complication rate along with the higher mortality rate than RYGB and VSG and Adjusted Gastric Band (AGB) (Schroeder, 2017). A stomach pouch is created by removing a portion of the stomach, and a large part of the small intestine is bypassed (ASMBS, 2015). The small intestine function includes housing the bile and pancreatic enzymes that are essential to absorption of fat and proteins. The intestine is reattached to the end part of the small intestine to meet and mix the food (ASMBS, 2015). Weight loss of 60-70% of excessive body weight up to five years after surgery is expected. The weight loss is due to small intestine housing items not mixing until at the far end of the small intestine which results in absorbing fewer calories, protein, and fat that was actually consumed (ASMBS, 2015; Bello, 2017).

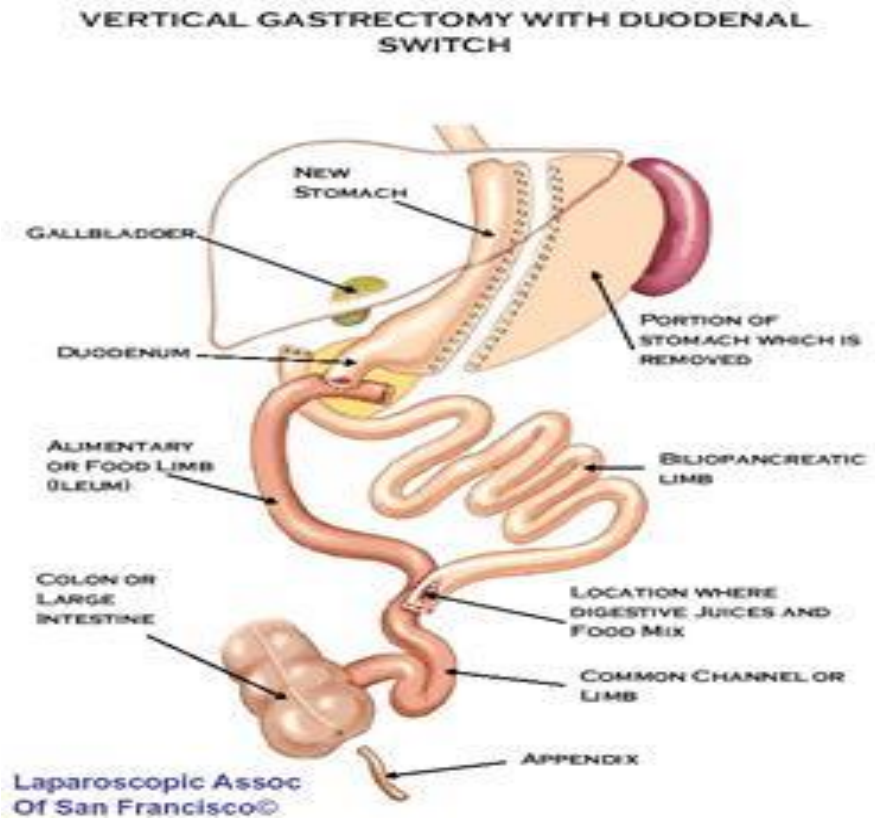


Figure 7. *Display the gastrointestinal tract post BPD/DS* (*ASMBS,* 2015).

Post-surgery Addiction Transfer

Bariatric surgery has been associated with a growing number of cross-addiction cases (OAC, 2016). Cross addictions occur when a post-operative patient trades one compulsive or addiction behavior for other compulsive behavior such as exchanging one thing overused or abused, such as food, for another, such as alcohol (OAC, 2016; OAC, 2018). The OAC (2016) explained that bariatric surgery patients accounted for 30% of diagnosed transfer addiction cases and that this population is vulnerable because drug of choice (currently food) becomes substances use, or some other compulsive or addictive behavior including alcohol use (OAC 2016). Data reported that there is a 3% to 18%

prevalence rate of onset alcohol use problems. Additionally, the high-risk prevalence rate of alcohol use after bariatric surgery ranged from 4% to 28% (Conason, 2013; King et al., 2012). More so, the premise of the theory of addiction transfer is posted bariatric surgery patients are substituting food addiction for a new addiction such as alcohol (OAC, 2016; OAC, 2018). Food and or overeating serves as an addiction or a comforting tool and one of bariatric surgery's component is its restriction to overeating, engaging in other addictions in place of food addictions is likely (Steffen, 2015).

Researchers have indicated that as the number of bariatric surgeries increased that the number of onset and transfer addiction cases in post-surgery patients increased (King, 2012; Reslan et al., 2014; Spadola et al., 2015). Parikh et al. (2015) indicated that people seeking obesity treatment had reported more psychopathology than other obese individuals in the community and the prevalence alcohol use and abuse among obese patient seeking bariatric surgery is 32%, and alcohol and other substance abuse of obese patient that are not seeking surgery is 14.6%. Ameen and Kerens (2017) and Koliaki et al. (2017) denoted that bariatric surgery patients are successful in their weight loss efforts by eating less or decreased food addictions. However, there was evidence of compulsive disorders and addiction transfers such as alcoholism, compulsive shopping, and excessive gambling.

Risks Associated with Consuming Alcohol Post Bariatric Surgery

Researchers have suggested that either type of bariatric surgery can affect how the body metabolizes alcohol post operatively and can result in becoming intoxicated more quickly with a longer blood alcohol content than prior to surgery (King et al., 2012;

Preidt, 2017). Excessive alcohol use with the general population can lead to adverse health issues and concerns as well as public health issues. However, alcohol use with post-bariatric surgery patients can lead to additional issues such as weight gain due to consuming and ingesting excessive liquid calories, malnourishment, and more serious issue of an increased risk of alcoholism and alcohol dependency, and problems because of the change of how the body digests, absorbs, and metabolizes alcohol after surgery (King, 2012; Odem et al., 2010; Pepino, 2015; Veal, 2019; Yin, 2015). King et al. (2017) provided data from Pharmacokinetic studies, which explained RYGB patients had a higher peak blood alcohol concentration. The peak was reached much faster compared to before surgery and non-surgery individuals (King et al., 2017). There is evidence that concluded there is an increased risk of alcohol abuse and disorders and problems following surgery (Conason et al., 2013; King et al., 2012; Smith et al., 2018). Specifically, the study data concluded an increased risk of alcohol use post operatively from baseline to 24 months and an increased in the frequency of alcohol use with post-surgery (King et al., 2012; Conason et al., 2013; Kanji et al., 2019).

Conversely, Pried (2017) concluded that more than one in five (20%) of RYGB post-surgery patients developed alcohol problems by year seven post-operative compared to 11% of LAGB post-operative patients. More so, 3.5% of RYGB patients that obtained substance abuse treatment, of the reported treatment 20% reported experiencing alcohol problems (Preidt, 2017). Smith et al. (2018) used data assessment tools used such as self-identifier, Alcohol Use Disorder Identification Test (AUDIT), Michigan Alcohol Screening test (MAST), Drug Abuse Screening test (DAST) and Hangover and

Sensitivity to Alcohol Questionnaire (HSA), measured (1) current and past psychiatric comorbidity, (2) post-surgery changes with alcohol sensitivity, and (3) alcohol use before surgery and after surgery. They concluded that there was an increased sensitivity to alcohol after surgery and one-third of participant's assessment indicated post-surgery new-onset alcohol use or disorder (Smith et al., 2018). Simonetti et al. (2015) examined the association between a patient's report of a brief intervention and whether the report was an indication of high-quality outpatient care among veterans with unhealthy alcohol use. They used the AUDIT questionnaire and a confidential survey for the particular population. They noted the finding from this study can be beneficial to improve alcohol use interventions in health or clinical settings (Simonetti et al., 2015).

Babor et al. (2001) explained that the AUDIT which was developed by the WHO to screen excessive drinking and a simple assessment of an individual dependency level to alcohol. It is beneficial to assess hazard and harmful drinking as well as increase consumption and or onset consumption. Additionally, the AUDIT allows for scoring of alcohol use consumption, drinking behaviors, and alcohol-related problems; it is designed health care professionals or practitioners and other health settings. More so, it is very effective with self-administering/self-report with sufficient instructions (Babor et al., 2001). Researchers Imani et al. (2017) opinion on the use of AUDIT was aligned with Babor et al. (2001) opinion. It is commonly used to assess, or screen drinking problems and the AUDIT can be effectively used as self-administered, or by a physician or practitioner, computerized, or manual (Imani et al., 2017). Imani et al. (2017) explained that including demographic data such as age, sex and education useful in examining the

associated factors with drinkers and that adjusting the statistical models with the different demographic provided different views with understanding screening outcomes of participants (Imani et al. (2017).

Conason et al. (2013) explained that patients who have weight loss surgery could demonstrate an increase in alcohol use post operatively to compensate for the decreased food consumption as food consumption can be an addictive behavior itself. They recruited preoperative surgery men and women from an information session, and the questionnaire was administered to assess preoperative eating behavior and alcohol and substance use; and assessment was postoperatively at the 1, 3, 6, 12 and 24 months. They found an increase in alcohol use and other substance use (Conason et al., 2013). King et al. (2012) concluded that alcohol use disorder (AUD) prevalence was higher at statistically significant levels for RYGB patients preoperative at two years postoperative, compared to preoperative to one year postoperative.

King et al. (2012) explained that RYGB and LAGB procedures alter the patient's alcohol pharmacokinetics; which means a patient reach a higher peak alcohol level compared to their preoperative level, and that post-operative patient's reach peak alcohol level rapidly, or there is a delay in reaching a sober state of mind. Parikh et al. (2015) indicated that 7% of respondents to their survey had prior alcohol abuse problems and continued with alcohol use post-surgery. However, there was a small population that increased alcohol use post-surgery as well as a conclusion that 3% of post-operative patients may develop alcohol use and dependency problems (Parikh et al., 2015).

Szalavitz (2012) concluded that RYGB surgery patients had a higher risk of alcohol disorders because this procedure alters the patient's digestive and gastrointestinal system it makes an individual more sensitive to lower amounts of alcohol and allows alcohol to flow through the bloodstream faster than before surgery put a patient in an increased risk of alcohol dependency and problems. The National Institute of Diabetes and Digestive and Kidney Disease (NIDDK, 2012; NIDDK, 2013) concurred with Szalavitz (2012). The results of NIDDK study provided data that reflects 70% of study's population had RYGB and 7% reported prior surgery alcohol disorder (AUD) and there was a minimal increase in alcohol use disorder (AUD) one-year post-surgery. Two years post-surgery, 11% of patients reported AUD which was a 50% increase compared to before surgery (NIDDK, 2013).

Alcohol use screenings have been used by health care professionals, practitioners, and researchers for different reasons. The Alcohol Use Self-Regulation questionnaire is a tool used to measure a controlled and motivated type of regulation associated with alcohol drinking behavior (Benka, 2017; Cunningham, Hendershot, Rehm, 2015). Benka (2017) explored how autonomous and controlled regulation of drinking behavior is associated or related to alcohol use. The researcher used both a self-regulation questionnaire and the AUDIT. The use of a self-regulation questionnaire and AUDIT for this study allowed the researcher to present findings on the relevancy of the self-regulatory process and questionnaire on alcohol use study (Benka, 2017).

Summary and Conclusions

The major themes in this chapter's literature review was related to bariatric surgery, the risk associated with post-bariatric surgery alcohol use, and post-bariatric surgery addiction transfers. Obesity is considered an epidemic and it is a disease that is associated with chronic illness and other diseases, and obesity is projected to increase substantially (ASMBS, 2015). There are over 200,000 bariatric surgeries perform each year to treat obese individuals, and the surgery outcomes are promising. Researchers have found that there is an association between bariatric surgery and post-surgery alcohol use issues.

Although this chapter discusses bariatric surgery and alcohol use and abuse that reveal important findings, there is still minimal research and a lack of understanding about the relationship between bariatric surgery and alcohol use and dependency with these procedures. More research is needed that could begin to address this lack of research that will address the documented problem. The research problem, purpose, and question of the recent study is aimed at providing results that could be used to educate this population, public health professionals, and legislator further about the risks of alcohol use after surgery, at present the research is minimal, insufficient, and there is a lack of understanding of the phenomena (King et al., 2012; Parikh et al., 2015; Wee et al., 2014; Yin, 2015).

Chapter 3: Research Method

Introduction

In this quantitative research study, I used a correlational research design of a cross-sectional nature to examine the relationship between demographic factors (age, gender, type of bariatric surgery, number of years since surgery, education level), type of information about post-surgery alcohol use that was provided before surgery, pre surgery alcohol consumption behavior as measured by the pre-AUDIT, post-surgery alcohol consumption behavior as measured by the post-AUDIT, and post-surgery alcohol use attitudes as measured by the ASRQ. Public health professionals, medical practitioners who work with bariatric patients, and those who undergo bariatric procedures need more information to understand the relationship between bariatric surgery and consumption of alcohol (King et al., 2012; Spadola, 2012). This knowledge is necessary to ensure that patients are provided the appropriate resources for awareness and prevention after bariatric surgery.

Although bariatric surgery has been shown to be effective in treating obesity (King et al., 2012; Reslan et al., 2014; Spadola et al., 2015), there is an increased risk of post-surgery alcohol use disorder that could lead to health problems, as well as public safety and other concerns (King et al., 2012; Reslan et al., 2014; Spadola et al., 2015). As providers perform over 200,000 bariatric surgeries annually, this can potentially have an impact on the onset of alcohol problems after surgery cases (Yin, 2015). Prior researchers have indicated that there is a lack of research about this phenomenon even though alcohol abuse is associated with adverse outcomes related to chronic illnesses and diseases,

injuries, a decreased quality of life, and public safety issues (King et al., 2015; Mitchell et al., 2015; Spadola et al. 2015). Spadola et al. (2012) explained that more longitudinal designs, assessment instruments, diverse and large samples, and 2-year post-operative follow-up studies are needed. Additionally, studies on post-surgery alcohol use disorders could provide more information and understanding of the relationship between the type of bariatric surgeries and post-operative alcohol use disorders (Spadola, 2012). This chapter contains an overview of research design and rationale and methodology, including the population; sampling; procedures for recruitment, participation, and data collection; and the data analysis plan. I will also discuss the instruments, threats to validity, and ethical procedures.

Research Design and Rationale

The independent variables included demographics (current age, gender, education level, length of time since bariatric surgery, type of bariatric surgery, the type of information about post-surgery alcohol use provided) (RQ 1 and RQ 2) and pre surgery alcohol consumption behavior (RQ 1). The dependent variables were post-surgery alcohol consumption behavior as measured by the post-AUDIT (RQ 1) and post-surgery alcohol use attitude as measured by the ASRQ (RQ 2).

I used a quantitative, correlational, cross-sectional design. The quantitative research approach provides the ability to identify and examine the relationship between the research variables using numerical data that can be analyzed (Creswell, 2005; Starcevic & Khazaal, 2017). Numbers and descriptive statistic data can be used to illustrate the relationships and patterns of the study variables (see Frankfort-Nachmias &

Nachmias, 2008; Rudestam & Newton, 2016). The correlational approach provides the ability to examine and establish a statistical relationship between variables without determining causation (Creswell, 2005; Starcevic & Khazaal, 2017).

A cross-sectional approach was appropriate for this study as it allowed for data to be collected from participants at one point in time (Shivaji & Ford, 2015; Simonetti et al., 2015). The cross-sectional approach has the advantage of being low cost and offering a quick turnaround in data collection and analysis (Shivaji & Ford, 2015; Simonetti et al., 2015). The collection of data at one point in time is beneficial because, in contrast to longitudinal designs, researchers do not have to anticipate participants' availability or status between time points (see Creswell, 2013; Frankfort-Nachmias & Nachmias, 2008; Setia, 2016; Shivaji & Ford, 2015; Simonetti et al., 2015). The limitations of the cross-sectional approach include the inability of researchers to analyze data over a period (Laerd, 2012). This had a minimum impact on this study because data collection was done at one point in time without any pretest or posttest or follow-up requirement.

Like cross-sectional research designs, longitudinal research is observational, but it does allow for data to be collected over time and for the same group to be studied over a period of time. The disadvantages of this research design include that it is not cost effective and it is difficult to finish without losing participants during the study (Payne & Payne, 2004). This type of research has a threat of internal validity such as history, maturation, mortality, diffusion of treatment, and instrument (Payne & Payne, 2004). Using the cross-sectional approach for this study is beneficial because the questions is geared towards questions and answers at one point in time.

Methodology

Population

According to the ASMBS (2016), approximately 196,000 bariatric surgeries had been performed in the United States as of 2015. The target population for this study was post-operative bariatric surgery patients who are at least 18 years of age old. Anyone who met the criteria of having had a bariatric surgery and who had access to the survey link was able to participate.

Sampling and Sampling Procedures

Sampling method. I used purposeful convenience and snowball sampling methods to recruit participants. These methods are non-probability sampling techniques that do involve subjective judgment from the researcher, and they cannot be used to determine or calculate the odds of a participant being selected unlike strategies like a random selection (Laerd, 2012). These techniques are less time-consuming and can have a quick turnaround time (Laerd, 2012). These techniques were appropriate for this study because the selection of participants was based on the availability of the respondents of a preferred population of interest (Creswell, 2005; Frankfort-Nachmias & Nachmias, 2008).

Purposeful convenience sampling methods allow the researcher to choose participants based on their knowledge and experience with the topic being studied. This method is easier than random sampling as the researcher may not know who meets the specific inclusion criteria unless these individuals identify themselves. More so, convenience sampling allows for convenience to the participation, the participant or

subject selections can be people that are associated with accessibility and proximity to the researcher, this method is cost-effective, and participants are reachable and available (Explorable, 2015). However, this method does have a potential for selection bias because this method does not involve the use of random sampling (Faber & Fonseca, 2014).

Snowball sampling is a strategy to obtain participants by allowing potential study participants to recruit others to take part in the study (Laerd, 2012). Researchers mostly use it when there are challenges associated with recruiting participants (Laerd, 2012). The limitations of this method are associated with its reliance on the judgment and decisions of the potential participant as well as their relationships with others (Laerd, 2012).

Inclusion & exclusion criteria. Individuals 18 years of age or older who have had bariatric surgery are eligible to participate in this study. Because participants completed an online survey and there was not direct recruitment of participants (in person), the researcher did not know if the potential participant is pregnant or has mental or physical issues that would result in them being considered protected participants. However, that questions that was asked via the instruments used was not anticipated to be more minimally invasive, participation was voluntary, and participants could withdraw at any time.

Sample size The G* Power calculator v. 3.1.9.2 was used to calculate the necessary sample size to have adequate statistical power. This calculator is commonly used in social, behavioral and biomedical sciences (Faul, Erdfelder, Lang, & Buchner,

2007). The statistical analyses that was conducted in this study to answer the research questions are multiple linear regressions.

The a priori power analysis was used to compute the necessary sample size and population effect size (Faul, Erdfelder, Lang, & Buchner, 2007). The *t-test* family was used with the correlation: biserial model. The analysis is A priori: Compute required sample size. Input: two tail(s) and the effect size set at medium (.30); and the alpha was set at 0.05 and power set at 0.95 which was appropriate for this study (Suresh & Chandrashekara, 2012). Additionally, the power calculation is an accepted cut off point possibility of obtaining a statistically significant relationship if one does exist (Faul, Erdfelder, Lang, & Buchner, 2007; Sethi. et al., 2016). GPower was used to calculate the needed sample size for a multiple linear regression (see Table 1).

Table 1

Sample Size Calculation: t tests

t tests - Correlation: Point biserial model			
Analysis:	A priori: Compute required sample size		
Input:	Tail(s)	=	Two
	Effect size |ρ|	=	0.30
	α err prob	=	0.05
	Power (1-β err prob)	=	0.95
Output:	Non- centrality parameter δ	=	3.6404323
	Critical t	=	1.9780988
	Df	=	132
	Total sample size	=	134
	Actual power	=	0.9509217

Procedures for Participation, and Data Collection

Recruitment. The recruitment process began after obtaining approval from the Walden University Institutional Review Board (IRB). The participants were recruited by using a flyer created by the researcher with all the study information and instruction on how to participate, information about eligibility and topic of the research study. The flyer also included contact information of the researcher (Frankfort-Nachmias & Nachmias, 2008; (see Appendix A). The flyer was uploaded and posted on public access forums through www.Obesityhelp.com, Facebook, and internet blogs, Instagram, and. In addition to public forums, information about the study was posted to the Walden University Participant Pool which is an electronic bulletin board where Walden students, faculty, and staff can post their studies and other Walden students, faculty, and staff can then volunteer to participate and access the link to the survey to do so.

In the flyers and electronic postings, potential participants could also encourage others who may qualify to participate in the study know about the opportunity to participate. Nancy Lum, Registered Clinical Dietitian with the GI and Bariatric Nutrition Center (GIBNC) agreed to post the flier on the organization's website and community board. This location did not administer the questionnaire or conduct any activity that will require a participation agreement.

I created social media marketing accounts for Facebook, Instagram, Obesity Help (https://www.obesityhelp.com), and nutritional special interest blogs. The social media account and blogs profiles was set up with privacy and response parameters that was controlled by the creators and the researcher. The researcher utilized public interest and

public access websites that allowed for posting of advertisements. Specific websites such as www.obesityhelp.com will be determined as sites that come known and available. Interested participants were able to use the instruction and information on the flier or advertisement to make personal inquiries and questions about participating in the study. The flyer for participants was presented on the social media page for questions and inquiries.

Table 2

Websites of Posted Advertisement Flier

Name	Website address
Obesity Help	http://www.obesityhelp.com
Instagram	https://www.instagram.com
Facebook	https://www.facebook.com
Med Help	https://www.medhelp.org/forums/Bariatric---Weight-Loss-Surgery/show/213

The survey was built in the SurveyMonkey electronic survey tool. The first page of the survey included the inclusion criteria questions. An answer of yes was required to advance in the survey and any answer of no exited the potential participant from the survey and thank them for their consideration. Answers of yes to the inclusion question advanced them to a page with the informed consent form which included a description of the study, example survey items, who they should contact if they have questions, and that they can withdraw at any time. Also, printing the consent for their record will be recommended in this form (see Appendix B). A question at the end of the informed consent form asked the potential participant if they agree to participate. If a potential participant declines the consent and/or answers any of the inclusion items “no” then they

were exited from the survey and thanked for their consideration. Whether a participant meets/does not meet the inclusion criteria or does/does not consent to participate/a listing of national support services available for alcohol use was provided to them on the study exit page (see Appendix C).

Those who agreed to the informed consent completed a Demographic form (see Appendix D). After completion of the demographic form, the participant was asked to only consider their alcohol consumption behavior before their bariatric surgery when filling out the Alcohol Use Disorder Identification Test (AUDIT) (see Appendix E). After completing the AUDIT regarding pre-surgery alcohol consumption behavior, they were then asked to complete the Alcohol Use Self-Regulation Questionnaire in a relation to their attitude about alcohol use now (See Appendix F). Lastly, participant was directed to complete an AUDIT in relation to their current alcohol consumption behaviors (post-surgery) (see appendix G).

Instrumentation and Operationalization of Constructs

The three questionnaires that was used in this study included the (1) researcher's created demographic form, (2) the Alcohol Use Disorder Identification Test (AUDIT), self-test version (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001) and (3) the Alcohol Use Self-Regulation Questionnaire (Levesque et al., 2007).

Demographic form. The demographic form was created by the researcher and reviewed by committee members and is the primary method to collect data on the independent variables used in the study. The information on the demographic form includes current age, gender, education level, number of years and months post-surgery,

type of surgery, and the type of information that they received before their surgery about post-surgery alcohol use or consumption.

Alcohol Use Disorder Identification Test (AUDIT). The WHO developed this 10-item assessment tool questionnaire (Babor et al., 2001). This tool was appropriate for this study because it contained questions that measured pre surgery and post-surgery alcohol consumption behaviors, and problems associated with alcohol use. The AUDIT has been proven to be reliable and effective in assessing potential hazardous drinking behaviors which this study's research question was answered (Adewuya, 2005; Babor et al., 2001).

The frequency of consumption, amount consumed, and dependency on alcohol are elements measured with this instrument (Babor et al., 2001; Imani et al., 2017). There are other alcohol use assessment tools available, but these measurements are not exclusive to excessive alcohol use and assessing alcohol problems (Imani et al., 2017). The screening questions are associated with one or more of three domains (hazardous, dependency and harmful) associated with its measurements (Babor et al., 2001).

The hazardous domain assessment is associated with question 1 through 3. An example of a hazardous question is:

- *How often do you have a drink containing alcohol?* The answer options are 0=never (if selected skip to question 9-10), 1= Monthly or less, 2= 2-4 times a month, 3= 2 -3 times a week, or 4= 4 or more times a week.

  The dependency domain assessment is associated with questions 4 through 6. An example of a dependency question is:

- How often during last year have you found you were not able to stop drinking once you had started? The answer options are 0=never, 1=less than monthly, 2= monthly, 3=weekly, or 4=daily or almost daily.

  The harmful domain assessment is associated with questions 7 through 10. An example of a harmful question is:

- How often during the last year have you had a feeling of guilt or remorse after drinking? The answer options are 0=never, 1=less than a month, 2=monthly, 3=weekly, or 4=daily or almost daily.

The Alcohol Use Disorder Test (AUDIT) is easy to score, and each of the questions has responses that have a scoring range from 0 to 4. The scoring instructions for the questionnaire indicate that responses should be added and a score of 8 or more is an indicator of hazardous and harmful alcohol use and high risk of dependency. Specifically, a score of 1 or more on questions 2 or 3 indicate a hazardous level of consumption; a score above 0 on questions 4-6, imply alcohol dependency; points on questions 7-10 indicate that alcohol related harm is present (Babor et al., 2001; Imani et al., 2017).

The assessment/screening does provide a scoring interpretation of four drinking levels (1) low risk, (2) medium risk, (3) high risk, and (4) addiction likely (Babor et al., 2001). The scores are interpreted as: a score of (0 to 7 points) is considered a low risk drinker. This risk level indicates that an individual probably does not have a problem with alcohol and can continue drinking in moderation or not at all; a score of (8 to 15 points) is considered a medium risk drinker. This risk level indicates that an individual

may drink too much on occasions and may put themselves or others at risk and should cut down on alcohol or cease drinking completely; a score of (16 to 19 points) is considered a high risk drinker. This risk level indicates that an individual could lead to harm, if it has not already. It is recommended that the individual cut down on alcohol or stop drinking completely and seek help from a healthcare professional for advice on how best to cut down; a score of (20+ points) is considered a risk of alcohol addiction and drinking is likely causing harm and recommend speaking to healthcare professionals and addiction specialist (Babor et al., 2001).

The reliability and validity of this instrument has been documented in multiple studies relative to alcohol use and abuse and disorders with post-operative bariatric patients and have been evaluated over 20 years and known to be accurate in measuring alcohol risk with all gender, age, and cultures in various health, community and countries settings (Adewuya, 2005; Babor et al., 2001; Hustad, Carey, Carey, Maisto, 2009; Spadola, 2012). Additionally, this tool is brief, rapid and flexible (Adewuya, 2005; Babor et al., 2001). The Alcohol Use Disorder Test reliability and validity were examined to relate the instrument's ability to identify the difference between someone with harmful or hazardous alcohol consumption and those who were not considered to consume alcohol on a harmful or hazardous level (Saunders, 2012; Spadola, 2012). The samples used with the AUDIT in previous studies have included a diverse population such as Nigerian adult students, patients attending academic hospitals (Adewuya, 2005) and participants in a primary care facility who were identified from a structured interview to be alcohol drinkers of different consumption levels (Saunders et al., 2012). This study indicated that

the AUDIT was reliable CI of 0.93% with assessing and screening participant's hazardous alcohol consumption and alcohol disorders in Nigeria University Students (Adewuya, 2005).

Kim et al. (2014), explained that the AUDIT was reliable and valid as an alcohol use disorder screening tool in a University hospital setting in Nepal. The Cronbach's alpha statistical test was 0.82. This study problem was associated with the alcohol problem and major health issues in Nepal. The instrument was used to determine the relationship between increased alcohol assumption and factors such as advertising, pricing, reward and availability (Kim et al. 2014). The AUDIT allowed the study to identify an individual's levels of alcohol use and misuse (Pradhan, 2012). The authors of the studies indicated alpha coefficients of alcohol dependence rating and scales that displayed reliability data and a Cronbach's alpha statistical test on drinking behavior was displayed (Adewuya, 2005; Kim, 2014; Saunders et al., 1993).

Alcohol Use Self-Regulation Questionnaire. The Alcohol Use Self-Regulation is an instrument used to measure attitudes toward alcohol use. It is used to assess the degree to which an individual's motivation for using alcohol responsibly is autonomous or self-determined. All 15 items are to answer one statement which is: The reason I would use alcohol responsibly is:

1. Because I feel that I want to take responsibility for my own health.
2. Because I would feel guilty or ashamed of myself if I did not use alcohol responsibly.
3. Because I personally believe it is the best thing for my health.

4. Because others would be upset with me if I did not.
5. I really don't think about it.
6. Because I have carefully thought about it and believe it is very important for many aspects of my life.
7. Because I would feel bad about myself if I did use alcohol responsibly.
8. Because it is an important choice I really want to make.
9. Because I feel pressure from others to do so.
10. Because it is easier to do what I am told than think about it.
11. Because it is consistent with my life goals.
12. Because I want others to approve of me.
13. Because it is very important for being as healthy as possible.
14. Because I want others to see I can do it.
15. I don't really know why.

The seven-point rating scale answer options allow for an assessment of the degree of an individual's motivation for being a responsible drinker or their intent to be a responsible drinker. The instrument consists of three subscales; (1) autonomous motivation, (2) externally controlled motivation, and (3) lack of motivation. The rating scale/degree ranges from 1-3 (not at all true), 4 -6 (somewhat true), or 7 (very true) with all 15 questions (six assess autonomous motivation; six assess externally controlled motivation; three assess lack of motivation) items being combined as a total score and the higher score can conclude that an individual have a greater chance or capacity of self-motivation or self-regulation (Carey et al., 2004; Levesque et al., 2007). Items 1, 3, 6, 8,

11, 13 assesses autonomous motivation; items 2, 4, 7, 9, 12, 14 assess externally controlled motivation; and items 5, 10, 15 assess the lack of motivation. The scoring for this instrument is to measure an individual's autonomous or self-determination (regulation) of drinking responsibly. To obtain an index to assess an individual's autonomous motivation (self-motivation/regulation) it is done by calculating the difference between the averages for externally controlled motivation and autonomous motivation.

This questionnaire has been used in empirically based processes in academic and alcohol abuse and dependency programs, specifically using participants enrolled in support or treatment programs (Aubrey, Brown & Miller, 1994; Levesque et al., 2007). Previous researchers found that the questionnaire was effective in assessing an individual's motivation, externally controlled motivation and demotivation with alcohol use (Aubrey et al., 1994; Levesque et al., 2007).

The reliability and validity of the Alcohol Self-Regulation Questionnaire was tested by previous authors with varying level of alcohol use, and abuse and levels of alcohol problems and the reliability was considered excellent. Aubrey, Brown, and Miller (1994) utilized the instrument with 83 and retested after 48 hours. They indicated a reliability of ($r = .94$, $p<.0001$ they also found a statistically significant correlation with the volume of alcohol consumed per occasion ($r= -.23$, $p= .04$) and the problems or negative consequences or situation due to drinking ($r = -.46$, $p < .0001$). (Aubrey et al., 1994). Brutovska, Orosova, Kilian, and Sebena (2014) used the Alcohol Self-Regulation and The Alcohol Use Disorder Test using an online survey format to examine college

student alcohol use with gender differences in alcohol use and descriptive normative beliefs. The student's alcohol use was measured with both instruments and the validity and reliability of the instruments allowed for the researcher to conclude that male consumes alcohol more frequently and in a greater amount that females. Additionally, the instruments allow for the interpretation that there are no gender differences in the alcohol self-regulation.

Operationalization of constructs. The independent variables included current age, gender, education level, length of time since bariatric surgery, type of bariatric surgery, the type of information about post-surgery alcohol use provided, pre-surgery alcohol consumption behaviors as measured by the Alcohol Use Disorder Test. The variable sources, research questions numbers and categories and coding of the independent variables are listed below.

Table 3

Independent Variables

Variables/ IV	Variable Source	Research Questions	Survey Question no.	Value Label	Score/Degree
What is your current Age?	Demographic Form	RQ 1, RQ 2	SQ 1	Actual Age	
What is your gender?	Demographic Form	RQ 1, RQ 2	SQ 2	0=Male 1=Female	
What is your Ethnicity?	Demographic Form	RQ 1, RQ 2	SQ 3	0=white 1=black/African American 2=American	

				Indian or Alaskan Native 3=Hispanic or Latino 4=Asian 5=Native Hawaiian or other Pacific Islander 6=Two or more races 7=Other
What is your Highest level of education?	Demographic Form	RQ 1, RQ 2	SQ4	0=Did not graduate high school 1=High school graduate 2=Some college 3=Associates degree 4=Bachelor's degree 5=Master's degree 6=Doctoral degree or higher
What type of bariatric surgery did you have?	Demographic Form	RQ 1, RQ 2	SQ 5	0=Gastric Bypass 1=Sleeve gastrectomy 2=Laparoscopic adjustable gastric banding 3= Biliopancreatic diversion with duodenal switch 4=Other (please specify) 5=Cannot

				remember (will be labeled as missing and excluded from analysis).
How many years has it been since you had your bariatric surgery? (actual number of years and months)	Demographic Form	RQ 1, RQ 2	SQ 6	Actual number of months and years
Did you receive information about post-operation alcohol use before you had your surgery?	Demographic Form	RQ 1, RQ 2	SQ7	0=No 1=Yes 3=Cannot remember (will be labeled as missing and excluded from analysis)
What type of information did you receive pre-surgery to educate and inform about post-operation alcohol use?	Demographic Form	RQ 1, RQ 2	SQ 8	Only displayed to those that indicate that they received post-operation alcohol use information those who indicated that

				they did not receive information will be coded 0 for this item) 1=How my body will react to alcohol use post-surgery 2=Issues with post-surgery alcohol use including the potential to abuse alcohol use post-surgery	
Pre-Surgery Alcohol Consumption behaviors	Alcohol Use Disorder Test (AUDIT)	RQ 1	SQ 9-18:	0=Never, 1 or 2, or 1=Monthly or less, 3 or 4, Less than monthly 2=2-4 times a week, 7 to 9, Weekly 3= 2-3 times a week, 7 to 9, Weekly 4=4 or more times a week, 10 or more, Daily or almost daily, yes, during the last year	Calculate total score to get total points to determine risk level: 0-7pts.=low risk 8-5pts=med risk. 16-19 pts=high risk 20-40 pts= addiction

The dependent variables are post-surgery alcohol consumption behaviors as measured by the Alcohol Use Disorder Test and post-surgery alcohol use attitude as measured by the Alcohol Self-Regulated Questionnaire. The variable sources, research questions numbers and categories and coding of the dependent variables are listed below.

Table 4
Dependent Variables

Variables/ DV	Variables Sources	Research Question	Subscale/Q Survey Question no.	Value Label	Score/Degree
Post-Surgery Alcohol Consumption Behaviors	Alcohol Use Disorder Test (AUDIT)	RQ1	SQ, 29-38	0=Never, 1 or 2,or 1=Monthly or less, 3 or 4, Less than monthly 2=2-4 times a week, points=low risk 7 to 9, Weekly 3= 2-3 times a week, 7 to 9, Weekly 4=4 or more times a week, 10 or more, Daily or almost daily, yes, during the last year	Calculate total points get risk levels; 0-7pts= low risk 8-15pts=med risk 16-19pts=high risk 20-40pts= Addiction
Post -Surgery alcohol use attitude	Self-Regulated Questionnaire	RQ 2	Question(s) 1,3,6,8,11 &13 SQ, 19,21,24, 26, 29 &31	1-3 (not at all true) 4 -6 (somewhat true) 7 (very true	Calculate total to get total score, higher the number the greater capacity for autonomous

		motivation
Question(s) 2,4,7,9,12,& 14 SQ, 20, 22, 25, 27, 30, 32	1-3 (not at all true) 4 -6 (somewhat true) 7 (very true)	Calculate total to get total score, higher the number the greater the capacity for externally motivation
Question (s) 5, 10, 15 SQ, 23, 28, 33	1-3(not at all true) 4-6(somewhat true) 7 (very true)	Calculate total to get total score, higher the number greater capacity for lack of motivation

Data Analysis Plan

The Statistical Package for Social Sciences (SPSS) version 21 was used to analyze the data to test the hypotheses and describe the sample. The data collected from SurveyMonkey.com was imported into SPSS. The researcher screened the data for errors related to the calculation of score, missing entries, error on exceeding the number of entries if answer format allowed for more than one entry.

Research Question 1: What is the relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information

about post-surgery alcohol use provided, pre-surgery alcohol consumption behavior as measured by the *Alcohol Use Disorder Test*, and the post-surgery alcohol consumption behavior as measured by the *Alcohol Use Disorder Test*?

Null Hypothesis 1 (H10): There is no statistically significant relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided, pre-surgery alcohol consumption behavior as measured by the *Alcohol Use Disorder Test*, and post-surgery alcohol consumption behavior as measured by the *Alcohol Use Disorder Test*.

Alternative Hypothesis (H1A): There is a statistically significant relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided, pre-surgery alcohol consumption behavior as measured by the *Alcohol Use Disorder Test*, and post-surgery alcohol consumption behavior as measured by the *Alcohol Use Disorder Test*.

Research Question 2: What is the relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided and post-surgery alcohol use attitude as measured by the *Alcohol Self-Regulated Questionnaire*?

Null Hypothesis 2 (H20): There is no statistically significant relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided and post-surgery alcohol use attitude as measured by the *Alcohol Self -Regulated Questionnaire*.

Alternative Hypothesis 2 (H2A): There is a statistically significant relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided and post-surgery alcohol use attitude as measured by the *Alcohol Self -Regulated Questionnair*e.

The independent variables included current age, gender, education level, length of time since bariatric surgery, type of bariatric surgery, the type of information about post-surgery alcohol use provided, pre surgery alcohol consumption behavior as measured by the Alcohol Use Disorder Test. The dependent variables are post-surgery alcohol consumption behavior as measured by the Alcohol Use Disorder Test (RQ 1) and post-surgery alcohol use attitude as measured by the Alcohol Self-Regulated Questionnaire (RQ 2).

This research study included different statistical strategies to examine the results about the sample groups who completed the surveys (t-Tests) and to provide statistical analyses related to the research question to determine if the null hypotheses should be retained or rejected. Descriptive statistics provided data for each variable in order to present information to understand the sample who participated in the study. The *t-test* was used to identify whether there was a statistically significant differences in the dependent variable(s) across binary independent variable groups, which was gender (male vs. female) and ethnicity/race (white vs. other ethnicities) in order to provide additional information about the sample that can be provided by descriptive statistics. Additionally, with the dependent variables being linear, a multiple linear regression test

was used to determine the answer to each of the research questions (Brutovska, Orosova, Kalina, & Sabina, 2014; Perdices, 2018).

Before conducting the multiple linear regressions, correlation analyses were completed to determine if there were any high correlations between variables. If there were any high correlations one or more variables will be removed from the multiple linear regression models to ensure that multi-collinearity does not occur (Laerd, 2012; Wainwright, 2014). Multicollinearity is when the correlations between two variables can affect the reliability of the statistical outcome data because the variables are too closely related to each other. If this occurred, it was address before using the data (Wainwright, 2014)

Threats to Validity

The internal threats to validity for this study included mortality and instrumentation. Creswell (2013) explained participants can change their mind and not complete the experiment or study for a variety of reason. This study recruitment process allowed others to participate and be included to replace any non-completed survey. Also, the instrumentation in this study did not include a pretest and posttest. However, there was three different questionnaires incorporated within this study, but the questions and construct of the questionnaires were different (Creswell, 2013). The AUDIT was used twice to gather and measure both the pre-surgery and post-surgery alcohol consumption behavior of participants. The AUDIT questions for the pre-surgery alcohol consumption behaviors was asked after the demographic form questions, and the AUDIT for the post-surgery consumption behaviors will was asked after the Alcohol Self-

Regulated Questionnaire was used to measure and gather participant's alcohol use attitude. All questions were within the SurveyMonkey.

Additionally, pre-surgery alcohol consumption questions which involved asking participants to remember and report behaviors and experiences in the past (receiving information about alcohol use before having bariatric surgery and alcohol consumption behaviors before having bariatric surgery), self-reporting data and potential recall bias was considered when interpreting this study's data. Grimes and Shultz (2002) explained that recall bias can be both intentional and unintentional and using strategies to avoid or limit bias can minimize the impact of bias to the study. Recall bias could have potentially impact this study because the participant may had felt embarrassed answering honestly or did not recall exact or actual alcohol use. This study included instruction that promoted responding to questions truthfully and to the best of knowledge to assist with reducing biases and untruthful responses. Even though the level of bias could not be independently verified or controlled (Creswell, 2013), awareness of the presence of bias allowed for a careful critique of results (Sica, 2006).

External threats to validity explained by Creswell (2013) are the interaction of selection and treatment, setting and treatment, and history and treatment. This study's design allowed for participants to complete the survey questionnaire using an electronic online format only (SurveyMonkey). The setting for this allowed for a reduction in the threats of external validity because this study only used the online survey setting oppose to using different settings which can increase the threats of external validity (Settanni, Prino, Fabrics, & Langobardi, 2018). However, if resources such as public libraries and

schools was utilized due to a lack of a computer and or internet access, participant's willingness to answer the questions truthfully because of embarrassment and or lack of trust in privacy using public resources could have impact the study. More so, this study had a potential of threat with participants either not truthfully answering questions or recollecting alcohol consumption or use, and other questions that they feel can be judgmental toward them. The consent and the overview of the study informed participants that their identity was completely confidential, and they were only expected to answer the questions truthfully and to the best of their knowledge. Ensuring participants total confidentially had minimize the act of participants answering questions untruthful and the study is at a specific time not over a period minimize cases of miss-recollecting information to answer the questions.

Ethical Procedures

To ensure full compliance with ethical procedures, this study followed Walden University Institutional Review Board (IRB) ethical guidelines. I did not recruit participants or collect data without full approval from the (IRB). Participants from protected population and participants under 18 years of age was not actively recruited (those under 18 will be excluded). I did not recruit individuals that I knew for the study and flyers about the study was not posted in public places that potential participants may see them. The flyers were not directly handed out to potential participants. Also, information about the study was not posted through other electronic venues, but the researcher will not contact potential participants directly.

Participants had an opportunity to review and agree or disagree with the informed consent form when entering the study in SurveyMonkey. The form included information on how the data was going to be used and it assured the data will be confidential and participation is anonymous with no identification required. The potential participant was asked a question at the end of the informed consent form asking them if they agree to the informed consent. If they answer "no" they will be exited from the survey. Participants could discontinue completing the survey by exiting the survey at any point before selecting the submit button at the end of the survey. The data was protected by a password known only to the researcher. Because this study had health-related questions, it was essential to ensure the Health Insurance Portability and Accountability Act of 1996 (HIPPAA). This study did not require any identifying information which eliminated the ability for information to identify specific individuals. The survey was password protected internet based. The statistical data was downloaded from SurveyMonkey to interpret and analyze. All data will be personally destroyed by the researcher after five years of completion of the study.

Summary

This quantitative cross-sectional study examined the relationship between the demographic factors (age, gender, type of bariatric surgery, length of time since bariatric surgery, education level), the type of information about post-surgery alcohol use that was provided prior to surgery, pre- surgery alcohol consumption behavior as measured by the Alcohol Use Disorder Test and post-surgery alcohol consumption behaviors as measured by the Alcohol Use Disorder Test (AUDIT) (Independent variables); post-surgery alcohol

consumption behavior as measured by the Alcohol Use Disorder Test (AUDIT) and post-surgery alcohol use attitude as measured by the Alcohol Self-Regulated Questionnaire (dependent variables). Two existing instruments and one demographic form created by the researcher was used for the data collection and participates was selected by purposeful convenience and snowball sampling methods. The research purpose and questions influenced this study's research design strategy. This design allowed examining the relationship between two or more variables for a specific population. The research method and design included the method of how the questionnaire was administered as well as the data plan and analysis.

Chapter 4: Results

Introduction

The purpose of this quantitative, correlational study was to examine the relationship between demographic factors and alcohol consumption behaviors of those who have had bariatric surgery. The RQs and hypotheses for this study were

RQ 1: What is the relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided, pre-surgery alcohol use consumption behavior as measured by the Alcohol Use Disorder Test, and post-surgery alcohol use consumption behavior as measured by the Alcohol Use Disorder Test?

H10: There is no statistically significant relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided, pre-surgery alcohol use consumption behaviors as measured by the Alcohol Use Disorder Test, and post-surgery alcohol use consumption behavior as measured by the Alcohol Use Disorder Test.

H1A: There is a statistically significant relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided pre-surgery alcohol consumption behavior as measured by the Alcohol Use Disorder Test, and post-surgery alcohol use consumption behavior a measured by the Alcohol Use Disorder Test.

RQ 2: What is the relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided and post-surgery alcohol use attitude as measured by the Alcohol Self-Regulated Questionnaire?

$H_0$2: There is no statistically significant relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided and post-surgery alcohol use attitude as measured by the Alcohol Self -Regulated Questionnaire.

H_a2: There is a statistically significant relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided and post-surgery alcohol use attitude as measured by the Alcohol Self-Regulated Questionnaire.

This chapter contains information about the data collection, results, data cleaning, sample demographics, dependent variable distribution, pre analysis data screening, assessment of outliers, and missing data.

Data Collection

I obtained IRB approval (no. 04-03-19-0397937) on April 3, 2019. Initial recruitment materials (Appendix E) was posted to Facebook groups and on Instagram. I also posted the link to the survey on the GI & Bariatric Nutrition Center website (https://www.nutrition5.com) on April 4, 2019, and the Walden Participant Pool on April 9, 2019. On June 24, 2019, only 66 responses had been submitted. The next day I submitted a change in procedures form to the Walden University IRB to request approval

to promote the study on additional Facebook pages targeted to individuals who are postoperative bariatric surgery, such as Living after Bariatric Surgery and Alcohol Use after surgery. The request was approved. With the exception of slow recruitment, the data collection plan was conducted without any other discrepancies from what was outlined in Chapter 3.

The total number of responses was 143. However, 22 cases were removed from the data set due to incomplete data (answers to entire instrument(s) missing). This resulted in a sample of 120. There were 38 that filled out the majority of the answers on each of the instruments but missed a couple of items on some of the instruments. I replaced missing data with the mean score of the other answers on the instrument provided by the participant (Zang, 2016). According to Zang (2016), when a study includes missing data it can illustrate distorted results and impact the generalizability of findings.

Table 5 illustrates the repeated power analyses I conducted using the G* Power calculator v. 3.1.9.2 (Faul, Erdfelder, Lang, & Buchner, 2007). I did so to determine the effect size and statistical power based on the final sample size of 120. The sample size of 120 indicated a statistical power level of 0.90 and an effect size of .30, which indicate that there is a probability of finding a statistically significant effect if one exists (Suresh & Chandrashekara, 2012).

Table 5

Sample Size Calculation: t tests

t tests - Correlation: Point biserial model
Analysis: A priori: Compute required sample size

Input:	Tail(s)	= Two
	Effect size |ρ|	= 0.30
	α err prob	= 0.05
	Power (1-β err prob)	= 0.90
Output:	Non- centrality parameter δ	= 3.2833245
	Critical t	= 1.9823834
	Df	= 107
	Total sample size	= 120
	Actual power	= 0.9021244

Results

Sample Demographics

Table 6 contains the demographic information of the sample. Most (74%) of the respondents were 40 years of age and over. More than half (64%) were female, and approximately half (55%) of the respondents were White. Almost half (45.8%) of the respondents had a master's degree or higher, and 73.3% reported that the type that of bariatric survey they had was gastric bypass surgery. Fifty-eight-point seven percent of respondents reported that they more than 2 years (25+ months) postoperative, and 51.7% reported that they had received some type of information about post-surgery alcohol use before surgery.

Table 6

*Participant Demographics (*N*=120)*

Variable	Categories	*N*	Percent
Age	18 to 29 years	16	13.3
	30 to 39 years	10	8.3
	40 to 49 years	37	30.8
	50 to 59 years	37	30.8
	60 + years	11	9.2
	Missing	9	7.5
Gender	Male	40	33.3
	Female	77	64.3
	Missing	3	2.5
Ethnicity	White	66	55.0
	Black or African American	37	30.8
	Hispanic or Latino	0	0.0
	American Indian or Alaska Native	8	6.7
	Hawaiian or Other Pacific Islander	1	0.8
	Two or more	0	0.0
	Prefer not to answer	6	5.0
	Missing	2	1.7
Education levels	Did not graduate high school	2	1.7
	High school graduate	6	5.0
	Some college	20	16.7
	Associate Degree	8	6.7
	Bachelor's degree	22	18.3
	Master's degree	55	45.8
	Doctoral degree or higher	7	5.8
Type of surgery	Gastric Bypass	88	73.3
	Sleeve gastrectomy	27	22.5
	Laparoscopic adjustable gastric banding	1	0.8
	Bilo-pancreatic diversion with duodenal switch	1	0.8
	Other	0	0.0
	Do not remember	0	0.0
	Missing	3	2.6
Months since surgery	12 to 18	11	36.3
	19 to 24	6	5.0
	25 + month	103	58.7
Did you receive info about post-surgery alcohol use	No	51	42.5
	Yes	62	51.7
	Cannot remember	0	0.0
	Missing	7	5.8
Type of information received about post op alcohol use	How my body will react to alcohol use post-surgery	51	57.3
	Information about the potential alcohol abuse.	23	25.8
	Other	15	16.9

Distribution of Answers on the Questionnaires

Pre-surgery AUDIT. Table 7 contains the distribution of answers that were provided to the questions on the AUDIT related to pre-surgery alcohol consumption behaviors.

Table 7

Pre-surgery AUDIT Answer Frequencies (n=120)

Survey Question	0	1	2	3	4	Mean
SQ 1. How often do you have a drink of alcohol?	6.7	74.2	15.0	2.5	1.7	1.2
SQ 2. How many drinks containing alcohol do you have on a typical day you drink?	86.7	12.5	0.8	0.0	0.0	0.1
SQ 3. How often do you have six or more drinks on one occasion?	88.3	6.7	4.2	0.8	0.0	0.2
SQ 4. How often during the last year have you found that you were not able to stop drinking once you had started?	94.2	4.2	0.8	0.8	0.0	0.1
SQ 5. How often during the last year have you failed to do what was normally expected from you because of drinking?	95.8	2.5	0.8	0.8	0.0	0.1
SQ 6. How often during the last year have you been unable to remember what happened the night before because you had been drinking?	93.3	5.0	0.8	0.8	0.0	0.1
SQ 7. How often during the last year have you needed an alcohol drink first thing in the morning to get yourself going after a night of heavy drinking?	98.3	1.7	0.0	0.0	0.0	0.0
SQ 8. How often during the last year have you had a feeling of guilt or remorse after drinking?	90.8	6.7	0.8	0.8	0.8	0.1
SQ 9. Have you or someone been injured because of your drinking?	99.2	0.8	0.0	0.0	0.0	0.0
SQ 10. Have a relative, friend, doctor, or another health professional expressed concerns about your drinking or suggested you cut down?	99.2	0.8	0.0	0.0	0.0	0.0

Note: Please see chapter 3 and Appendix B for answers associated with each value for each item.

Alcohol Self-Regulated Questionnaire (post-surgery). The next instrument that the respondents were asked to complete was the *Alcohol Self-Regulated Questionnaire*. The respondents were asked to consider their current beliefs about their alcohol consumption when answering these items. Table 8 contains the answer frequencies for the items on this instrument.

Table 8

Post-surgery Alcohol Self-Regulated Questionnaire answer frequencies (n=120)

Survey Question	1	2	3	4	5	6	7	Mean
SQ 11. Because I feel that I want to take responsibility for my own life.	0.8	0.0	0.0	4.2	3.3	2.5	89.2	2.9
SQ 12. Because I would feel guilty or ashamed of myself if I did not use alcohol responsibly.	5.8	0.0	2.5	3.3	1.7	5.8	80.8	2.7
SQ 13. Because I personally believe it is the best thing for my health	.8	0.0	0.0	2.5	2.5	1.7	91.7	2.9
SQ 14. Because others would be upset with me if I did not.	18.3	2.5	3.3	32.5	4.2	2.5	36.7	2.13
SQ 15. I really don't think about it	65.0	5.0	2.5	11.7	1.7	3.3	10.8	1.4
SQ 16. Because I have carefully thought about it and believe it is very important for many aspects of my life.	0.8	0.0	0.8	10.0	4.2	0.0	84.2	2.9
SQ 17. Because I would feel bad about myself if I did use alcohol responsibly.	92.5	0.0	0.0	3.3	0.0	0.0	4.2	1.1
SQ 18. Because it is an important choice I really want to make.	0.0	0.0	0.0	8.3	2.5	2.5	86.7	2.9
SQ 19. Because I feel pressure from other to do so.	70.0	5.0	3.3	8.3	0.0	0.8	12.5	1.34
SQ 20. Because it is easier to do what I am told.	75.0	2.5	5.8	2.5	1.7	1.7	10.8	1.3
SQ 21. Because it is consistent with my life.	1.7	0.8	0.8	4.2	1.7	4.2	86.7	2.8
SQ 22. Because I want others to approve of me.	55.0	5.0	3.3	10.8	1.7	1.7	22.5	1.3
SQ 23. Because it is very important for being as healthy as possible.	0.8	0.0	0.8	4.2	1.7	3.3	89.2	2.9
SQ 24. Because I want others to see I can do it.	46.7	2.5	3.3	13.3	2.5	3.3	28.3	1.8
SQ 25. I don't really know why.	90.0	2.5	0.0	3.3	0.0	0.8	3.3	0.0

Note: Please see chapter 3 and Appendix C for answers associated with each value for each item.

Post-surgery AUDIT. Table 9 contains the distribution of answers that were provided to the questions on the AUDIT related to post-surgery alcohol consumption behaviors.

Table 9

Post-surgery AUDIT Answer Frequencies (n=120)

Survey Question	0	1	2	3	4	Mean
SQ 25. How often do you have a drink of alcohol?	9.2	16.7	45.0	25.8	3.3	2.0
SQ 26. How many drinks containing alcohol do you have on a typical day you drink?	31.7	43.3	24.2	0.8	0.0	0.9

SQ 27. How often do you have six or more drinks on one occasion?	40.8	28.3	25.8	5.0	0.0	1.0
SQ 28. How often during the last year have you found that you were not able to stop drinking once you had started?	40.8	28.3	25.8	5.0	0.0	1.0
SQ 29. How often during the last year have you failed to do what was normally expected from you because of drinking?	66.7	21.7	7.5	2.5	1.7	0.3
SQ 30. How often during the last year have you been unable to remember what happened the night before because you had been drinking?	50.0	38.3	10.8	0.8	0.0	0.6
SQ 31. How often during the last year have you needed an alcohol drink first thing in the morning to get yourself going after a night of heavy drinking?	92.5	5.8	1.7	0.0	0.0	0.1
SQ 33. How often during the last year have you had a feeling of guilt or remorse after drinking?	45.8	41.7	9.2	1.7	1.7	0.7
SQ 34. Have you or someone been injured because of your drinking?	82.5	0.0	4.2	0.0	13.3	0.6
SQ 35. Have a relative, friend, doctor, or another health professional ex concerns about your drinking or suggested you cut down?	70.8	8.3	0.0	0.0	20.8	1.0

Note: Please see chapter 3 and Appendix D for answers associated with each value for each item

Changes between Pre Surgery and Post Surgery Responses

Table 10 illustrates the change between responses of the pre-surgery AUDIT and post-surgery AUDIT. The alcohol use risk level of the respondents to the AUDIT indicate a 33% increased change for the low risk level (0-7 low risk); a 18% increased change for medium risk level (8-15 medium risk); 10% increased change for high risk; and a 5% increased change for the addiction risk level (20+addiction risk).

Table 10

Frequencies of AUDIT Risk Score Ranges (n=120)

Risk score range	Pre-surgery	Post-surgery	Variance
0-7 Low Risk	90.8	57.5	↓33%
8-15 Medium Risk	8.3	26.7	↑18%
16-19 High Risk	0.0	10.0	↑10%
20 + Addiction Risk	0.8	5.8	↑5%

Data Analysis

The data was analyzed using SPSS Version 21. Data analysis was conducted to get a better understanding of the relationship between demographic factors (age, gender, type of bariatric surgery, number of years since surgery, education level), type of information about post-surgery alcohol use that was provided before surgery, pre-surgery alcohol consumption behavior as measured by the Alcohol Use Disorder Test pre-AUDIT, post-surgery alcohol consumption behavior as measured by the post-AUDIT, and post-surgery alcohol use attitude as measured by the ASRQ.

Assumption Testing

Multicollinearity. One assumption test that was conducted for this study was the Multicollinearity test. Multicollinearity is when a multiple linear regression analysis indicates that two or more independent variables are highly correlated with each other; if occurred it will violate a core assumption of the multiple linear regression and the independent variable will be deemed as a non-reliable predictor (Wagner, 2017). Wagner (2017) suggested that a violation of multicollinearity occurs if there are variables that are highly correlated at (+/-) 0.8 or higher. Should multicollinearity be present, a corrective action could be removing one of the highly correlated variables. The correlation matrix

in Table 11 illustrates that there is no violation of multicollinearity between the variables of research question 1. The correlation matrix in Table 12 illustrates that there is no violation of multicollinearity between the variables in research question 2.

Table 11

RQ 1 Multicollinearity Testing Results

	Variables	1	2	3	4	5	6	7	8	9	10	11	12
1	Age												
2	Gender	-0.005											
3	Ethnicity	-0.021	.214*										
4	Education	.214*	-0.123	-0.173									
5	Surgery type	0.005	0.037	0.14	-.188*								
6	Month since surgery	.472**	-0.055	-0.045	-0.045	-.264**							
7	How my body will react to alcohol use post-surgery	-0.142	0.089	-0.054	0.059	0.068	-.452**						
8	Potential alcohol abuse with post - surgery alcohol use	-0.017	0.13	-0.141	-0.16	0.03	-.298**	.524**					
9	Other Info	-0.048	0.007	0.037	-0.041	0.143	-0.066	-.223*	-0.12				
10	Pre-Audit total	0.133	-0.091	-0.034	-0.127	0.03	0.012	-0.054	0.042	0.179			
11	Post-Audit total	0.091	-.266**	-0.039	.223*	-.241**	.366**	-.329**	-0.17	0.076	.339**		
12	ASQR total	0.001	-0.133	-0.085	.229*	-0.113	0.075	0.047	-0.126	-.254**	-0.024	.197*	

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Table 12

RQ 2 Multicollinearity Testing Results

	Variables	1	2	3	4	5	6	7	8	9	10
1	Age										
2	Gender	-0.005									
3	Ethnicity	-0.021	.214*								
4	Education	.214*	-0.123	-0.173							
5	Surgery type	0.005	0.037	0.14	-.188*						
6	Month since surgery	.472**	-0.055	-0.045	-0.045	-.264**					
7	How my body will react to alcohol use post-surgery	-0.142	0.089	-0.054	0.059	0.068	-.452**				
8	Potential alcohol abuse with post -surgery alcohol use	-0.017	0.13	-0.141	-0.16	0.03	-.298**	.524**			
9	Other Info	-0.048	0.007	0.037	-0.041	0.143	-0.066	-.223*	-0.12		
10	ASQR total	0.001	-0.133	-0.085	.229*	-0.113	0.075	0.047	-0.126	-.254**	-0.024

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Research Question 1 Results

Research Question 1: What is the relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided, pre-surgery alcohol use consumption behavior as measured by the *Alcohol Use Disorder Test,* and post-surgery alcohol use consumption behavior as measured by *the Alcohol Use Disorder Test?*

A multiple linear regression was conducted to determine if there was a statistically significant relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided, pre-surgery alcohol use consumption behavior as measured by the Alcohol Use Disorder Test, and post-surgery alcohol use consumption behavior as measured by the Alcohol Use Disorder Test. The variables of gender (p=.003), education level (p=.020), Number of months since surgery (p=.006), and Pre-AUDIT total score (p=.000) were related to post-surgery alcohol use consumption behavior (post-AUDIT) at statistically significant levels. However, because all variables included in the research question were not related to post-surgery alcohol use consumption behavior at statistically significant levels, the null hypothesis is retained (not rejected).

Table 13

RQ 1 Multiple Linear Regression Results

	Un Std Coefficients				
Variables	B	Std..Error	Std Coeff	t	Sig,
(Constant)	6.404	2.702		2.37	0.020

Age	-0.085	0.052	-0.15	-1.632	0.106
Gender	-3.515	1.166	-0.248	-3.015	**0.003**
Ethnicity	0.719	0.368	0.161	1.956	0.054
Education	0.925	0.389	0.196	2.376	**0.020**
Surgery type	-2.44	1.26	-0.164	-1.936	0.056
Months since surgery	0.038	0.013	0.301	2.836	**0.006**
Info received before surgery about post-surgery alcohol use	-1.537	1.303	-0.113	-1.18	0.241
Pre-Audit total	0.911	0.173	0.427	5.267	**0.000**

Dependent Variable: Post-AUDIT total

Research Question 2 Results

Research Question 2: What is the relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided, and post-surgery alcohol use attitude as measured by the *Alcohol Self-Regulated Questionnaire*?

A multiple linear regression was conducted to determine if there was a statistically significant relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided, post-surgery alcohol use attitude as measured by the ASRQ. Education level (p=.020) was related to post-surgery alcohol use attitude as measured by the ASRQ at a statistically significant level. Because the other variables used in the research question were not related to post-surgery alcohol use attitude as measured by the ASRQ at a statistically significant levels, the null hypothesis is retained (not reject).

Table 14

RQ 2 Multiple Linear Regression Results

Variables	Un Std Coefficients B	Std Error	Std Coeff	T	Sig,
(Constant)	66.946	5.601		11.953	0.000
Age	-0.040	0.106	-0.042	-0.374	0.709
Gender	-4.115	2.399	-0.176	-1.715	0.090
Ethnicity	-0.005	0.762	0.001	-0.006	0.995
Education	1.907	0.801	0.246	2.376	**0.020**
Surgery type	-1.773	2.616	-0.073	-0.678	0.500
Months since surgery	-0.009	0.027	0.041	0.310	0.758
Info received before surgery about post-surgery alcohol use	-3.872	2.695	-0.172	-1.437	0.154

Dependent Variable: ASQR Total

Summary

In Chapter 4, I discussed the data collection, results of the study and data analysis. The data was collected from 120 samples. The data was imported in to SPSS Version 21 software. Statistical analysis was calculated for descriptive and inferential data. For research question 1, gender (p=.003), educational level (p=.020), number of months since surgery (p=.006) and pre-AUDIT total (p=.000) were related to post-AUDIT score at statistically significant levels but the null hypothesis was not rejected due to not all independent variables being related to the dependent variable at statistically significant levels. For research question 2, educational level (p=.020) was related to post-ASRQ score at a statistically significant level but the null hypothesis was not rejected due to not all independent variables being related to the dependent variable at statistically significant levels. Chapter 5 contains an introduction of the study, interpretation of

findings, limitations of the study, recommendations, implication for social change and summary and conclusion.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

My purpose in this quantitative, correlational study was to examine the relationship between demographic factors (age, gender, type of bariatric surgery, number of years since surgery, education level), type of information about post-surgery alcohol use that was provided before surgery, pre surgery alcohol consumption behavior as measured by the pre-AUDIT, post-surgery alcohol consumption behavior as measured by the post-AUDIT, and post-surgery alcohol use attitude as measured by the ASRQ. I am hoping to bring awareness to the potential increased risk of alcohol use abuse and disorders among individuals who are obese. I am also hoping to provide healthcare professionals, leaders, and legislators with more information to understand the relationship between demographic factors, type of information about post-surgery alcohol use provided before surgery, pre surgery alcohol consumption behavior and post alcohol use attitude surrounding alcohol use post-surgery. This will assist with ensuring patients are provided the appropriate resources and support (King et al., 2012).

RQ 1 was, What is the relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided, pre surgery alcohol use consumption behavior as measured by the Alcohol Use Disorder Test, and the post-surgery alcohol use consumption behavior as measured by the Alcohol Use Disorder Test? Statistically significant relationships were found between gender (p = .003), education level (p = .020), number of months since surgery (p = .006), pre surgery alcohol consumption

behavior as measured by the pre-AUDIT (p = .000), and post-surgery alcohol use consumption behavior as measured by the post-AUDIT. Other variables were not related to the dependent variable and the post-surgery alcohol use consumption behavior at statistically significant levels. Therefore, the null hypothesis was not rejected.

RQ 2 was, What is the relationship between demographic factors (age, ethnicity, gender, number of years since surgery, education level), the type of information about post-surgery alcohol use provided, and post-surgery alcohol use attitude as measured by the Alcohol Self-Regulated Questionnaire. Education level (p = .020) was the only variable that had a statistically significant relationship to post surgery alcohol use attitude as measured by the ASRQ. The null hypothesis was not rejected.

This chapter includes my interpretation of the findings, the limitations of the study, recommendations for future research, and discussion of the implications of the study.

Interpretation of Findings

Interpretation of Findings in Relation to Previous Research

While not specifically related to one of my RQs, I also analyzed the difference between pre surgery and post-surgery AUDIT scores. The alcohol use risk level of the respondents to the AUDIT indicated a 33% increased change for the low-risk level (0-7 low risk), an 18% increased change for the medium-risk level (8-15 medium risk), a 10% increased change for the high-risk level (16-19), and a 5% increased change for the addiction risk level (20+ addiction risk). Smith et al. (2018) examined adult post bariatric surgery patients to measure their alcohol use and attitudes prior to and after bariatric surgery. They concluded that a minority of bariatric surgery patients experience post-

surgery alcohol use problems and their attitude and behavior with alcohol indicates unhealthy statuses (Smith et al., 2018).

As discussed in Chapter 2, researchers have studied transfer addiction and alcohol use problems post bariatric surgery (OAC, 2016, 2018). Even though I could not find studies that I could exactly compare my results for RQ 1 to, I am able to interpret my results in relation to existing research on pre and post-surgery alcohol use studies with bariatric surgery patients. Several researchers have examined post-surgery alcohol behaviors for those who had bariatric surgery (see King et al., 2012; King et al., 2017; Odom et al., 2010; Pepino, 2015; Yin, 2015). In a study by King et al. (2012), males and younger adult participants with a preoperative regular alcohol consumption history who underwent bariatric surgery reported that their alcohol use increased. The assessment risk levels indicate that the participants had an increased risk of developing alcohol use disorder or addiction post-surgery (King et al., 2012). My finding that gender was related to post surgery alcohol consumption behaviors at a statistically significant level confirms King et al.'s (2012) results. King et al. (2017) found that there was a relationship between gender, age, BMI, and length of time as surgery was associated with increased alcohol use and alcohol disorder post-surgery (King et al., 2017). Similarly, I found the variables of gender and length of time since surgery to have a statistically significant relationship to post surgery alcohol use.

The key findings for RQ 2 revealed that a relationship exist between education level ($p=.020$) and the dependent variable, ASRQ total scores. As discussed in Chapter 2, while there where studies related to alcohol use attitudes there were no studies that I

found where the researchers used the ASRQ to measure alcohol use attitude with post-bariatric surgery patients. Benka (2017) studied motivation, external regulation, and autonomous motivation for using alcohol responsibly as well as other self-determination constructs. They found that age and gender was associated with an individual's motivational score toward using alcohol responsibly (Benka, 2017). I did not find that these variables were related to post-surgery alcohol use attitude as measured by the ASRQ.

Interpretation of Findings in Relation to Theoretical Framework

I used the HBM and the TPB as the theoretical framework for this study. A key aspect of the HBM is an individual's representation of their health and health behavior (Abraham & Sheeran 2007). Individuals engaging in alcohol use demonstrate an activation of the HBM relative to their alcohol use attitude and behavior. The HBM addresses the relationship between individuals' values and their expectations for avoiding illness and diseases and the reward for living a healthy lifestyle (Gilliver, Beach, & Williams, 2015; Jones et al., 2015; Rosenstock, 1974). The TPB explains an individual's perception of control over particular behaviors, normative belief, and behavioral belief (Ajzen, 1991). For RQ 1, I found that gender, education level, number of months since surgery, and pre surgery AUDIT total score were related to the post-surgery AUDIT score at a statistically significant level. I also found the alcohol use risk level of the respondents to the AUDIT indicated a 33% increased change for the low-risk level (0-7 low risk), an 18% increased change for the medium-risk level (8-15 medium risk), a 10% increased change for the high-risk level (16-19), and a 5% increased change for the

addiction-risk level (20+ addiction risk). This finding indicated a higher risk of post bariatric surgery alcohol use and abuse.

Participants who reported an increase in alcohol use between pre and post bariatric surgery can be perceived as an individual engaging in alcohol use (low risk level) or excessive alcohol use (medium-addiction level) after bariatric surgery. This action is considered to be an individual taking an action of the HBM (good or bad) (i.e., perceived susceptibility, perceived severity, perceived benefits, perceived barriers, perceived cue to action, and perceived self-efficacy) because of consuming alcohol responsibly or excessively based on their belief or non-belief of developing an illness or disease from alcohol use (Rosenstock, 1974). This action demonstrates a potentially lowered perceived susceptibility because the individual chooses to drink alcohol even though they know the potential risks post-bariatric surgery (Glanz et al., 2015; Rosenstock, 1974).

Luquis and Kensinger (2019) utilized the HBM to assess prevention services among young adults. They found a statistically significant relationship between gender, health status, and age and the use of prevention services based on their perceived seriousness of specific illnesses (eight major health condition). I also found that gender was related to post-surgery behaviors and this supports findings from Luquis and Kensinger.

I utilized the ASRQ measure post-surgery attitudes about alcohol use for research question 2. Questions are asked about the reasons why the participants control their use of alcohol and they are asked to score the item according to how true the statement is

about them (1=not true at all/7=very true). Ninety-two (92%) percent of the respondents indicated a seven on the item *Because I personally believe it is the best thing for my health* (SQ23) and 89% indicated a seven on the items *Because I feel that I want to take responsibility for my own life* (SQ11) and *Because it is very important for being as healthy as possible* (SQ23). According to Theory of Planned Behavior (TPB), these responses are the behavior intentions of the respondents related to an individual's behavior and belief about a behavior (Ajzen & Fishbein, 1980).

Limitations of the Study

This study had several limitations. The first limitation was that the design of this study was quantitative, correlational, and cross-sectional in nature so there is a limit to how the statistical analyses can be interpreted (Creswell, 2015). This limitation did not cause a problem as I was able to determine if there were statistically significant relationships between variables but I was not able to find out why participants answered the questions the way that they did or be able to get qualitative information about their pre and post-surgery behaviors. I was also not able to get qualitative information about the interactions they had with their surgeon and other medical staff about the information they received about alcohol consumption.

The second limitation was relative to the collected data being self-reported information. Due to participants being asked to answer questions about a behavior that they may be ashamed of (alcohol consumption) they may not have been completely honest in their answers (Grimes & Schultz, 2002). In addition, because I was asking them to provide a retrospective review of their pre-surgery alcohol consumption

behaviors, participants may not have accurately recalled their pre-surgery alcohol use (Grimes & Schultz, 2002). Since there was no independent means to verify their alcohol use consumption and their behavior and attitude toward alcohol, there was awareness of the possible presence of recall bias (Sica, 2006). I did include instructions to answer honestly to all questions and participation in the study was voluntary and anonymous so it is hoped that participants did answer honestly.

The third limitation was participants could only complete the survey by using electronic devices connected to an internet source. This limitation could have potentially limited the variety of individuals who participated in the study and those who do not have access to the internet or have limited technology skills may not have participated in the study. This could potentially limit the generalizability of the results to groups that did not participate in the study, however this limitation is not an issue with regard to generalization because the population was bariatric surgery patients and not a variation of populations, setting or locations (Polit & Beck, 2010).

Recommendations

I would recommend additional research be conducted to determine if the results of my study can be confirmed (Creswell, 2015). Future researchers should investigate the correlation between post-bariatric surgery patients and alcohol use problems utilizing different survey/questionnaire administering methods such as participants being provided the survey in a physician or clinic setting. This recommended investigation is to determine if the results and findings can be extended upon, be consistent or similar with the results and findings of this study.

More research should be conducted to inquire what influences post-bariatric surgery patient to use alcohol excessively. This recommended inquiry will help to further investigate whether a patient is using alcohol excessively to replace food (addiction transfer) or other underlining reasons or causes (celebratory or recreational) that induce alcohol use to become an unintended problem. Using a mixed method approach has the potential to also gain insight into why the participants answered the questions the way that they did (Creswell, 2005). This would allow a researcher to gain a greater insight into information shared with participants pre/post-bariatric surgery about alcohol use, to better understand the thought process behind how participants are answering questions on the AUDIT and the ASRQ, and also to be able to triangulate qualitative and quantitative data to try to determine how truthful participants are being in relation to their responses.

Future research should be conducted to explore if RYGB patients are more susceptible in developing alcohol problems than other bariatric surgery types. The results of this recommended inquiry could provide public health professionals, scientists, and patient information and tools to develop or create appropriate actions and policies (Szalavitz, 2012). Lastly, due to minimal information being known about educational information that is provided to bariatric patients by medical professionals, and how consistent that information is (Wee et al., 2014; Yin, 2015), it would be beneficial to conduct research around the types, thoroughness, and consistency of the information provided to ensure appropriate resources are available during the bariatric pre-operative surgery process that could increase awareness and education about bariatric surgery and the relationship with post-operative alcohol use, abuse, and disorders.

Implications

As the use of bariatric surgery continues to be the most effective treatment for the morbidly obese and cases of post-operative alcohol use problems continue to increase (Caceres et al., 2015; King et al., 2012; Ogden et al., 2014). The statistically significant findings of my study, particularly the relationship between gender, education levels, number of months since surgery, pre-surgery alcohol consumption behavior as measured by the Alcohol Use Disorder Test (pre-AUDIT) and the Alcohol Use Disorder Test (post-AUDIT) total score (RQ 1) and a statistically significant relationship between education level and post-surgery alcohol attitude and behavior scores as measured by the Alcohol Self-Regulated Questionnaire score (RQ 2) demonstrates that this study provided results that could be instrumental in addressing the potential increased risk of alcohol problems with bariatric surgery patients.

This study data does indicate a change between pre-surgery and post-surgery alcohol consumption risk level specifically, a 33% increase change in behavior between low, medium, high and addictive risk level. Further studies to explore the relationship between bariatric surgery and post-alcohol use is a reasonable action considering the nature of this problem. This study could have the potential to provide different perspectives of awareness and prevention in understanding the relationship between bariatric surgery and post-surgery alcohol use and behaviors and potentially provide findings to create policies to execute more effective and improved bariatric surgery preoperative and postoperative healthcare mandates or recommendations. Additionally, bringing awareness of the potential risk of post-surgery alcohol use to public safety can

also contribute to self-injury prevention (alcohol poison, trip and fall) and public safety threats (driving or operating machinery while under the influence).

I included literature from researchers on how specific bariatric surgery effects how the body metabolize alcohol after consumption and the safety impact of post-surgery alcohol consumption and driving (Jones et al., 2015; NIAAA, 2017). This study could bring awareness to the public safety concerns and create or change "driving while under the influence of alcohol" post offense requirements and mandates for this population. Therefore, the positive social change implication of the study is that public health professional and policy maker could use the results to inform and develop healthcare policies and processes to ensure this population receives the best health outcome after bariatric surgery.

Conclusion

Since, I could not locate other studies that I could exactly compare my study to, I could not fully support or deny the findings of previous researchers. This study's findings provide important research and should be use to expand on future studies in understanding the increase risk of alcohol problems with post-bariatric surgery patients. Future researchers should build extensively on the underlining factors of why this population have increase susceptibility to addictions and provide resources that can reduce or eliminate this public health problem. It will be helpful to include all stakeholders in these efforts (patients, legislators, public health professionals) due to the nature of the problem. Not only does alcohol problems sabotage weight loss it also

decreased quality of life, bring on social problems, chronic illnesses, diseases, and injuries, and a threat to public safety, and death (Jones et al., 2015; NIAAA, 2017).

This correlational study provided quantitative data between the relationships of demographics and pre and post-operative alcohol use and attitude and behavior as measured by the AUDIT and ASRQ. While the results of this study did demonstrate statistically significant relationships between gender, education levels, number of months since surgery, pre-surgery alcohol consumption behavior as measured by the Alcohol Use Disorder Test (pre-AUDIT) and the Alcohol Use Disorder Test (post-AUDIT) total score and a statistically significant relationship between education level and alcohol attitude and behavior scores as measured by the Alcohol Self-Regulated Questionnaire score, this study could not provide an generalizability to other populations. Demographics, alcoholism, addictions, obesity, health and education literacy could also have an impact on future studies of this nature. As mentioned, this study could not be compared to other studies exactly, so there is no additional information I can conclude that is relative to how those factor may impact future studies

The Health Belief Model (HBM) and the Theory of Planned Behavior appeared to be appropriate theoretical framework for this study and as indicated in Chapter 5, it was possible that multiple levels of the framework were activated. The HBM addresses the relationship between a person's values and their expectations for a healthier lifestyle, and attitude and behaviors (Glanz et al., 2015). With this, avoiding alcohol use, disease and illness prevention (obesity) can be an indication of an individual taking action (activation) and their perception of the HBM (susceptibility, severity, barriers, benefits,

cue to actions, and self-efficacy) (Glanz et al., 2015; Rosenstock, 1974). For example, post-bariatric surgery patients could be aware that they are at an increased risk (susceptible) to alcohol use and problems and is weighing the benefits and barriers of whether or not to consume alcohol (drink or avoid alcohol).

In hoping to bring awareness to the potential increased risk of alcohol use abuse and disorders with this population. This study was aimed to provide healthcare professionals, leaders, and legislators more information to understand the relationship between this study's variables and the increase risk of post-surgery alcohol use problems with this population. This study has the potential to provide different perspectives of awareness and prevention in understanding the relationship between bariatric surgery and increase risk of post-surgery alcohol problems and alcohol use and behaviors. More so, (1) this study can potentially provide findings to assist with creating policies to execute more effective preoperative and postoperative healthcare mandates or recommendations; (2) contribute to self-injury prevention (alcohol poison, trip and fall); (3) public safety threats (driving or operating machinery while under the influence); and (4) provide the appropriate resources and support post-surgery for patients and physicians (King et al., 2012).

References

Abdelaal, M., le Rounb, C. W., & Docherty, N. G. (2017). Morbidity and mortality associated with obesity. *Annals of Translational Medicine, 5*(7), 1-12. doi:10.21037/atm.2017.03.107

Abraham, C., & Sheeran, P. (2007). The health belief model. In S. Ayers, A. Baum, C. McManus, S. Newman, K. Wallston, J. Weinman, & R. West (Eds.), *Cambridge handbook of psychology, Health and medicine* (2nd ed., pp. 97-102). doi:10.1017/CBO9780511543579.022

Adeola, R. (2016). Get the message: A teen distracted driving program. *Journal of Trauma Nursing, 23*(6), 312-320. doi:10.1097/JTN.0000000000000240

Adewuya, O. (2005). Validation of the Alcohol Use Disorder Identification Test (AUDIT) as a screening tool for alcohol-related problems among Nigerian University students. *Alcohol and Alcoholism, 40*(6), 575–577. doi:10.1093/alcalc/agh197

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. doi:10.1017/CBO9780511543579.

Ajzen, I., & M. Fishbein (1980). *Understanding attitudes and predicting social behavior.* Englewood Cliffs, NJ: Prentice-Hall.

Albarracín, D., Johnson, B. T., Fishbein, M., & Muellerleile, P. A. (2001). Theories of reasoned action and planned behavior as models of condom use: A meta-analysis. *Psychological Bulletin, 127*(1), 142–161. doi:10.1177/1474515114557222

Alharbi, M., Gallagher, R., Kirkness, A., Sibbritt, D., & Tofler, G. (2016). Long-term outcomes from Healthy Eating and Exercise Lifestyle Program for overweight people with heart disease and diabetes. *European Journal of Cardiovascular Nursing, 15*(1), 91-99. doi:10.1177/1474515114557222

Alizai, P. H., Akkerman, M. K., Kaemmer, D., Ulmer, F., Klink, C. D., Ernst, S., . . . Perlitz, V. (2015). Presurgical assessment of bariatric patients with the Patient Health Questionnaire (PHQ)--a screening of the prevalence of psychosocial comorbidity. *Health and Quality of Life Outcomes, 13,* 1-7. doi:10.1186/s12955-015-0278-5

Ameen, A. & Kerens, P. (2017). Change in form of compulsive behavior after bariatric surgery is a phenomenon best describe by deficiency of reward cycle in the brain. *Journal of Addiction Research, 1*(1), 1-3. Retrieved from http://www.opastonline.com/journal-of-addiction-research

American Public Health Association. (2005). *Supporting the WHO global strategy on diet, physical activity and health.* Retrieved from http://www.apha.org/advocacy/policy/policysearch/default.htm?id=1309

American Society for Metabolic & Bariatric Surgery. (2016). *National inpatient sample data and outpatient estimations*. Retrieved from https://asmbs.org/resource-categories/estimate-of-bariatric-surgery-numbers

Asare, M. (2015). Using the theory of planned behavior to determine the condom use behavior among college students. *American Journal of Health Studies, 30*(1), 43–50.

Aubrey, L. L., Brown, J. M., & Miller, W. R. (1994). Psychometric properties of a self-regulation questionnaire (SRQ) [Abstract]. *Alcoholism: Clinical & Experimental Research, 18*, 429.

Ayodele, O. (2017). The theory of planned behavior as a predictor of HIV testing intention. *American Journal of Health Behavior, 41*(2), 147-151. doi:10.5993/AJHB.41.2.5

Babor, T., Higgins-Biddle, J., Monteiro, M., & Saunders, J. (2001). *The Alcohol Use Disorder Identification Test: Guidelines for use in primary care*. Retrieved from http://apps.who.int/iris/bitstream/10665/67205/1/WHO_MSD_MSB_01.6a.pdf.

Backman, O., Stockeld, D., Rasmussen, F., Näslund, E., & Marsk, R. (2016). Alcohol and substance abuse, depression and suicide attempts after Roux-en-Y gastric bypass surgery. *The British Journal of Surgery, 103*(10), 1336-1342. doi:10.1002/bjs.10258

Bak, M., Seibold-Simpson, S. M., & Darling, R. (2016). The potential for cross-addiction in post-bariatric surgery patients: Considerations for primary care nurse practitioners. *Journal of the American Association of Nurse Practitioners, 28*(12), 675-682. doi:10.1002/2327-6924.12390

Beechy, L, Galpern, J., Petrone, A., Das, S. (2012). Assessment tools on obesity psychological measures diet, activity, and body composition. *Physiology & Behavior* 107(1) 154-171. doi.org/10.1016/j.physbeh.2012.04.013

Bello, G. (2017). Bariatric surgery has evolved over time. *The Baltimore Sun* Retrieved from http://www.baltimoresun.com/bs-hs-expert-bariatric-surgery-20170515-

story.html

Benka, J. (2017). Autonomous self-regulation and different motivations for alcohol use among university students. *Mental Health & Prevention, 7,* 12-16. doi:10.1016/j.mhp.2017.06.002.

Bray, G. A., Frühbeck, G., Ryan, D. H., & Wilding, J. P. H. (2016). Management of obesity. *The Lancet, 387*(10031), 1947-1956. doi:http:doi.org/10.1016/S0140-6736 (16)00271-3

Brutovská, M., Orosova, O., Kalina, O., & Šebeňa, R. (2015). Descriptive normative beliefs and the self-regulation in alcohol use among Slovak university students. *Journal of Public Health, 37*(4), 618-624. doi:10.1093/pubmed/fdu099

Busko, M. (2013, December). Current bariatric surgery safe and effective: Meta-analysis. *Medscape Medical News, 149*(3), 275-287. Retrieved from https://www.medscape.com/viewarticle

Caceres, B. A., Moskowitz, D., & O'Connell, T. (2015). A review of the safety and efficacy of bariatric surgery in adults over the age of 60: 2002-2013. *Journal of the American Association of Nurse Practitioners, 27*(7), 403-410. doi:10.1002/2327-6924.12235 2002-2013.

Cao, J. (2011). Effects of obesity on bone metabolism. *Journal of Orthopedic Surgery Research, 6*(30), 1-7. doi: 10.1186/1749-799X-6-30

Carey, K. B., Neal, D. J., & Collins, S. E. (2004). A psychometric analysis of the Self-Regulation Questionnaire. Addictive Behaviors, 29, 253-260.

Caudwell, K. M., Mullan, B. A., & Hagger, M. S. (2016). Combining motivational and

volitional approaches to reducing excessive alcohol consumption in pre-drinkers: a theory-based intervention protocol. *Boston Medical Center Public Health*, *16(*45), 1-12. doi.org/10.1186/s12889-015-2648-7

Cecchini, M., & Sassi, F. (2015). Preventing Obesity in the USA: Impact on Health Service Utilization and Costs. *Pharmacoeconomics, 33*(7), 765-776. doi:10.1007/s40273-015-0301-z

Center for Disease Control and Prevention (CDC, 1999). *National Center for Chronic Disease Prevention and Health and Promotion*. Chronic Kidney Disease Surveillance System. Retrieved from https://nccd.cdc.gov/ckd/detail.aspx?Qnum=Q143

Center for Disease Control and Prevention (2012). National Center for Chronic Disease Prevention and Health and Promotion. Division of Nutrition, Physical Activity, and Obesity. Retrieved from https://www.cdc.gov/nccdphp/dnpao/index.html

Center for Disease Control and Prevention (2013). National Center for Chronic Disease Prevention and Health and Promotion. Body Mass Index. Retrieved from https://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html#Interpreted

Center for Disease Control and Prevention (2016). National Center for Chronic Disease Prevention. Overweight & Obesity Facts. Retrieved from https://www.cdc.gov/obesity/data/adult.html

Champion, D. A., Lewis, T. F., & Myers, J. E. (2015). College student alcohol use and abuse: Social norms, health beliefs, and selected socio-demographic variables as

explanatory factors. *Journal of Alcohol and Drug Education, 59*(1), 57-82. Doi: 10.1002/j.2161-1882.2008.tb00021.x

Chen, P. Y., & Popovich, P. M. (2002). *Correlation: Parametric and nonparametric measures*. Thousand Oaks, CA: Sage Publications.

Conason A., Teixeira J., Hsu C., Puma L., Knafo D., & Geliebter A. (2013). Substance use following bariatric weight loss surgery. *Journal of the American Association, 148*(2), 145–150. doi:10.1001/2013

Cooke, R., Dahdah, M., Norman, P., & French, D. P. (2016). How well does the theory of planned behaviour predict alcohol consumption? A systematic review and meta-analysis. *Health psychology review, 10*(2), 148–167. https://doi.org/10.1080/17437199.2014.947547

Cori, G. C., Petty, M. B., & Alvarenga, S. (2015). Attitudes of dietitians in relation to obese individuals an exploratory study. *Ciencia & Saude Coletiva, 20*(2), 565-576. doi:10.1590/1413-81232015202.05832014

Connelly, L. M. (2016). Cross-Sectional survey research. *MEDSURG Nursing, 25*(5), 369-370. Retrieved from http://medsurgnursing.net/archives/16sep/369.pdf

Creswell, J. W. (2005). *Research design: Qualitative, quantitative, and mixed methods approach. Sage* Publications, Incorporated.

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approach*. Sage Publications, Incorporated.

Creswell, J. W. (20153). *Research design: Qualitative, quantitative, and mixed methods approach*. Sage Publications, Incorporated.

Cuellar-Barboza, A. B., Frye, M. A., Grate, K., Prieto, M. L., Schneekloth, T. D., Loukianova, L. L., & Abulseoud, O. A. (2015). Change in consumption patterns for treatment-seeking patients with alcohol use disorder post-bariatric surgery. *Journal of Psychosomatic Research, 78*(3), 199-204. doi:10.1016/j.jpsychores.2014.06.019

Cunningham, J. A., Hendershot, C. S., & Rehm, J. (2015). Randomized controlled trial of a minimal versus extended Internet-based intervention for problem drinkers: study protocol. *BMC Public Health*, (*15)*21, 2-6. doi:10.1186/s12889-015-1347-8

Doheny, K. (2017, August). *Do the Benefits of Weight Loss Surgery really Last. CBS News Week*. Retrieved from https://www.cbsnews.com/news/do-the-benefits-of-weight-loss-surgery-really-last/

Dombrowski, J., Knittle, K., Avenell, A., Araujo, V., & Sniehotta, F. F. (2014). Long term maintenance of weight loss with non-surgical interventions in obese adults: systematic review and meta-analyses of randomized controlled trials. *British Medical Journal*, 1-12. doi: 10.1136/bmj.g2646

Dowdell, E. B., & Santucci, M. E. (2004). Health risk behavior assessment: Nutrition, weight, and tobacco use in one urban seventh-grade class. *Public Health Nursing*, 21(2), 128-136. doi:10.1111/j.0737-1209.2004.021206.x

Eid, I., Birch, D. W., Sharma, A. M., Sherman, V., & Karmali, S. (2011). Complications associated with adjustable gastric banding for morbid obesity: A surgeon's guide. *Canadian Journal of Surgery, 54*(1), 61–66. http://doi.org/10.1503/cjs.015709

El-Rahman Mona, A., Mahmoud, A., Amal, M., & Mahmoud, S. (2014). The application of alcohol brief intervention using the health belief model in hospitalized alcohol use disorders patients. *International Journal of Caring Sciences, 7(*3), 843-854. Retrieved from https://www.researchgate.net/publication/283289824_ f2c234a0ac2df0f19ba8c5234ba75cf3- Cover Pdf

Explorable. (2015). *Convenience sampling*. Retrieved from https://explorable.com/convenience-sampling

Faber, J., & Fonseca, L. M. (2014). How sample size influences research outcomes. *Dental Press Journal of Orthodontics*, *19*(4), 27–29. doi:10.1590/2176-9451.19.4.027-029.ebo

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*, 175-191. doi:10.3758/BF03193146

Flegal, K. M., Kruszon-Moran, D., Carroll, M. D., Fryar, C. D., & Ogden, C. L. (2016). Trends in obesity among adults in the United States, 2005 to 2014. *Journal of the American Medical Association-JAMA, 315*(21), 2284-2291. doi:10.1001/jama.2016.6458

Fouse, T., & Schauer, P. (2016). The Socioeconomic impact of morbid obesity and factors affecting access to obesity Surgery. *The Surgical clinics of North America*, *96*(4), 669-679. doi:10.1016/j.suc.2016.03.002

Frankfort-Nachmias, C., & Nachmias, D. (2008). *Research methods in the social Sciences*. (7th ed.) New York, NY: Worth Publisher.

Frederick, D. A., Saguy, A. C., & Gruys, K. (2016). Culture, health, and bigotry: How exposure to cultural accounts of fatness shape attitudes about health risk, health policies, and weight-based prejudice. *Social Science & Medicine, 165,* 271-279. doi:10.1016/j.socscimed.2015.12.031.

Funghetto, S. S., Silva, A., de Sousa, N. M., Stival, M. M., Tibana, R. A., Pereira, L. C., Antunes, M. L., de Lima, L. R., Prestes, J., Oliveira, R. J., Dutra, M. T., Souza, V. C., Nascimento, D., … Karnikowski, M. G. (2015). Comparison of percentage body fat and body mass index for the prediction of inflammatory and atherogenic lipid risk profiles in elderly women. *Clinical interventions in aging, 10,* 247-53. doi:10.2147/CIA.S69711

Gallucci, A., Martin, R., Beaujean, A., & Usdan, S. (2015). An examination of the misuse of prescription stimulants among college students using the theory of planned behavior. *Psychology, Health & Medicine, 20*(2), 217-226. doi:10.1080/13548506.2014.913800

Gallup News (2012, November). Americans Continue to Adjust Their Ideal Weight Upward. Retrieved from https://news.gallup.com/poll/158921/americans-continue-adjust-ideal-weight-upward.aspx.

Gilliver, M., Beach, E. F., & Williams, W. (2015). Changing beliefs about leisure noise: Using health promotion models to investigate young people's engagement with, and attitudes towards, hearing health. *International Journal of Audiology, 54*(4), 211-219. doi:10.3109/14992027.2014.978905

Glanz, K. Rimer, B. K., & Viswanath, K. (2015). *Health behavior: Theory, research, and*

practice (5th ed.). San Francisco, CA. Jossey-Bass.

Golomb I, Ben David M, Glass A., Cowlitz T, Keidar, A. (2015) A. long-term metabolic effects of laparoscopic sleeve gastrectomy. *The Journal of the American Medical* Association *Surgery,* 150(11):1051–1057. doi:10.1001/jamasurg.2015.2202

Goode, R. W., Styn, M. A., Mendez, D. D., & Gary-Webb, T. L. (2017). African Americans in Standard Behavioral Treatment for Obesity, 2001-2015: What Have We Learned? Western Journal of Nursing Research, 39(8), 1045-1069. doi:10.1177/0193945917692115

Gregorio, V., Lucchese, R.., Vera, I., Silva, G.C., Silva, A., & Moraes, R.C.C (2016). The alcohol consumption is amended after bariatric surgery? An Integrative review. *Arquivos Brasileiros de Cirurgia Digestiva : ABCD*, *29*(l), 111–115. http://doi.org/10.1590/0102-6720201600S10027

Grimes, D., & Schultz, K. (2002). Bias and causal association in observational research. *The Lancet, 359, 248-252.* doi.org/10.1016/S0140-6736 (02)07451-2

Grimes D., Schulz K., (2002). Bias and causal associations in observational research. Lancet. 2002 Jan 19;359(9302):248-52. doi: 10.1016/S0140-6736(02)07451-2. PMID: 11812579.

Gudzune, K. A., Doshi, R. S., Mehta, A. K., Chaudhry, Z. W., Jacobs, D. K., Vakil, R. M., Clark, J. M. (2015). Efficacy of commercial weight loss programs: an updated systematic review. *Annals of Internal Medicine*, *162*(7), 501–512. http://doi.org/10.7326/M14-2238

Harvard Health Publication (2016). Weight-Loss surgery: Moving into new dimensions?

Retrieved from https://www.health.harvard.edu/staying-healthy/weight-loss-surgery-moving-into-new-dimensions

Hasking, P., & Schofield, L. (2015). Examining alcohol consumption with the theory of planned behavior: Do health and alcohol knowledge play a role? *Psychology, Health & Medicine, 20*(7), 838-845. doi:10.1080/13548506.2014.969748

Healthy People 2020. (2014). Physical activity, nutrition, and obesity. *Health Discovery* Retrieved from healthypeople.gov on 12/24//2017

Hochbaum, G., Rosenstock, I., & Kegels, S. (1958). Health belief model. *United States Public Health Service*. Retrieved from http://www.infosihat.gov.my/infosihat/artikelHP/bahanrujukan/HE_DAN_TEORI/DOC/Health%20Belief%20Model.doc

Houston Obesity Surgery (2016). *Nutritional Guidance Outreach*. Retrieved from http://drnowmd.com/find-the-procedure-right-for-you/non-surgical-treatments/

Hustad, J. T. P., Carey, K. B., Carey, M. P., & Maisto, S. A. (2009). Self-Regulation, alcohol consumption, and consequences in college student heavy drinkers: A Simultaneous Latent Growth Analysis. *Journal of Studies on Alcohol and Drugs, 70*(3), 373–382.

Imani, G., Barrios, C., Anderson, C. L., Farahabadi, M. H., Banimahd, F., Chakravarthy, B., & Hosseini Farahabadi, M. (2017). Computerized alcohol screening identified more at-risk drinkers in a level 2 than a level 1 trauma center. *BMC Public Health, 17*(1), 1-7. doi:10.1186/s12889-016-3989-6

Jones, L., Bates, G., McCoy, E., & Bellis, M. A. (2015). Relationship between alcohol-attributable disease and socioeconomic status, and the role of alcohol consumption in this relationship: a systematic review and meta-analysis. *BMC Public Health,15*(400), 1-14. doi:10.1186/s12889-015-1720-7

Jones, C. L., Jensen, J. D., Scherr, C. L., Brown, N. R., Christy, K., & Weaver, J. (2015). The health belief model as an explanatory framework in communication Research: Exploring Parallel, Serial, and Moderated Mediation. *Health Communication*, *30*(6), 566–576. http://doi.org/10.1080/10410236.2013.873363

Jonikas, J., Cook, J., Razzano, L., Steigman, P., Hamilton, M., Swarbrick, M., & Santos, A. (2016). Associations between gender and obesity among adults with mental illnesses in a community health screening Study. *Community Mental Health Journal, 52(*4), 406-415. doi:10.1007/s10597-015-9965-2

Jumbe, S., Hamlet, C., & Meyrick, J. (2017). Psychological Aspects of Bariatric Surgery as a Treatment for Obesity. *Current Obesity Reports*, *6*(1), 71–78. http://doi.org/10.1007/s13679-017-0242-2

Kammerer, M. R., Porter, M. M., Beekley, A. C., & Tichansky, D. S. (2015). Ideal body weight calculation in the bariatric surgical population. *Journal of Gastrointestinal Surgery, 19*(10), 1758-1762. doi:10.1007/s11605-015-2910-4

Kang H. (2013). The prevention and handling of the missing data. *Korean journal of anesthesiology*, *64*(5), 402–406. https://doi.org/10.4097/kjae.2013.64.5.402

Kanji, S., Wong, E., Akioyamen, L. *et al.* Exploring pre-surgery and post-surgery

substance use disorder and alcohol use disorder in bariatric surgery: a qualitative scoping review. *Int J Obese* 43**,** 1659–1674 (2019). https://doi.org/10.1038/s41366-019-0397-x

Kim, C. G., Kim, J. S., Jung, J. G., Kim, S. S., Yoon, S. J., & Suh, H. S. (2014). Reliability and Validity of Alcohol Use Disorder dentification Test-Korean Revised Version for Screening At-risk Drinking and Alcohol Use Disorders. *Korean journal of family medicine*, *35*(1), 2–10. https://doi.org/10.4082/kjfm.2014.35.1.2

King, W. C., Jia-Yuh, C., Mitchell, J. E., Kalarchian, M. A., Steffen, K. J., Engel, S. G., &. Yanovski, S. Z. (2012). Prevalence of alcohol use disorders before and after bariatric surgery. *JAMA: Journal of the American Medical Association*, *307*(23), 2516-2525. doi: 10.1001/jama.2012.6147

King, W. C., Chen, J. Y., Courcoulas, A. P., Dakin, G. F., Engel, S. G., Flum, D. R., ... Yanovski, S. Z. (2017). Alcohol and other substance use after bariatric surgery: Prospective evidence from a U.S. multicenter cohort study. *Surgery for Obesity and Related Diseases 13(8)* 1392-1402. doi.org/10.1016/j.soard.2017.03.021

Koliaki, C., Liatis, S., le Roux, C. W., & Kokkinos, A. (2017). The role of bariatric surgery to treat diabetes: current challenges and perspectives. *Boston Medical Center Endocrine Disorders*, (*17)*1, 1-12. doi:10.1186/s12902-017-0202

Krimpuri, R.D., Yokley, J.M., Seeholzer, E.L., Horwath, E.L., Thomas, C.L., Bardaro, S.J. (2018). Qualifying for bariatric surgery: Is preoperative weight loss a reliable predictor of postoperative weight loss? *Surgery for Obesity Related Disease,*

14(1), 60-64. doi: 10.1016/j.soard.2017.07.012. Epub 2017 Jul 15.

Kudsi, O. Y., Huskey, K., Grove, S., Blackburn, G., Jones, D. B., & Wee, C. C. (2013). Prevalence of preoperative alcohol abuse among patients seeking weight-loss surgery. *Surgical Endoscopy*, *27*(4), 1093–1097. http://doi.org/10.1007/s00464-012-2568-x

Laerd Dissertation (2012). Convenience sampling. Retrieved from http://dissertation.laerd.com/convenience-sampling.php

Laerd Statistics (2012). Multiple Regression. Retrieved from https://statistics.laerd.com/spss-tutorials/multiple-regression-using-spss-statistics.php

Lagerros, Y. T., & Rössner, S. (2013). Obesity management: what brings success? *Therapeutic advances in Gastroenterology*, *6*(1), 77–88. http://doi.org/10.1177/1756283X12459413

Lee, L. T., Bowen, P. G., Mosley, M. K., & Turner, C. C. (2017). Theory of Planned Behavior: Social Support and Diabetes Self-Management. *Journal for Nurse Practitioners*, *13*(4), 265-270. doi:10.1016/j.nurpra.2016.07.013

Lent, M., James, D. S., Harville, C., Efunbumi, O., & Martin, M. Y. (2015). Health literacy issues surrounding weight management among African American women: A mixed methods study. *Journal of Human Nutrition and Dietetics: The Official Journal of the British Dietetic Association*, *28*(2), 241-249. doi:10.1111/jhn.12239

Levesque, C. S., Williams, G. C., Elliot D., Pickering, M. A., Bodenhamer, B., & Finley,

P. J (2007). Validating the theoretical structure of the treatment self-regulation questionnaire (TSRQ) across three different health behaviors. *Health Education Research, 21,* 691-702. https://doi.org/10.1093/her/cyl148

Luquis, R. & Kensinger, W., (2019). International Journal of Health Promotion and Education. *Applying the Health Belief Model to assess prevention services among young adults, 57,* 37-47. https://doi.org/10.1080

Lutz, Thomas A., Bueter, M., (2014). The physiology underlying roux-en-Y gastric bypass: a status report. *American Journal of Physiology-Regulatory, Integrative and Comparatives Physiology, 307*(11), 1275-1291. Doi:10.1152/ajpregu.00185.2014

McNamara, D. (2017, October). Risk for Alcohol Abuse Intensifies After Bariatric Surgery. *Medscape*. Retrieve from: https://www.medscape.com/viewarticle/887243

Mehari, A., Afreen, S., Nawaz, J., Setse, R., Thomas, A. N., Poddar, V., & ... Thomas, A. V. (2015). Obesity and pulmonary function in African Americans. *The Public Library of Science*, *10*(10), 1-10. doi:10.1371/journal.pone.0140610

Mitchell, J. E., Steffen, K., Engel, S., King, W. C., Chen, J.-Y., Winters, K., & Elder, K. (2015). Addictive disorders after roux-en-Y gastric bypass. *Surgery for Obesity and Related Diseases : Official Journal of the American Society for Bariatric Surgery*, *11*(4), 897–905. doi.org/10.1016/j.soard.2014.10.026

Montanaro, E. A., & Bryan, A. D. (2014). Comparing theory-based condom interventions: Health belief model versus theory of planned behavior. *Health*

Psychology: Official Journal of The Division of Health Psychology, American Psychological Association, *33*(10), 1251-1260. doi:10.1037/a0033969

Mosinski, J. D., & Kirwan, J. P. (2016). Longer-Term Physiological and Metabolic Effects of Gastric Bypass Surgery. *Current Diabetes Reports*, *16*(6), 50. doi.10.1007/s11892-016-0747-1

Müller, M. J. (2016). Ideal body weight or BMI: so, what's it to be? *The American Journal of Clinical Nutrition*, *103*(5), 1193-1194. doi:10.3945/ajcn.116.134221

National Institute of Alcohol Abuse and Alcoholism (2017). Understanding the impact of alcohol on human health and well-being. Retrieved from: https://www.niaaa.nih.gov/research/guidelines-and-resources

National Institutes of Diabetes and Digestive and Kidney Diseases (2012). Weight-loss surgery increases alcohol use disorders over time.

Retrieved from https://www.nih.gov/news-events/news-releases/weight-loss-surgery-increases-alcohol-use-disorders-over-time

National Council on Alcoholism and Drug Dependency. (2018). Weight loss surgery and addiction transfer. Retrieved from https://www.ncadd.org/

National Institutes of Diabetes and Digestive and Kidney Diseases (2013). Dumping Syndrome. Retrieved from https://www.niddk.nih.gov/health-information/digestive-diseases/dumping-syndrome

Nissen, N. K., Holm, L., & Baarts, C. (2015). Monitoring the Normal Body: Ideals and Practices among Normal-Weight and Moderately Overweight People. *Obesity Facts*, *8*(5), 329-341. doi:10.1159/000441461

Obesity Action Coalition (2016). Transfer Addiction Following Bariatric Surgery. Retrieved from http://www.obesityaction.org/transfer-addiction-following-bariatric-surgery

Obesity Action Coalition (2018).Weight Loss Surgery and Cross Addiction. Retrieved from http://www.obesityaction.org/educational-resources/resource-articles-2/weight-loss-surgery/weight-loss-surgery-and-cross-addiction-a-look-at-binge-eating-disorder

Odom, J., Zalesin, K. C., Washington, T. L., Miller, W. W., Hakmeh, B., Zaremba, D. L., & ... McCullough, P. A. (2010). Behavioral predictors of weight regain after bariatric surgery. *Obesity Surgery*, *20*(3), 349-356. doi: 10.1007/s11695-009-9895-6

Ogden, J., & Clementi, C. (2010). The experience of being obese and the many consequences of stigma. *Journal of Obesity*, *10*(2) 1-9. doi: 10:1155 2010/429098.

Olfert, M. D., Barr, M. L., Charlee, C. M., Famodu, O. A., Zhou, W., Mathews, A. E., Colby, S. E. (2018). Self-Reported vs. Measured Height, Weight, and BMI in Young Adults. *International Journal Of Environmental Research And Public Health*, *15*(10). https://doi-org.ezp.waldenulibrary.org/10.3390/ijerph15102216

Orehek, E., & Vazeou-Nieuwenhuis, A. (2016). Understanding the obesity problem. Policy implications of a motivational account of (un)healthy eating. *Social Issues and Policy Review*, 10(1), 151–180. doi.org/10.1111/sipr.12021

Payne, G., & Payne, J. (2004).*Sage key Concepts: Key concepts in social research*.

London, : SAGE Publications, Ltd doi: 10.4135/9781849209397

Papandreou, D., Makedou, K., Korma, A., Karampola, M., Ionone, A., & Hitoglou-Makedou, A. (2016). Are Dietary Intakes Related to Obesity in Children? *Open Republic access of Macedonian journal of medical sciences*, 4(2), 194-199. doi.org/10.3889/oamjms.2016.045

Parikh, M., Johnson, J., & Ballem, N. (2016). ASMBS position statement on alcohol use before and after bariatric surgery. *American Society for Metabolic and Bariatric Surgery Clinical Issue Committee*, *12*(2), 225-230. https://doi.org/10.1016/j.soard2015.10.085

Pellegrini, C. A., Hoffman, S. A., Collins, L. M., & Spring, B. (2014). Optimization of remotely delivered intensive lifestyle treatment for obesity using the Multiphase Optimization Strategy: Opt-IN study protocol. *Contemporary Clinical Trials*, *38*(2), 251–259. https://doi-org.ezp.waldenulibrary.org/10.1016/j.cct.2014.05.007

Pepino M.Y., Okunade AL., AEGON J.C., Berthelot B.D., Bohol K., & Klein S. (2015). Effect of roux-en-Y gastric bypass surgery: Converting 2 alcoholic drinks to 4. *Journal of the American Medical Association Surgery*, *150*(11), 1096-1098. doi:10.1001/jamasurg.2015.1884 AlcoholStatement_Published_Feb2016.pdf

Perdices, M. (2018). Null Hypothesis Significance Testing, p-values, effects sizes and confidence intervals. *Brain Impairment*, *19*(1), 70-80. doi:10.1017/BrImp.2017.28

Peterson, M. D., & Mahmoudi, E. (2015). Healthcare utilization associated with obesity

and physical disabilities. *American Journal of Preventive Medicine, 48*(4), 426-435. doi:10.1016/j.amepre.2014.11.007

Polit, P., & Beck, C. (2010). Generalization in quantitative and qualitative research: Myths and strategies. Retrieved from https://www.elsevier .com/ijns

Pories, W. J. (2008). Bariatric Surgery: Risks and Rewards. *The Journal of Clinical Endocrinology and Metabolism, 93*(11), S89–S96. http://doi.org/10.1210/jc.2008-1641

Preidt, R. (2017, May 18). Popular weight-loss surgery linked to alcohol problems. *CBS News*. Retrieved from https://www.cbsnews.com/news/popular-weight-loss-surgery-roux-en-y-gastric-bypass-linked-to-alcohol-problems/

Public Health Law Center (2016, August). Federal Calorie Labeling Regulations. Retrieved from http://www.publichealthlawcenter.org/sites/default/files/resources/phlc-fs-kansas-Menu-Vending-Labeling-web-2016.pdf

Reslan, S., Saules, K. K., Greenwald, M. K., & Schuh, L. M. (2014). Substance misuse following roux-en-Y gastric bypass surgery. *Substance Use & Misuse, 49*(4), 405-417. doi:10.3109/10826084.2013.841249

Roncancio, A. M., Ward, K. K., Sanchez, I. A., Cano, M. A., Byrd, T. L., Vernon, S. W., & ... Fernandez, M. E. (2015). Using the theory of planned behavior to understand cervical cancer screening among Latinas. *Health Education & Behavior, 42*(5), 621-626. doi:10.1177/1090198115571364

Rosenstock, I. M. (1966). Why people use health services: Milbank Memorial Fund

Quarterly. *Scientific Research, 5(4),* 94-124. doi:10.2307/3348967

Rosenstock, I. M. (1974). Historical origins of the Health Belief Model. *Health Education Monographs,* 2(4), 328-335. https://doi.org/10.1177/2F109019817400200403

Rudestam K., & Newton, Rae. (2015). *Surviving your dissertation*. Thousand Oak, California: Sage publication.

Saunders, J. B., Aasland, O. G., Babor, T. F., de la Fuente, J. R., & Grant, M. (1993). Development of the Alcohol Use Disorders Screening Test (AUDIT). WHO collaborative project on early detection of persons with harmful alcohol consumption. *Society for the Study of Addiction, 88* (6), 791-804. https://doi.org/10.1111/j.1360-0443.1993.tb02093.x

Schroeder, M. (2017, June) Is Lap-band surgery still a viable option for weight-loss surgery? *Health U.S News,* Retrieved from https://health.usnews.com/health-care/patient-advice/articles/2017-06-13/is-lap-band-surgery-still-a-viable-option-for-weight-loss-surgery

Sethi, M., Beginner, M., Magrath, M., Schwack, B., Kurian, M., Fielding, G., & Ren-Fielding, C. (2016). Previous weight loss as a predictor of weight loss outcomes after laparoscopic adjustable gastric banding. *Surgical Endoscopy, 30*(5), 1771-1777. doi:10.1007/s00464-015-4441-1

Setia, M. S. (2016). Methodology Series Module 3: Cross-sectional Studies. *Indian Journal of Dermatology, 61*(3), 261–264. http://doi.org/10.4103/0019-5154.182410

Settanni, M., Prino, L. E., Fabrics', M. A., & Longobardi, C. (2018). Muscle dysmorphia and anabolic steroid abuse: Can we trust the data of online research? *Psychiatry Research*, 263, 287-288. doi:10.1016/j.psychres.2017.12.049

Shivaji, U. N., & Ford, A. C. (2015). Beliefs about management of irritable bowel syndrome in primary care: Cross-sectional survey in one locality. *Primary Health Care Research & Development, 16*(3), 263-269. http://dx.doi.org.ezp.waldenulibrary.org/10.1017/S1463423614000383 Retrieved from http://ezp.waldenulibrary.org/login?url=https://search-proquest-com.ezp.waldenulibrary.org/docview/1678723544?accountid=14872

Sica, G. T. (2006). Bias in research studies. *Radiology*, *238*(3), 780-789. Retrieved from http://pubs.rsna.org/doi/full/10.1148/radiol.2383041109.

Simonetti, J. A., Lapham, G. T., & Williams, E. C. (n.d) (2015). Association between receipt of brief alcohol intervention and quality of care among veteran outpatients with unhealthy alcohol use. *Journal of General Internal Medicine*, *30*(8), 1097-1104. https://doi.org/10.1007/s11606-015-3218-5

Simpson, S. H. (2015). Creating a data Analyses plan: What to Consider When Choosing Statistics for a Study. *The Canadian Journal of Hospital Pharmacy*, *68*(4), 311–317. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4552232

Singh, D., Laya, A. S., Clarkston, W. K., & Allen, M. J. (2009). Jejunoileal bypass: A surgery of the past and a review of its complications. *World Journal of Gastroenterology*.*15*(18), 2277–2279. http://doi.org/10.3748/wjg.15.2277

Smith, K. E., Engel, S. G., Steffen, K. J., Garcia, L., Gotha, K., Kobalt, A., & Mitchell, J. E. (2018). Problematic Alcohol Use and Associated Characteristics Following Bariatric Surgery. *Obesity Surgery*, doi:10.1007/s11695-017-3008-8

Spadola, C. E., Wagner, E. F., Dillon, F. R., Trepka, M. J., De La Cruz-Munoz, N., & Messiah, & S. E. (2015). Alcohol and drug use among postoperative bariatric patients: A systematic review of the emerging research and its implications. *Alcoholism, Clinical, and Experimental Research, 39*(9), 1582-1601. doi:10.1111/acer.128059, 2014

Starcevic, V., & Khayal, Y. (2017). Relationships between behavioural addictions and psychiatric disorders: What Is Known and What Is Yet to Be Learned? *Frontiers in Psychiatry*, *8*, 53. https://doi.org/10.3389/fpsyt.2017.00053

Steffen, K. J., Engel, S. G., Wonderlich, J. A., Pallet, G. A., *and* Sondag, C. *(*2015*).* Alcohol and other addictive disorders following bariatric surgery: Prevalence, risk factors and possible etiologies. *European Eating Disorders Review, 23*, 442–450. *doi:*10.1002/erv.2399

Suresh, K., & Chandrashekara, S. (2012). Sample size estimation and power analysis for clinical research studies. *Journal of Human Reproductive Sciences*, *5*(1), 7–13. http://doi.org/10.4103/0974-1208.97779

Swift, D. L., Johannsen, N. M., Lavie, C. J., Earnest, C. P., & Church, T. S. (2014). The role of exercise and physical activity in weight loss and maintenance. *Progress in Cardiovascular Diseases*, *56*(4), 441–447. http://doi.org/10.1016/j.pcad.2013.09.012

Szalavitz, M. (2012). Bypass for weight loss doubles the risk of alcohol problems. *Time Magazine, 3*(3), 1-3. Retrieved from http://healthland.time.com/2012/06/18/gastric-bypass-surgery-for-weight-loss-doubles-the-risk-of-alcohol-problems

The Bariatric and Metabolic Center of Colorado (2017). Revisional Bariatric Surgery. Retrieved from https://bariatricsurgeryco.org/bariatric-surgery/revisional-bariatric-surgery/

Tremmel, M., Gerdtham, U., Nilsson, P. M., & Saha, S. (2017). Economic burden of obesity: A Systematic Literature Review. *International Journal Of Environmental Research And Public Health*, 14(4) 1-8. doi:10.3390/ijerph14040435

Trilk, J. L., & Kennedy, A. N. (2015). Using lifestyle medicine in U.S. health care to treat obesity: Too many bariatric surgeries? *Lifestyle Medicine and Obesity Treatment*, 14(2), 96-99. doi: 10.1249/JSR.0000000000000138

Veal V., Benoit S.C., Davis A. (2019). Alcohol Use after Metabolic and Bariatric Surgery: Predictors and Mechanisms. *Curr Psychiatry Rep* 21, 85. https://doi.org/10.1007/s11920-019-1070-8 https://doi: 10.1007/s11920-019-1070-8

Wagner, W. E. (2017). Using IBM SPSS statistics for research methods and social science statistics (6th ed). Thousand Oaks, CA: Sage Publications.

Wainwright, Martin J. (2014). "Structured regularizes for high-dimensional problems: Statistical and Computational Issues." *Annual Review of Statistics and Its Applications*, 1, 233–253. doi:10.1146/annurev-statistics-022513- 115643.

Wee, C. C., Mukamal, K. J., Huskey, K. W., Davis, R. B., Colten, M. E., Bolcic-Jankovic, D. Blackburn, G. L. (2014). High risk alcohol use after weight loss surgery. *Surgery for Obesity and Related Diseases: Official Journal of the American Society for Bariatric Surgery*, *10*(3), 508–513. http://doi.org/10.1016/j.soard.2013.12.014

Williams, R. L., Wood, L. G., Collins, C. E., & Callister, R. (2015). Effectiveness of weight loss interventions – is there a difference between men and women: a systematic review. *Obesity Reviews*, *16*(2), 171–186. http://doi.org/10.1111/obr.12241

World Health Organization (2016). Obesity and overweight. *Fact sheet 311, WHO, 2012*. Retrieved from http://www.who.int/mediacentre/factsheets/fs311/en

Yeager & Still, C. (2018). Commercial Weight Loss Programs. *Obesity Action Coalition*. Retrieved from http://www.obesityaction.org/obesity-treatments/commercial-programs

Yin, S. (2015). Life Science*:* Alcohol after gastric bypass: Is it in your mind or gut? Retrieved from: http://scienceline.org/2015/01/alcoholism-after-gastric-bypass-is-it-in-your-mind-or-gut/

Yoder, R., MacNeela, P., Conway, R., & Heary, C. (2017). How Do Individuals Develop Alcohol Use Disorder After Bariatric Surgery? A Grounded Theory Exploration. *Obesity Surgery*, *(28)*3 717-724. doi:10.1007/s11695-017-2936-7

Zang, Z. (2016). Missing data imputation: Focusing on single imputation (4)1 123-133 doi:

Appendix A: Participant Recruitment Announcement

Looking for individuals who have had bariatric/weight loss surgery to participant in a research study!

- ***Have you had bariatric/weight loss surgery?***
- ***Are you over the age of 18***

If you meet these criteria you are eligible to participate!

Interested?

Please click on the following link for more information and to participate: enter link : https://www.surveymonkey.com/r/6876LV2

You can also enter the link above into your internet browser to access information and participate in the study.

Appendix B: Informed Consent Form

You are invited to take part in a research study of awareness and prevention of alcohol use with individuals who have had bariatric surgery at some point in the past. The researcher is inviting post-surgery individuals who have had bariatric surgery to participate in the study. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part. This study is being conducted by a researcher named Tyrease Hammond who is a Ph.D. student at Walden University.

Background Information:

The purpose of this study is to examine the relationship between demographic factors (age, gender, type of bariatric surgery, number of years since surgery, education level), the type of information about post-surgery alcohol use that was provided before surgery, pre and post-surgery alcohol consumption as measured by the Alcohol Use Disorder Test and post-surgery alcohol use attitude as measured by the Alcohol Self-Regulated Questionnaire. The results of a survey questionnaire will be used in the preparation of a doctoral dissertation.

Procedures:

If you agree to be in this study, you will be asked to:

- Review this form, which provides you with information regarding the purpose of the study and your participation.

- Your signature is not necessary on this form. Completion of the survey questionnaire, via SurveyMonkey, will be considered your implied agreement to participate in the study. The survey consists of three questionnaires; **demographic form**, **The Alcohol Use Disorder Test- ten questions- Pre-Surgery, and The Alcohol Use Disorder Test-ten questions-Post-Surgery and the Alcohol Use Self-Regulation-15 questions.** The estimated time for completion of the questionnaire is 15 minutes.
- If you opt to participate in this study, please answer all questions that are on the questionnaire. Here are some sample questions that will be included in the questionnaires:
    - What is your age?
    - What is your race?
    - How long ago did you have your bariatric/weight loss surgery?
    - What type of bariatric surgery did you have?
    - There is no right or wrong answers but require a truthful or your best recollection for all answers.
- After submission of the survey questionnaire, your participation is complete, and no further action is necessary on your part.

Your participation and submission will be password protected and confidential.

Voluntary Nature of the Study:

This study is voluntary. If you decide to be in the study now, you can still change your mind later. You may stop at any time.

Risks and Benefits of Being in the Study:

Being in this type of study involves minimal risk that can be encountered in daily life, such as not willing to answer certain questions. Being in this study would not pose risk to your safety or wellbeing. Below are self-help and resources:

National Council on Alcoholism and Drug Dependence, Inc.
Hope Line 1800 622-2255
217 Broadway, Suite 712
New York, NY 10007
212-269-7797
https://www.ncadd.org/

American College of Surgeons
Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program
Division of Advocacy and Health Policy
20 F Street, NW, Suite 1000
Washington, DC 20001
202-337-2701
Fax: 202-337-4271
ahp@facs.org
https://www.facs.org/quality-programs/mbsaqip

This study's potential benefits will provide the public health community awareness to the potential increase risk of alcohol use with bariatric surgery patients.

Payment:

There will not be any type of payment, gifts, or other incentives for participating in this study.

Privacy:

Reports coming out of this study will not share the identities of individual participants. Details that might identify participants, such as the location of the study, also will not be shared. The researcher will not know who you are.

The researcher will not use your personal information for any purpose outside of this research project. Data will be kept secure by the researcher and password protected. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:

If you want to talk privately about your rights as a participant, you can call the Research Participant Advocate at my university at 612-312-1210. Walden University's approval number for this study is 04-03-19-0397937 and it expires on April 2, 2020. If you have any questions about this study you can reach out to the researcher Tyrease Hammond via email at tyrease.hammond@waldenu.edu.

- **You should keep/print a copy of this consent form.**

Obtaining Your Consent

Please indicate your decision regarding participating in this study:

- Yes, I understand the risks and benefits associated with the study and agree to participate.
- No, I do not agree to participate in the study based on the information provided above.

Appendix C: Exit Information

The following information will be provided on the exit page of the survey for both those who have and have not consented to participate in the study and who have or have not met inclusion criteria:

If you feel that you need help with problems associated with alcohol use or have questions or problems resulting from your bariatric surgery here are some organizations that may be able to help you:

National Council on Alcoholism and Drug Dependence, Inc.
Hope Line 1800 622-2255
217 Broadway, Suite 712
New York, NY 10007
212-269-7797
https://www.ncadd.org/

American College of Surgeons
Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program
Division of Advocacy and Health Policy
20 F Street, NW, Suite 1000
Washington, DC 20001
202-337-2701
Fax: 202-337-4271
ahp@facs.org
https://www.facs.org/quality-programs/mbsaqip

Appendix D: Demographics

What is your current age in years? (Please enter actual age)

What is your gender?

- Male
- Female
- Prefer not to answer

What is your ethnicity?

- White
- Black or African American
- Hispanic or Latino
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Other Pacific Islander
- Two or more
- Prefer not to answer

What is your highest level of education?

- Did not graduate high school
- High school graduate
- Some college
- Associate degree
- Bachelor's degree
- Master's degree
- Doctoral degree or higher

What type of bariatric surgery did you have?

- Gastric Bypass
- Sleeve gastrectomy
- Laparoscopic adjustable gastric banding
- Biliopancreatic diversion with duodenal switch
- Other (please specify)
- Do not remember

How many years has it been since you had your bariatric surgery? (Actual number of years and months)

Did you receive information about post operation alcohol use before you had your surgery?

- No
- Yes
- Cannot remember

What type of information did you receive pre-surgery to educate and inform about post-operation alcohol use? Please choose all that apply. (only displayed to those who indicated that they received information about post-surgery alcohol consumption)

- How my body will react to alcohol use post-surgery
- Information about the potential to abuse alcohol post-surgery
- Other—please specify

Appendix E: The Alcohol Use Disorders Identification Test: Self-Report (Pre Surgery)

The following will be included in the electronic survey on the page before the pre-surgery AUDIT:

On the next page you will be asked to complete the Alcohol Use Disorders Identification Test (AUDIT). You will be asked to do this twice. When completing the AUDIT on the next page please answer the question only considering your alcohol consumption behaviors BEFORE you had your bariatric surgery.

Because alcohol use can affect your health and can interfere with certain medications and treatments, it is important that we ask some questions about your use of alcohol. Your answers will remain confidential so please be honest.

Place an X in one box that best describes your answer to each question.

How often do you have a drink containing alcohol?

(0) Never
(1) Monthly or less
(2) 2-4 times a month
(3) 2-3 times a week
(4) 4 or more times a week

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

(0) 1 or 2
(1) 3 or 4
(2) 5 or 6
(3) 7 to 9
(4) 10 or more

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

(0) Never
(1) Less than monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily

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

(0) Never
(1) Less than monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily

How often during the last year have you failed to do what was normally expected from you because of drinking?
(0) Never
(1) Less than monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily
How often during the last year have you been unable to remember what happened the night before because you had been drinking?
(0) Never
(1) Less than monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily
How often during the last year have you needed an alcoholic drink first thing in the morning to get yourself going after a night of heavy drinking?
(0) Never
(1) Less than monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily
How often during the last year have you had a feeling of guilt or remorse after drinking?
(0) Never
(1) Less than monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily
Have you or someone else been injured because of your drinking?
(0) No
(2) Yes, but not in the last year
(4) Yes, during the last year
Has a relative, friend, doctor, or another health professional expressed concern about your drinking or suggested you cut down?
(0) No
(2) Yes, but not in the last year
(4) Yes, during the last year
Add up the points associated with answers. A total score of 8 or more indicates harmful drinking behavior.

Appendix F: The Alcohol Self-Regulation Questionnaire

The following will be included in the electronic survey on the page before the Alcohol Self-Regulation Questionnaire:

On the next page you will be asked to complete the Alcohol Self-Regulation Questionnaire. When answering the questions on this survey, consider what you believe at this point in time.

Instructions:

The following question relates to the reasons why you would control your use of alcohol. Different people have different reasons for doing that, and we want to know how true each of the following reasons is for you. All 15 responses are to the one question.

Rating Scale:

Please indicate the extent to which each reason is true for you, using the following seven-point scale:

1 2 3= not at all true, 4 5 6=somewhat true, 7=very true

Items:

The reason I would *use alcohol responsibly* is:

1. Because I feel that I want to take responsibility for my own health.

1	2	3	4	5	6	7
not at all true			somewhat true			very true

2. Because I would feel guilty or ashamed of myself if I did not *use alcohol responsibly*.

3. Because I personally believe it is the best thing for my health.

1	2	3	4	5	6	7
not at all true			somewhat true			very true

4. Because others would be upset with me if I did not.

1	2	3	4	5	6	7
not at all true			somewhat true			very true

6. Because I have carefully thought about it and believe it is very important for many aspects of my life.

1	2	3	4	5	6	7
not at all true			somewhat true			very true

7. Because I would feel bad about myself if I *did use alcohol responsibly*.

1	2	3	4	5	6	7
not at all true			somewhat true			very true

8. Because it is an important choice I really want to make.

1	2	3	4	5	6	7
not at all true			somewhat true			very true

9. Because I feel pressure from others to do so.

1	2	3	4	5	6	7
not at all true			somewhat true			very true

10. Because it is easier to do what I am told than think about it.

1	2	3	4	5	6	7
not at all true			somewhat true			very true

11. Because it is consistent with my life goals.

1	2	3	4	5	6	7
not at all true			somewhat true			very true

12. Because I want others to approve of me.

1	2	3	4	5	6	7
not at all true			somewhat true			very true

13. Because it is very important for being as healthy as possible.

1	2	3	4	5	6	7
not at all true			somewhat true			very true

14. Because I want others to see I can do it.

1	2	3	4	5	6	7
not at all true			somewhat true			very true

15. I don't really know why.

1	2	3	4	5	6	7
not at all true			somewhat true			very true

Appendix G: The Alcohol Use Disorders Identification Test: Self-Report (Post surgery)

The following will be included in the electronic survey on the page before the pre-surgery AUDIT:

On the next page you will be asked to complete the Alcohol Use Disorders Identification Test (AUDIT). You have already done this once considering only your pre-surgery alcohol consumption behaviors.

When completing the AUDIT on the next page please answer the question only considering your alcohol consumption behaviors NOW.

Because alcohol use can affect your health and can interfere with certain medications and treatments, it is important that we ask some questions about your use of alcohol. Your answers will remain confidential so please be honest.

Place an X in one box that best describes your answer to each question.

How often do you have a drink containing alcohol?

(5) Never
(6) Monthly or less
(7) 2-4 times a month
(8) 2-3 times a week
(9) 4 or more times a week

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

(5) 1 or 2
(6) 3 or 4
(7) 5 or 6
(8) 7 to 9
(9) 10 or more

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

(5) Never
(6) Less than monthly
(7) Monthly
(8) Weekly
(9) Daily or almost daily

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

(5) Never
(6) Less than monthly
(7) Monthly
(8) Weekly

(9) Daily or almost daily

How often during the last year have you failed to do what was normally expected from you because of drinking?

(5) Never

(6) Less than monthly

(7) Monthly

(8) Weekly

(9) Daily or almost daily

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

(5) Never

(6) Less than monthly

(7) Monthly

(8) Weekly

(9) Daily or almost daily

How often during the last year have you needed an alcoholic drink first thing in the morning to get yourself going after a night of heavy drinking?

(5) Never

(6) Less than monthly

(7) Monthly

(8) Weekly

(9) Daily or almost daily

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

(5) Never

(6) Less than monthly

(7) Monthly

(8) Weekly

(9) Daily or almost daily

Have you or someone else been injured because of your drinking?

(1) No

(2) Yes, but not in the last year

(4) Yes, during the last year

Has a relative, friend, doctor, or another health professional expressed concern about your drinking or suggested you cut down?

(1) No

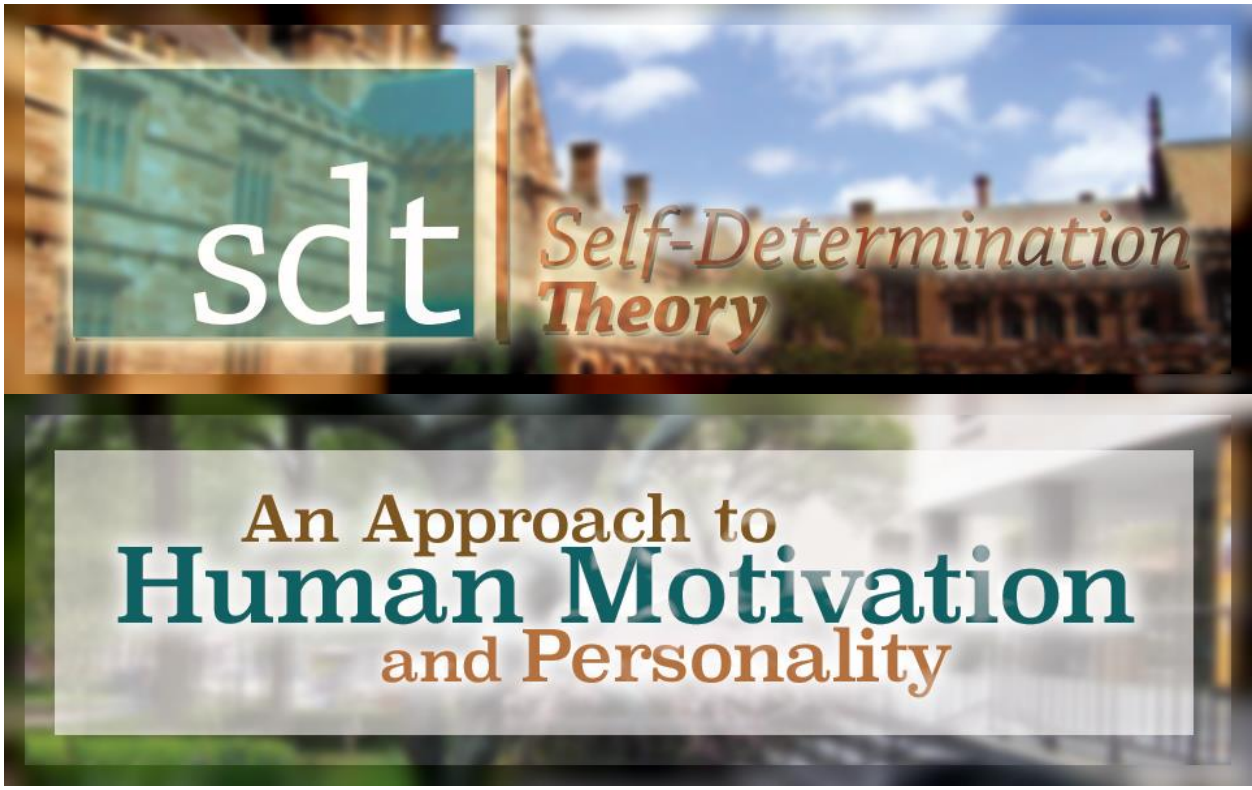
(2) Yes, but not in the last year

(4) Yes, during the last year

Add up the points associated with answers. A total score of 8 or more indicates harmful drinking behavior.

Appendix H: Permission to Use the Alcohol Use Self-Regulation Questionnaire

Website http://selfdeterminationtheory.org/questionnaires/



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Questionnaires

Research on Self-Determination Theory has included laboratory experiments and field studies in several different settings. In order to do this research, we have

developed many questionnaires to assess different constructs contained within the theory. Each questionnaire page will typically include not only the scale itself, but also a description of the scale, a key for the scale, and references for articles describing studies that used the scale.

In order to access these questionnaires you must first register and log into the website. On the registration page you will be asked to agree terms and conditions stating that you will only use the scales for academic research. Once this is complete you will have access to the scales while logged in to the website.

Click on any questionnaire name below to access the scale or set of questionnaires and other information.

Aspirations Index (AI)

The AI assesses people's intrinsic and extrinsic life goals or aspirations. That is, it measures the degree to which people value seven broad goal contents–wealth, fame, image, personal growth, relationships, community contribution, and health. The instrument is used in research relating the content of people's goals to constructs such as mental health and risk behaviors.

Basic Psychological Needs Scales (BPNS)

Self-determination theory posits three universal psychological needs and suggests that these must be ongoingly satisfied for people to maintain optimal performance and well-being. The BPNS is a set of questionnaires that assess the degree to which people feel satisfaction of these three needs. There is a general form, as well as domain specific forms for work and relationships. More recently, questionnaires assessing not only need satisfaction, but also need frustration have been developed.

There is a general form, as well as an adaptation for work domain and an adaptation for daily measurement (diary-studies).

Christian Religious Internalization Scale (CRIS)

This scale is also referred to as the Religion Self-Regulation Questionnaire (SRQ-R). It appears within the Self-Regulation Questionnaires section of this web site. You can visit the CRIS link at the beginning of this paragraph and that will take you to the actual scale. Alternatively, you can go to the Self-Regulation Questionnaires(SRQ) section, which will take you to an overview of the Self-Regulation family of questionnaires, along with scoring information. From there, you can go to the Religion Self-Regulation Questionnaire subsection.

General Causality Orientations Scale

This is an individual difference measure of people relatively enduring motivational orientations. It was developed for use with individuals who are at least 17 years of age. It assesses autonomous, controlled, and impersonal causality (motivational) orientations.

Health Care SDT Packet (HC-SDT)

The HC-SDT is a set of questionnaires related to assessing three SDT constructs as they relate four health-relevant behaviors. The behaviors are smoking cessation, diet improvement, exercising regularly, and drinking responsibly. The SDT constructs for each behavior are self-regulation (SRQ), perceived competence (PCS), and the perceived autonomy supportiveness of the health care climate (HCCQ).

Index of Autonomous Functioning (IAF)

The IAF was developed to assess dispositional/trait autonomy based on three theoretically derived subscales assessing authorship/self-congruence, interest-taking, and low susceptibility to control. Authorship/congruence reflects how much one views oneself as the author of behavior and experiences high consistency among behaviors, attitudes, and traits. Interest-taking concerns an ongoing insight into oneself and one's experience in an open and non-judgmental manner. Lastly, low susceptibility to control refers to the absence of internal and external pressures as motivators for behaviors.

Intrinsic Motivation Inventory (IMI)

The IMI was developed to assess participants' subjective experience related to experimental tasks. Specifically, it is used in intrinsic motivation laboratory experiments in which participants have worked on an interesting activity within some experimental condition, and the IMI assesses their levels of interest/enjoyment; perceived competence; effort; value/usefulness; felt pressure and tension; and perceived choice while they were performing the activity.

Mindful Attention Awareness Scale (MAAS)

The MAAS is a measure of receptive awareness of and attention to present-moment events and experience. The scale has been used in research pertaining to emotional, cognitive, behavioral, physical health, and interpersonal processes.

Motivators' Orientation

This set of questionnaires concerns the degree to which individuals in supervisory capacities tend to be autonomy supportive versus controlling. One questionnaire, called the Problems in Schools Questionnaire, assesses the degree to which teachers tend to be autonomy supportive versus controlling; the other, called the Problems at Work Questionnaire, assesses the degree to which managers in the workplace tend to be autonomy supportive versus controlling. Whereas, the Perceived Autonomy-Supportive Climate Questionnaires measure the perceptions of, say, students and subordinates about the autonomy supportiveness of their teachers and managers, the Motivators' Orientation questionnaires are completed by the teachers or managers themselves about their own style of motivating others (the students or subordinates).

Motives for Physical Activity Measure (MPAM-R)

The MPAM-R is concerned with the people's motives for participating in physical activities such as exercise, aerobics, etc. Five motives are assessed; fitness, appearance, competence, enjoyment, and social. The scale is a revision of an earlier measure by the same name.

Perceived Autonomy Support

This is a family of questionnaires that assesses individuals' perceptions of the degree to which a particular social context is autonomy supportive versus

controlling. Included are the health care climate (HCCQ); the learning climate (LCQ); the work climate (WCQ); and the sports climate (SCQ).

Perceived Choice and Awareness of Self Scale (formerly Self-Determination Scale – SDS)

This scale assesses individual differences (trait level) in *perceived choice* and *awareness of self.* Perceived choice reflects feeling a sense of choice with respect to one's behavior and awareness of self reflects being aware of one's feelings and one's sense of self. This scale was formerly labeled as Self-Determination Scale (SDS) and has been renamed to better capture the constructs it assesses.

Perceived Competence Scale (PCS)

This is a family of very short questionnaires that assess how competent people perceive themselves to be with respect to a particular behavior or behavioral domain. SDT emphasizes that it is important for individuals to feel both autonomous and competent with respect to a behavior or behavioral domain in order to display optimal motivation, performance and well-being. PCS is often used in conjunction with the SRQ. Because the PCS pertains to particular behaviors or behavioral domains, it can be easily adapted to study additional behaviors or behavioral domains.

Perceptions of Parents

These questionnaires assess children's perceptions of the degree to which their parents are autonomy supportive versus controlling in their approach to parenting. There are two versions of this questionnaire: one for late elementary and middle school children, and the other for college-aged children.

Self-Regulation Questionnaires (SRQ)

This is a family of questionnaires that assesses the degree to which an individual's motivation for a particular behavior or behavioral domain tends to be relatively autonomous versus relatively controlled. It includes academic (for children), prosocial, health care, learning (for adults), gymnastics/exercise, religion, and friendship.

Subjective Vitality Scale (VS)

This measures the extent to which people feel vital, energized, and alive. There is

both a state version and a trait version. The original scale had 7 items, but a shorter version with just 4 items has recently been validated.

Treatment Motivation Questionnaire (TMQ)

This scale is a variant of the Treatment Self-Regulation Question (TSRQ) which preceded the TSRQ. The TMQ was developed for research in an alcohol treatment program (Ryan, Plant, & O'Malley, 1995) and has also been used in a study of methadone treatment. The scale appears within the Treatment Self-Regulation Questionnaire page of this web site, which is within the Self-Regulation Questionnaires (SRQ) section. You can visit the TMQ link at the beginning of this paragraph and it will put you in the TSRQ section; then you just scroll down until you come to the TMQ. Alternatively, you can go to the Self-Regulation Questionnaires (SRQ) section, which will take you to an overview of the Self-Regulation family of questionnaires. From there, you can go to the Treatment Self-Regulation Questionnaire subsection and scroll down to reach the TMQ.

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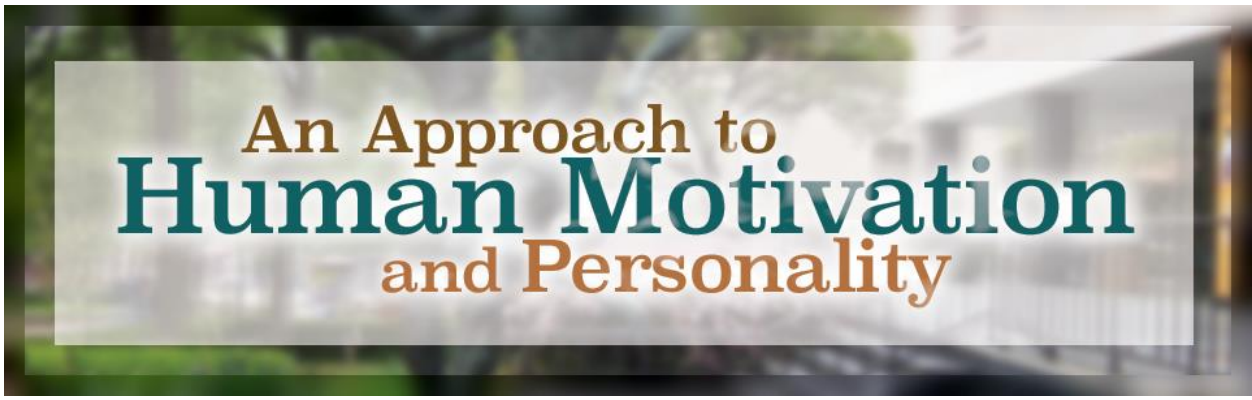

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Health-Care Self-Determination Theory Questionnaire

Health-Care, Self-Determination Theory Questionnaire - Complete Packet 154.69 KB

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Scale Description

This packet contains three questionnaires that have been developed to assess constructs contained within Self-Determination Theory (SDT) as the theory relates to health-care behavior (Deci & Ryan, 1985; Williams, Deci, & Ryan, 1999). The first is the Treatment Self-Regulation Questionnaire (TSRQ); the second is the Perceived Competence Scale (PCS); and the third is the Health Care Climate Questionnaire (HCCQ). The TSRQ also appears on the page with the other Self-Regulation Questionnaires; the PCS also appears on the page with the other Perceived Competence Questionnaires; and the HCCQ appears on the page with the other Perceived Autonomy Support Questionnaires. We have brought them together here within one packet to make it easier for people who are interested in health care research. Further, on this page we have four versions of each of the three questionnaires, relating to four different health relevant behaviors: namely,

smoking cessation, diet improvement, exercising regularly, and drinking responsibly.

Treatment Self-Regulation Questionnaire (TSRQ)

The TSRQ is a set of questionnaires concerning why people engage or would engage in some healthy behavior, enter treatment for some disease, try to change an unhealthy behavior, follow a treatment regimen, or engage in some other health-relevant behavior. All of the questionnaires have the same purpose, to assess the degree to which a person's motivation for a particular behavior or a set of behaviors is relatively autonomous or self-determined. The wording varies somewhat from one version of the questionnaire to another in order to be appropriate for the particular behaviors being investigated. The TSRQ has a slightly different set of responses when applied to why one would engage in a healthy behavior (from when it is activated), to why one would enter treatment for, say, alcohol abuse or methadone. This is because, when entering some treatments, additional external reasons may be involved (e.g., court mandates), so people's reasons may be somewhat different for different kinds of behaviors. Still, the various reasons that are used in each questionnaire fall along the relative autonomy continuum and thus are theoretically comparable.

There are three subscales to the scale: the autonomous regulatory style; the controlled regulatory style; and amotivation (which refers to being unmotivated). The amotivation subscale has been used in relatively few studies, and the amotivation subscale is not included in the versions of the TSRQ that is presented in the section of this web site with the other Self-Regulation Questionnaires. The autonomous style represents the most self-determined form of motivation and has consistently been associated with maintained behavior change and positive health-care outcomes. This scale is adapted slightly for each situation or behavior. That is, the format of the questionnaire asks patients why they do (or would) engage in particular behaviors such as stopping smoking or participating in a weight-loss program. Thus, whenever it is used, the questionnaire must have the appropriate behavior as part of the questions being considered. The questionnaires presented here can be adapted as needed for studying other behaviors.

The TSRQ utilizes a general approach to assessing autonomous self-regulation developed by Ryan and Connell (1989). The TSRQ was first used for "behaving in a healthy way" in Williams, Grow, Freedman, Ryan, and Deci (1996), and has also appeared in Williams, Freedman, and Deci (1998), Williams, Rodin, Ryan, Grolnick, and Deci (1998), Williams, Cox, Kouides, and Deci (1999), and several other studies. The Treatment Self-Regulation Questionnaire has now been widely used in the study of behavior change in health care settings. A validation article of the TSRQ was published by Levesque, Williams, Elliot, Pickering, Bodenhamer, and Finley (2007). An earlier version of the TSRQ, called the Treatment Motivation Questionnaire, was first used for "entering treatment" in Ryan, Plant, and O'Malley (1995), and has subsequently been used in Zeldman, Ryan, and Fiscella (1999). The scale has also been adapted by Pelletier, Tuson, and Haddad (1997) for motivation for psychotherapy.

Typically, the responses on the autonomous items are averaged to form the reflection of autonomous motivation for the target behavior, and the responses on the controlled items are averaged to form the reflection of controlled motivation for the target behavior. In those studies where amotivation has also been assessed, the amotivated responses are also averaged. These three subscale scores can be used separately. However, a Relative Autonomous Motivation Index can be formed by subtracting the average for the controlled reasons from the average for the autonomous reasons.

This packet contains four versions of the TSRQ, all of which are for four healthy behaviors, smoking cessation, diet improvement, exercising regularly, and drinking responsibly.

Perceived Competence Scale (PCS)

(Concerning Feelings about Healthy Behaving)

The Perceived Competence Scale (PCS) concerns feelings about behaving in healthy ways. This is a short 4-item questionnaire that assesses the degree to which participants feel confident about being able to make (or maintain) a change toward a healthy behavior, participate in a health-care program, or carry out a treatment regimen. Consistently, people who feel more competent with regard to a particular

behavior have been found to be more likely to make and maintain the change and to evidence positive health care outcomes. As with the TSRQ, the PCS can be adapted as needed for studying other behaviors. Items are worded slightly differently for different target behaviors. In this packet, there are four versions of the questionnaire concerning the feelings of being able to engage in four healthy behaviors, namely not smoking, eating a healthy diet, exercising regularly, and using alcohol responsibly (or not at all).

The alpha reliability for the perceived competence items has always been about 0.90. The scale has been used in several studies. Of note, in a study of diabetic patients (Williams, Freedman, & Deci, 1998), perceived competence was predicted by the degree to which the patients experienced the health-care climate in their Diabetes Treatment Center to be autonomy supportive, and perceived competence at carrying out the treatment regimen in turn predicted patients glucose control (i.e., HbA1c). It is theoretically important to differentiate perceived autonomy (assessed with the TSRQ) from perceived competence (assessed with the PCS), and the constructs that have discriminative validity.

Health Care Climate Questionnaire (HCCQ)

(Concerning Support for Healthy Behaving)

The original Health-Care Climate Questionnaire (HCCQ) is a 15-item measure that assesses patients' perceptions of the degree to which they experience their health-care providers (or their physician, or their counselor, or their health-care program leader) to be autonomy supportive versus controlling in providing general treatment or with respect to a specific health-care issue. It was validated in a study of patients visiting their primary-care physicians and was first used in a published study of obese patients participating in a weight-loss program (Williams, Grow et al., 1996). It has also been used concerning teenage smoking cessation (Williams, Cox, Kouides, & Deci, 1999), adult smoking cessation (Williams, Gagne, Ryan, & Deci, 1999), diet improvement and regular exercise (Williams, Freedman, & Deci, 1998), participating in a methadone treatment program (Zeldman et al., 1999), and adhering to medication prescriptions (Williams, Rodin, et al., 1998). Alpha reliability for the 15 items has consistently been above .090. In a study of diabetic patients, the

HCCQ questions referred to "your health-care practitioners" in order to assess participants' perceptions of their general health-care climate in the Diabetes Treatment Center. In other studies it has referred to physicians. Items are worded differently depending on the provider or context being assessed. Further, when it concerns treatment with respect to a specific issue or behavior, the wording is adjusted slightly to refer to the target issue or behavior. The wording of the versions presented herein can be adjusted slightly, as needed, to refer to different providers or different behaviors. In each case, the content of the items is the same except for these minor changes.

There is also a short form of the HCCQ that includes 6 of the 15 items. This has been used in various studies, especially when the data were analyzed with Structural Equation Modelling where relatively few indicators of a latent variable are needed. With the 6-item scale, the alpha has been about 0.82. In this packet, the 6-item short form is presented for the same 4 health behaviors as used for the TSRQ and the PCS. The full 15-item version of the HCCQ can be found in this web site on the Perceived Autonomy Support: The Climate Questionnaires page.

TSRQ (alcohol)

The following question relates to the reasons why you would control your use of alcohol. Different people have different reasons for doing that, and we want to know how true each of the following reasons is for you. All 15 response are to the one question. Please indicate the extent to which each reason is true for you, using the following 7-point scale:

1 2 3= not at all true, 4 5 6=somewhat true, 7=very true

The reason I would *use alcohol responsibly* is:

1. Because I feel that I want to take responsibility for my own health.
2. Because I would feel guilty or ashamed of myself if I did not *use alcohol responsibly*.
3. Because I personally believe it is the best thing for my health.
4. Because others would be upset with me if I did not.
5. I really don't think about it.
6. Because I have carefully thought about it and believe it is very important for many aspects of my life.
7. Because I would feel bad about myself if I *did use alcohol responsibly*.
8. Because it is an important choice I really want to make.
9. Because I feel pressure from others to do so.
10. Because it is easier to do what I am told than think about it.
11. Because it is consistent with my life goals.
12. Because I want others to approve of me.

13. Because it is very important for being as healthy as possible.
14. Because I want others to see I can do it.
15. I don't really know why.

References:

Deci, E. L., & Ryan, R.M. (1985). *Intrinsic motivation and self-determination in human behavior.* New York, NY: Plenum Publishing Co.

Pelletier, L. G., Tuson, K. M., & Haddad, N. K. (1997). Client Motivation for Therapy Scale: A measure of intrinsic motivation, extrinsic motivation and amotivation for therapy. *Journal of Personality Assessment, 68,* 414-435.

Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology, 57,* 749-761.

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Ryan, R. M., Plant, R. W., & O'Malley, S. (1995). Initial motivations for alcohol treatment: Relations with patient characteristics, treatment involvement and dropout. *Addictive Behaviors, 20,*279-297.

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Williams, G. C., Cox, E. M., Kouides, R., & Deci, E. L. (1999). Presenting the facts about smoking to adolescents: The effects of an autonomy supportive style. *Archives of Pediatrics and Adolescent Medicine, 153,* 959-964.

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Williams, G. C., Deci, E. L., & Ryan, R. M. (1998). Building Health-Care Partnerships by Supporting Autonomy: Promoting Maintained Behavior Change and Positive Health Outcomes. In A. L. Suchman, P. Hinton-Walker, & R. Botelho (Eds.) *Partnerships in healthcare: Transforming relational process* (pp. 67-87). Rochester, NY: University of Rochester Press.

Williams, G. C., Freedman, Z. R., & Deci, E. L. (1998). Supporting autonomy to motivate glucose control in patients with diabetes. *Diabetes Care, 21,* 1644-1651.

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Williams, G. C., Gagné, M., Ryan, R. M., & Deci, E. L. (1999). Supporting autonomy to motivate smoking cessation: A test of self-determination theory. Unpublished manuscript, University of Rochester, New York.

Williams, G. C., Grow, V. M., Freedman, Z., Ryan, R. M., & Deci, E. L. (1996). Motivational predictors of weight loss and weight-loss maintenance. *Journal of Personality and Social Psychology, 70,*115-126.

Williams, G. C., Rodin, G. C., Ryan, R. M., Grolnick, W. S., & Deci, E. L. (1998). Autonomous regulation and long-term medication adherence in adult outpatients. *Health Psychology, 17,* 269-276.

Zeldman, A., Ryan, R. M., & Fiscella, K. (1999). Attitudes, beliefs and motives in addiction recovery. Unpublished manuscript, University of Rochester, New York.

Levesque, C. S., Williams, G. C., Elliot D., Pickering, M. A., Bodenhamer, B., & Finley, P. J (2007). Validating the theoretical structure of the treatment self-regulation questionnaire (TSRQ) across three different health behaviors. *Health Education Research, 21,* 691-702.

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