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Psychosocial and Physical Health Variables as Predictors of Weight Loss Six Months Post Roux-en-Y Bariatric Surgery

Alexander L. Patterson
George Fox University

This research is a product of the Doctor of Psychology (PsyD) program at George Fox University. Find out more about the program.

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Psychosocial and Physical Health Variables as Predictors of Weight Loss

Six Months Post Roux-en-Y Bariatric Surgery

by

Alexander L. Patterson

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Graduate School of Clinical Psychology
George Fox University
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in Clinical Psychology

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Psychosocial and Physical Health Variables as Predictors of Weight Loss

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by

Alexander L. Patterson

has been approved

at the

Graduate School of Clinical Psychology

George Fox University

As a Dissertation for the PsyD degree

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Date: 6-13-2008
Bariatric surgery is an increasingly popular intervention for obesity, and psychologists have seen a growing role in the evaluation of surgery candidates. Studies of pre-surgery psychosocial and physical health variables that are predictive of post-surgical outcome have been inconclusive. In the present study, pre-operative health status, psychological testing results, and support group attendance were measured to determine their relationship with weight-loss outcome at 6 months post-surgery. The Health Perception scale of the Health Status Questionnaire was a significant predictor of weight loss outcome. This suggests that individuals who endorse more negative perceptions of their physical health are more likely to have a better outcome post-surgery. The results of this study emphasize the importance of evaluating an individual’s psychological perceptions of their physical health when they present for bariatric surgery.
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Chapter 1

Introduction

Overview of Obesity

Approximately one-third of adults in the United States are obese (defined as having a body mass index [BMI] over 30), and the percentage is rising annually (National Center for Health Statistics, 2004). Over 5% of the United States adult population has a BMI greater than 40 and are classified as morbidly obese (Flegal, Carroll, Ogden, & Johnson, 2002). Obesity leads to an increased risk for hypertension, hypertrophic cardiomyopathy, pulmonary insufficiency, dyslipidimia, degenerative arthritis, diabetes, gallbladder disease, selected types of cancer, and increased mortality among others medical problems (National Center for Health Statistics, 2004). Individuals who are obese are much more likely to perceive social stigma and discrimination in their day-to-day lives, including interpersonal and work-related discrimination, and perceive that this stigma has a practical negative effect on their general wellbeing (Carr & Freidman, 2005). There is currently no consensus on the association between obesity and psychological problems (Ross, 1994; Stunkard, Stinnett, & Smoller, 1986); however, morbid obesity is associated with an increased risk for depression across all gender and racial groups (Dong, Sanchez, & Price, 2004). Overall, obese and morbidly obese persons face a unique set of medical, social, and psychological problems not seen in other medical populations.
Surgical Treatment for Obesity

Due to the psychosocial and health-related problems associated with obesity, any practical means for obese persons to bring their body weight within healthy limits is of great value. However, traditional weight reduction programs have been shown to have poor success rates for long-term weight loss and weight maintenance (Crawford, Jeffery, & French, 2000), and the weight cycling (sometimes referred to as “yo-yo dieting”) that results from repeated unsuccessful weight-loss attempts has been shown to have negative health consequences (French & Jeffery, 1994). In order to address the shortcomings of traditional weight reduction programs, surgical treatments for obesity, used in conjunction with behavioral changes including diet and exercise, have seen growing popularity. Currently, the number of bariatric surgeries performed in the United States each year is estimated to be over 100,000 (Bauchowitz et al., 2005; Solomon & Dluhy, 2004), and is increasing annually. The growing popularity of bariatric surgery is due in large part to its overwhelming success in producing a variety of positive outcomes. A definitive research study conducted by Sjostrom, Lindroos, and Peltenen (2004) of 4,047 bariatric surgery patients found an average weight-loss of 23% two years post-surgery, and 16% ten years post-surgery. Bariatric surgery has relatively few complications and improvements in health status post-surgery are significant (Hsu et. al., 1998; Sjostrom et al., 2004; Wysoker, 2005). Furthermore, patients who receive the surgery tend to be overwhelmingly positive about the experience. The majority are pleased even considering the challenging lifestyle changes required post-surgery involving diet and exercise. Even patients who fail to lose as much weight as they hoped are typically positive about the surgery (Mitchell et al., 2001; Wysoker, 2005). Overall, surgical treatment as a means for weight reduction appears to be an effective alternative to the
frustrations that many obese individuals encounter when attempting only diet and exercise, and thus is quickly becoming the optimal treatment choice for obesity and its related medical problems.

**Roux-en-Y Bariatric Surgery**

In the Roux-en Y gastric bypass procedure, the stomach is stapled directly below the upper entry, forming a small pouch and drastically reducing the size of the stomach. The small intestine is then severed approximately 18 inches below the lower stomach outlet and this “limb” is reattached to a small opening created in the stomach pouch (see Figure 1). This technique has the dual advantage of restricting the size of the stomach and bypassing a portion of the small intestine, leading to both a reduction in the amount of food an individual can consume and a reduction in the amount of calories that can be absorbed by the intestinal tract.

*Figure 1. Roux-en-Y Bariatric Surgery.*
While Roux-en Y surgery is associated with a longer hospital stay, higher rate of complications, and is effectively irreversible, it has the advantages of leading to better long-term outcomes than vertical gastric banding and less nutritional complications as compared to older forms of gastric bypass. Several large studies have demonstrated that Roux-en Y surgery leads to higher percentages of excess weight loss on average over the long term as compared to other surgery types (Smith, Goodman, & Edwards, 1995; Schauer, Ikramuddin, Gourash, Ramanathan, & Luketich, 2000). Also, while Vertical Gastric Banding is reversible, often less expensive, and may be viewed as less invasive than Roux-en Y, many surgeons believe the permanence of this procedure tends to attract individuals who are more committed to long-term weight-loss and significant lifestyle changes as compared to Vertical Gastric Banding, thus contributing to more positive outcomes (Melvin, 2004). As a result of these factors, Roux-en Y bariatric surgery is widely viewed as the surgery of choice for the treatment of clinically significant obesity.

**Bariatric Surgery: Psychological Assessment and Intervention**

**The psychologist’s role pre-surgery.** There is a common understanding among health providers that weight-loss outcome following bariatric surgery is influenced by psychological variables (Tsushima, Bridenstine, & Balfour, 2004). The importance of psychological factors is intuitive, as behavior changes of any kind, particularly difficult lifestyle changes such as those demanded post-bariatric surgery, are influenced by variables such as motivation, locus of control, personality, cognitive aptitude, and others. As LeMont, Moorehead, Parish, Reto, and Ritz (2004) explain, bariatric surgery is not only a significant biological event for the patient, but a psychological event as well, and “generally patients will need a secure identity, sound psychological resources, resiliency, effective coping strategies, and willingness to access
meaningful support from others” (p. 1). Consequently, psychologists have come to exercise an important role in the pre-surgery evaluation of surgery candidates. A meta-analysis by Bauchowitz et al. (2005) found that a vast majority of bariatric surgery programs report requiring all patients to undergo a psychological evaluation and receive approval from a psychologist before surgery, and almost half of these programs reported requiring formal psychological testing. The objective of pre-surgery psychological evaluations is to identify psychosocial factors that indicate a patient will have difficulty accomplishing the behavioral tasks necessary for good post-surgery outcome (i.e., compliance with recommendations regarding diet, exercise, etc.) and make recommendations to both the patient and the surgical staff that will assist in producing a positive outcome, including pharmacological interventions, psycho-education, psychotherapy, nutritional consultation, close aftercare monitoring, and/or bariatric surgery support group attendance (Bouchowitz et al., 2005; LeMont et al., 2004).

**Contraindications.** The most common psychiatric conditions that bariatric surgery programs view as contraindications for post-surgery outcome are illicit drug abuse, heavy drinking, active and uncontrolled schizophrenic symptoms, severe mental retardation, and lack of knowledge about surgery (Bauchowitz et al., 2005). Research suggests that psychological symptoms must be severe in order to exclude a patient from surgery, while less severe conditions such as mild or moderate depression and anxiety disorders are typically not viewed as contraindications. However, it is important to note that other than in the case of serious mental illness and serious substance use disorders, there is a great deal of variability in the research about what psychosocial characteristics should serve as absolute contraindications for bariatric
Psychosocial and Physical Health

surgery. Similarly, there is also little consensus about screening procedures or specific criteria for patient selection.

**Psychological profile of the bariatric surgery patient.** Studies of the results of pre-surgery psychological evaluations indicate that mental health symptoms are more common in the population of people actively seeking bariatric surgery compared to the population at-large. Several studies have shown that bariatric surgery candidates, prior to surgery, are more likely to meet the criteria for an affective disorder, anxiety disorder, eating disorder, and one or more personality disorders (Black, Goldstein, & Mason, 1992; Glinski, Wetzler, & Goodman, 2001; Herpertz et al., 2003; Sarwer, Wadden, & Fabricatore, 2005). A meta-analysis by Herpertz et al. (2003) found prevalence rates for current axis I disorders between 27% and 42%. In a study of 115 bariatric surgery patients conducted by Glinski et al. (2001) the prevalence rate for current axis I psychological disorders was even higher at 50%; depressive disorders were the most common, followed by anxiety disorders, and 36% of their patients met the criteria for a personality disorder. A meta-analysis by Sarwer et al. (2005) of patient scores on the Minnesota Multiphasic Personality Inventory, second edition (MMPI-II) found that 44% of surgery candidates were classified as “neurotic” (depressed and socially anxious). Taken together, research on the population of individuals seeking bariatric surgery suggests that the symptoms commonly associated with “neurosis,” defined broadly as co-morbid mild-to-moderate symptoms of depression and trait-anxiety, appear to be more common in the bariatric surgery patient population.

While bariatric surgery patients may share certain Axis I pathology, conclusions about the Axis II characteristics of this population must be made with caution. Webb, Morey,
Castelnuovo-Tedesco, and Scott (1990) emphasized that this population exhibits great variability in personality characteristics. Their study found that most candidates have MMPI scores that fall within normal limits, and only 10% can be classified as clinically disordered. In general, the relatively few studies that have been completed on personality characteristics of bariatric surgery candidates have confirmed the variability to which Webb et al. called attention. There does not appear to be a specific personality pattern or type that occurs with significant regularity within this population.

**The psychologist’s role post-surgery.** The role that psychologists play in post-bariatric surgery treatment and recovery is ambiguous. There appears to be very few studies, if any, that investigate the contribution of psychologists after the surgery procedure, implying that the role of formal mental health treatment varies both in type and extent. There is no widespread requirement on the part of hospitals or accrediting organizations that patients receive post-surgery psychological evaluations and/or post-surgery individual psychotherapy. Rather, it appears that the most common contribution of psychologists in post-surgery treatment is to facilitate support groups. Attendance at support group meetings has shown to play an important role in post-operative success. Hildebrandt (1998) found in her study of 102 bariatric surgery patients that individuals who attend a support group after surgery tend to achieve more weight loss, and other studies have confirmed this finding (Elekkary, Elhorrr, Aziz, Gazayerli, & Silva, 2006). Furthermore, Rabner and Greenstein (1993) found in their study of 21 bariatric surgery patients that those who attended support group tended to be better informed about nutrition and health, make wiser food choices, and maintain a more physically active lifestyle. Another clear advantage to a post-surgery support group is the social support that it facilitates, creating a close
community of bariatric surgery patients that can utilize advice and encouragement from one another. It also provides a forum where a variety of professionals—medical, mental health, and otherwise—can educate patients about expectations and challenges after surgery. All of these are critically important factors for achieving and maintaining significant weight loss. Therefore, support group attendance may play an important role in post-surgery success, while other post-surgery psychological services beyond support groups, such as follow-up evaluations and psychotherapy, appear to be limited in scope.

**Prediction of weight loss.** Although the behavioral variables of support group attendance, compliance with exercise, and dietary regimens have been shown to have a strong positive relationship with post-surgery success, several studies have questioned if other variables can add to this predictive equation. There is particular interest in pre-surgery psychosocial variables, as they could potentially inform the patient selection process and improve pre-surgery psychological evaluations. Some studies have found low-to-moderate significance with demographic factors. Specifically, being Caucasian and female, having a higher baseline weight, and a lower education level, have all been significantly associated with more weight loss; however, the effect size is generally small (Busetto et al., 2002; Larsen et al., 2004; Sarwer et al., 2005). Other studies have concluded that age may be negatively associated with weight loss (Busetto et al.; Webb et. al., 1990). Still, the majority of research does not find strong and consistent relationships between demographic variables and successful weight loss. Attempts to predict weight-loss using psychological variables have been more successful than demographic variables; however, research findings have varied considerably and sometimes conflict. Studies have determined that specific severe psychological conditions reliably predict weight-loss failure;
lower weight loss has been associated with the presence of a serious and chronic psychiatric disorder, and/or the presence of a severe personality disorder (Herpertz et al., 2003; Powers, Rosemurgy, Coovert, & Boyd, 1988), both of which “are distinguished by a lack of introspection” (Herpertz et al., 2003 p. 1565). However, a meta-analysis conducted by Herpertz et al. (2003) found that the majority of studies could not associate DSM-IV diagnosis with weight-loss outcome. Additionally, it has been difficult to establish variables that are predictive of good weight-loss outcome. Where studies have found a significant relationship they indicate that increased psychological distress before surgery that is high enough to cause discomfort yet does not meet official criteria for a DSM-IV diagnosis (e.g., anxiety, phobia, low self-esteem, and other subclinical symptoms of depression) may be positively associated with weight-loss post surgery (Herpertz et al., 2003; Dubovsky, Haddenhorst, Murphy, Liechty, & Coyle, 1985). At first glance this would appear to be counter-intuitive; however, Dubovsky et al. explains that bariatric surgery patients who do not express as much distress before surgery may be less dissatisfied with their weight and consequently less willing to make the necessary behavioral changes post-surgery. Therefore, psychological distress that increases the patient’s dissatisfaction with the status-quo may be predictive of positive outcome, while psychological distress that is severe enough to inhibit judgment and insight may be a negative indicator. In sum, a successful bariatric surgery patient appears to be an individual who falls somewhere in the middle on a continuum of psychological distress; their distress is not so severe that it limits their insight and judgment, but it is also not so mild that they fail to perceive a problem and thus are insufficiently motivated to change.
Specific personality characteristics that predict post-operative outcome have been difficult to establish. Tsushima et al. (2004) found that those who lost > 50% excess weight at one year post-surgery scored significantly higher on the F, Hysteria, Paranoia, and Health Concerns scales, and significantly lower on the Masculinity-Femininity scale of the MMPI-2. Webb et al. (1990) found that an elevated hypochondriasis scale on the MMPI-2 is associated with poor weight-loss outcome. Nevertheless, other studies have concluded that personality traits are not predictive at all, both over the short and long-term (Glinsky et al., 2001; Larsen et al., 2004; Malone & Alger-Mayer, 2004). Therefore, the value of personality variables in predicting post-surgery outcome is unclear and warrants further investigation.

Overall, a summary of the current research indicates that psychological distress that is rooted in a serious pre-existing psychiatric condition may be a negative predictor of weight loss outcome, while milder psychological distress that is a consequence of the experience of being obese may be a positive predictor. However, apart from serious psychiatric disorders, the predictive value of a psychiatric diagnosis according to DSM-IV criteria, both for predicting negative and positive outcome, is unreliable and deserves further study.

**Research Question**

Obesity is a growing problem in the United States; morbid obesity in particular is devastating to physical and psychosocial status. Therefore, surgical interventions for weight-reduction have become increasingly popular, and bariatric surgery has been largely successful for reducing weight and improving physical health. Psychologists have seen a growing role in the bariatric surgery process, providing pre-surgery mental health screenings, recommendations to treatment staff, and post-surgery support-group facilitation. Results of pre-surgery psychological
screenings suggest that bariatric surgery patients are at a greater risk for psychological distress, most commonly symptoms of depression and anxiety.

Research on psychosocial predictors of weight-loss post-surgery is inconclusive with a few exceptions. Intuitively, research suggests that severe mental illness that inhibits the patient’s judgment and insight is a negative predictor of weight-loss. Conversely, while not as well established, research suggests that mild-to-moderate psychosocial distress before surgery (i.e. symptoms of depression and anxiety that is a consequence of being obese) is a positive predictor. A strong positive relationship between bariatric surgery support group attendance and weight-loss post-surgery has also been found.

The purpose of the present study is to investigate the ability of pre-operative psychosocial and physical health variables to predict weight-loss at six months post-surgery. If it is assumed that successful weight loss post-surgery is influenced by psychosocial factors, then it is important to discover these variables for the purpose of identifying good candidates for surgery and to screen out those who are likely to have poor outcome. Since the majority of data regarding pre-surgery psychosocial and physical-health predictors is inconclusive, the results of this study will hopefully contribute to a better understanding of the characteristics of a successful bariatric surgery patient and thus assist in the pre-surgical screening process.

There are three specific hypotheses: (a) mild-to-moderate psychosocial distress, as measured by results on psychological tests administered before surgery, will positively predict percentage of excess weight lost (%EWL) six months post-surgery; (b) physical distress, as measured by the number of diagnosed medical co-morbidities, will positively predict %EWL six months post-surgery; and (c) support group attendance will positively predict %EWL six months
post-surgery. These hypotheses were chosen in the context of previous research suggesting that psychosocial distress that is not in the severe range, and is a direct result of being obese, may be predictive of better outcome. The findings of this study will hopefully contribute to advancing scientific knowledge in this relatively new area of health psychology research. Also, due to the fact that there is limited consensus about screening procedures or criteria in patient selection for bariatric surgery (Bauchowitz et al., 2005), this study will hopefully contribute to the effort toward developing concrete guidelines for the psychological evaluation and selection of surgery candidates, as well as psychological interventions postoperatively to increase surgery effectiveness.
Chapter 2

Method

Participants

This was a retrospective pilot study. All data was obtained from the bariatric surgery program at a large tertiary hospital in Salem, Oregon. The only bariatric surgery procedure performed at this program at the time of the study was Roux-en-Y gastric bypass. Fifty-four patients had undergone bariatric surgery at the time the study was conducted, and all of them were mailed a standard informed-consent document and a brief one-page questionnaire asking for demographic data (see Appendix A). This questionnaire inquired about demographic information relevant to this research but not contained in the patient’s medical chart; specifically, marital status, years of education, income, and number of minor children in the home. Thirty-one patients consented to participate in the study and have their medical data collected, and of these seven were excluded due to falling outside the six-month follow-up timeframe. The 24 participants were predominantly female (23 versus 1) and between 22 and 60 years of age (mean age of 46). Although this gender difference is significant, previous research has shown that the majority of patients receiving bariatric research are female (Herpertz et al., 2003), thus it is not unrepresentative the general bariatric surgery population. Fourteen participants reported being married, 6 reported being divorced, 1 reported being partnered, and 3 reported being single. Self-reported annual income ranged from $30,000 to $110,500, with a mean of $68,500 (SD = 23.4), and one participant declined to respond. The medical charts indicated that excess weight at the
time of surgery ranged from 94 to 215 pounds, with a mean of 135 pounds (SD = 29.4). At the
time they presented for surgery all 24 study participants had at least 3 diagnosed medical co-
morbidities, and the maximum was 9 (M = 5.7, SD = 1.6). Table 1 summarizes these and other
descriptive statistics for pre-surgery demographic variables, and medical co-morbidity statistics
are summarized in Table 2.

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>% of Sample</th>
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<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
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</tr>
<tr>
<td>Male</td>
<td>1</td>
<td>4.2</td>
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<tr>
<td>Female</td>
<td>23</td>
<td>95.8</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
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<tr>
<td>Married</td>
<td>14</td>
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</tr>
<tr>
<td>Partnered</td>
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<td>4.2</td>
</tr>
<tr>
<td>Single</td>
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<td>12.5</td>
</tr>
<tr>
<td>Divorced</td>
<td>6</td>
<td>25.0</td>
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<table>
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<tr>
<th>Category</th>
<th>Mean</th>
<th>SD</th>
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</thead>
<tbody>
<tr>
<td>Age</td>
<td>46.1</td>
<td>10.8</td>
<td>22 - 60</td>
</tr>
<tr>
<td>Income (in $1,000’s)</td>
<td>68.5</td>
<td>23.4</td>
<td>30.0 - 110.5</td>
</tr>
<tr>
<td>Years of Education</td>
<td>14.4</td>
<td>3.0</td>
<td>12 - 23</td>
</tr>
<tr>
<td>Minor Children</td>
<td>1.1</td>
<td>1.4</td>
<td>0 - 5</td>
</tr>
<tr>
<td>Weight (lbs)</td>
<td>261.8</td>
<td>38.8</td>
<td>190.0 - 345.0</td>
</tr>
<tr>
<td>Excess Weight (lbs)</td>
<td>135.8</td>
<td>29.4</td>
<td>94.0 - 215.0</td>
</tr>
<tr>
<td>Medical Co-morbidities</td>
<td>5.7</td>
<td>1.6</td>
<td>3 - 9</td>
</tr>
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</table>
Table 2

*Medical Co-Morbidity Frequencies*

<table>
<thead>
<tr>
<th>Co-morbidity</th>
<th>Number</th>
<th>% of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degenerative Joint Disease</td>
<td>24</td>
<td>100</td>
</tr>
<tr>
<td>Acid Reflux</td>
<td>19</td>
<td>79.2</td>
</tr>
<tr>
<td>Stress Urinary Incontinence</td>
<td>18</td>
<td>75.0</td>
</tr>
<tr>
<td>Hypertension</td>
<td>16</td>
<td>66.7</td>
</tr>
<tr>
<td>Sleep Apnea</td>
<td>15</td>
<td>62.5</td>
</tr>
<tr>
<td>Venous Insufficiency</td>
<td>12</td>
<td>50.0</td>
</tr>
<tr>
<td>Dyspnea</td>
<td>11</td>
<td>45.8</td>
</tr>
<tr>
<td>Hypercholesterolemia</td>
<td>10</td>
<td>41.7</td>
</tr>
<tr>
<td>Type II Diabetes</td>
<td>7</td>
<td>29.2</td>
</tr>
<tr>
<td>Asthma</td>
<td>3</td>
<td>12.5</td>
</tr>
<tr>
<td>Plantar Fascilitis</td>
<td>3</td>
<td>12.5</td>
</tr>
<tr>
<td>Congestive Heart Failure</td>
<td>1</td>
<td>4.2</td>
</tr>
</tbody>
</table>

**Procedure**

After patients gave their consent, their pre and post-operative excess weight measurements, and number and type of diagnosed medical co-morbidities, were obtained from their medical charts. Given scheduling conflicts for both the surgeon and patient, the 6-month checkup ranged from approximately five to seven months after the surgery date, thus the weight-loss data was gathered from 6 ± 1 months post-surgery. Based upon an individual’s gender and
height, medical professionals have agreed-upon standards for calculating an individual’s “ideal weight.” Assuming an individual is overweight, comparing this specific ideal number to the individual’s actual weight yields a number referred to as their “excess weight.” Excess weight at the 6-month checkup was subtracted from excess weight pre-surgery, and this number was divided by excess weight pre-surgery to yield the %EWL at six months post-surgery. This was the primary dependent variable used in this study.

All participants were administered a battery of four self-report psychological assessments pre-surgery in order to screen for psychological, behavioral, or social problems that could diminish the effectiveness of surgery. This data was stored in a computer database at the hospital, and after consent was obtained it was copied into a separate electronic file for use in the study. Support group attendance data was obtained from a written attendance record in the bariatric surgery office.

Individuals who had not received their 6-month checkup were excluded from the study. One participant did not have psychological testing data on file; however, their demographic and health-status information was still included in the statistical analysis.

**Instruments**

Data from three of the instruments were used in the present study: the Minnesota Multiphasic Personality Inventory, Second Edition (MMPI-2), the Millon Behavioral Medicine Diagnostic (MBMD), and the Health Status Questionnaire (HSQ). The fourth instrument, the Three-Factor Eating Questionnaire, was not used because of its limited psychometric properties and the lack of a complete data set.
Minnesota Multiphasic Personality Inventory, Second Edition. The MMPI-2 is a popular instrument used to “assess a number of the major patterns of personality and emotional disorders” (Kramer & Conoley, 1992). It consists of 567 items to which the test taker must answer “true” or “false.” The test taker’s answers yield 10 core clinical scales: Hyochondriasis, Depression, Hysteria, Psychopathic Deviate, Masculinity-Femininity, Paranoia, Psychasthenia, Schizophrenia, Hypomania, and Social Introversion. In addition to the clinical scales the results include a variety of validity, content, and supplementary scores. Hundreds of studies have confirmed the reliability, validity, and general psychometric integrity of the MMPI-2 for profiling personality and emotional disorders.

Millon Behavioral Medicine Diagnostic. The MBMD is designed to “assess psychological factors that can influence the course of treatment of medically ill patients, especially for patients in which psychosocial factors may play a role in the course of the disease and treatment outcome” (Plake, Impara, & Spies, 2003). It was normed based on a large sample of medical patients, and is designed as a self-report measure with 165 items broken up into 29 clinical scales, three Response Patterns scales, one validity indicator, and six Negative Health Habits indicator scales. The measure was not designed to provide a medical diagnosis, but rather provides indicators of a psychosocial nature that are intended to assist in forming psychological hypotheses (Plake et al., 2003). It provides specific information regarding patients' negative health habits, psychiatric status, illness-related coping styles, stress moderators, treatment prognostics, and other psychosocial behavioral patterns that may be contributing to medical pathology. The specific variables measured by the MBMD are Response Patterns (Disclosure, Desirability, and Debasement), Negative Health Habits (Alcohol, Drugs, Eating, Caffeine,
Inactivity, and Smoking), Psychiatric Indications (Anxiety-Tension, Depression, Cognitive Dysfunction, Emotional Lability, and Guardedness), Coping Styles (Introversive, Inhibited, Dejected, Cooperative, Sociable, Confident, Nonconforming, Forceful, Respectful, Oppositional, and Denigrating), Stress Moderators (Spiritual Absence, Illness Apprehension, Functional Deficits, Pain Sensitivity, Social Isolation, and Future Pessimism), Treatment Prognostics (Interventional Fragility, Medication Abuse, Information Discomfort, Utilization Excess, and Problematic Compliance), and Management Guides (Adjustment Difficulties and Psychiatric-Psychosocial Referral). Overall, the reliability and validity of the MBMD is strong (Plake et al., 2003).

**Health Status Questionnaire.** The HSQ was designed “to measure physical and social functioning and emotional well-being” (Caruso & Hayes, 2003). The original version of the test is called the SF-36 and was designed specifically to survey health-related quality-of-life. The SF-36 consists of 36 items that compose 8 scales: Health Perception, Physical Functioning, Role Limitations/Physical Health, Role Limitations/Emotional Problems, Social Functioning, Mental Health, Bodily Pain, and Energy/Fatigue. The questionnaire takes approximately 10 minutes to complete, and thus is relatively short compared to the other measures. The primary differences between the HSQ and the original SF-36 are that the HSQ contains three additional items assessing depression, one additional item assessing health status change, and seven additional items assessing demographic characteristics which are known to influence general well-being. The inclusion of the depression items was intended to serve as a quick screening device to determine if further depression assessment is warranted, and gives the HSQ an advantage in that no separate depression assessment is needed. The HSQ has good reliability and validity on all
eight health status scales. The three depression items were not subjected to psychometric analysis, but rather were chosen based upon diagnostic criteria and rely on face validity alone (Caruso & Hayes, 2003).

**Independent Variables**

For the purposes of the first hypothesis, psychosocial distress was measured using scale scores that measure aspects of psychological or social health and wellbeing from the three psychological self-report measures. Scales were excluded from analysis if they were determined to be measures of psychosocial attributes but not necessarily good indicators of distress (e.g. the MF clinical scale on the MMPI-2). For the purposes of the second hypothesis, physical distress was measured based on the number of co-morbid medical diagnoses at the time the patient presented for their initial pre-surgery evaluation.

**Data Analysis**

The Statistical Package for the Social Sciences (SPSS 15.0) was used for all analyses.
Chapter 4

Results

The data showed that participants had lost an average of 71 pounds (M = 71.2, SD = 16.8) and an average of 53% (M = 53.3, SD = 12.8) of their excess body weight at the 6 month checkup. Participants had attended an average of 6 support group meetings (M = 6.1, SD = 5.0) both pre-surgery and up until 6 months post-surgery. Table 3 summarizes these statistics.

Table 3

*Pounds Lost, Percentage of Excess Weight Lost, and Support Group Attendance at Six Months*

<table>
<thead>
<tr>
<th>Post-surgery</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pounds Lost</td>
<td>71.2</td>
<td>16.8</td>
<td>36 - 102</td>
</tr>
<tr>
<td>% of Excess Weight Lost</td>
<td>53.3</td>
<td>12.8</td>
<td>36 - 82</td>
</tr>
<tr>
<td>Support Group Attendance</td>
<td>6.1</td>
<td>5.0</td>
<td>1 - 21</td>
</tr>
</tbody>
</table>
Hypothesis 1: Mild or Moderate Psychosocial Distress is a Positive Predictor of Weight Loss.

The first hypothesis tested was that mild-to-moderate psychosocial distress would be a positive predictor of weight loss at six months post-surgery. A correlation matrix was created with % Excess Weight Lost (%EWL) and scale scores from the three self-report measures. An alpha level of .05 was used for all statistical tests. Several significant relationships emerged between psychological testing scores and %EWL at six months post-surgery. A moderate positive correlation was found between the MMPI-2 clinical scale Hypochondriasis and %EWL, and low positive correlations were found between the clinical scale Social Introversion and content scale Health Concerns and %EWL. On the MBMD the Functional Deficits scale, Pain Sensitivity scale, and Spiritual Absence scale all had a low positive correlation with %EWL. On the HSQ the Health Perception scale had a moderate negative correlation with %EWL (converse to the MMPI-2 and MBMD, low scores on the HSQ indicate more distress), and the Social Functioning and Energy/Fatigue scales both had a low negative correlation with %EWL. Table 4 shows the correlation matrix.

After creating the correlation matrix, a stepwise linear regression analysis was performed to determine if the independent variables had predictive relationships with the dependent variable (%EWL). The nine variables that significantly correlated with %EWL were entered into a stepwise regression as potential predictor variables. The Health Perceptions scale of the HSQ emerged as the only variable that significantly predicted %EWL ($F = 9.04$, $R^2 = .30$, $p = .007$). This variable explained approximately 30% of the variance in %EWL, suggesting a relationship in which negative health perceptions is predictive of greater %EWL at six months post-surgery.
Table 4

Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>%EWL</th>
<th>SG</th>
<th>Co</th>
<th>Hs</th>
<th>Si</th>
<th>HC</th>
<th>FD</th>
<th>PS</th>
<th>SA</th>
<th>HP</th>
<th>SF</th>
<th>E/F</th>
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<tr>
<td>%EWL</td>
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<td></td>
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<td>.83**</td>
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<td>.45*</td>
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<td>.60**</td>
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<td>.20</td>
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<td>-.55**</td>
<td>-.08</td>
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<td>-.83**</td>
<td>-.47*</td>
<td>-.44*</td>
<td>-.26</td>
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<td>.04</td>
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<td>-.66**</td>
<td>-.39</td>
<td>-.54**</td>
<td>-.61**</td>
<td>-.62**</td>
<td>-.32</td>
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<tr>
<td>E/F</td>
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<td>-.30</td>
<td>-.88**</td>
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<td>-.75**</td>
<td>-.65**</td>
<td>-.61**</td>
<td>-.33</td>
</tr>
</tbody>
</table>

Note. * = significant at an alpha level of .05, ** = significant at an alpha level of .01. %EWL = Percentage of Excess Weight Lost; SG = Support Group Attendance; Co = Number of Medical Co-Morbidities; Hs = Significant Psychological Testing Scale Scores: Hypochondriasis; Si = Social Introversion; HC = Health Concerns; FD = Functional Deficits; PS = Pain Sensitivity; SA = Spiritual Absence; HP = Health Perception; SF = Social Functioning; and E/F = Energy/Fatigue.
As illustrated in Figure 2, the negative linear relationship ($r = -0.55$) indicates that lower Health Perceptions scores were associated with a higher percentage of excess weight lost.

![Figure 2](image)

*Figure 2.* A scatter-plot illustrating the relationship between health perception scores and %EWL. A best-fit line was added to demonstrate the negative linear relationship.

**Hypothesis 2: Mild to Moderate Physical Distress as a Positive Predictor of Weight Loss.**

The second hypothesis tested was that mild-to-moderate physical distress would be a positive predictor of weight loss at 6 months post-surgery. Contrary to the hypothesis, the correlation matrix did not reveal a significant relationship between the total number of co-morbid
medical diagnoses and %EWL ($F = .006, R^2 = .00, r = .02, p > .05$), or between a specific co-morbid physical condition and %EWL post-surgery.

**Hypothesis 3: Support Group Attendance as a Positive Predictor of Weight Loss.**

The third hypothesis tested was that support group attendance would be a positive predictor of weight loss at 6 months post-surgery. Contrary to the hypothesis, the correlation matrix did not reveal a significant relationship between support group attendance and %EWL. ($F = 1.81, R^2 = .08, r = .28, p > .05$).

**Demographic Variables**

There were no statistically significant relationships between any demographic variables and %EWL. This result is consistent with past research which has been unable to find reliable demographic predictors of post-surgery outcome.
Discussion

Psychosocial Distress and Post-Surgery Outcome

The results from this retrospective pilot study provide preliminary support for the hypothesis that mild-to-moderate psychosocial distress is a positive predictor of %EWL six months post-surgery. Previous research has suggested that generalized depression and anxiety and other symptoms below the severe range that are suggestive of “neurosis” may be positive predictors of post-surgery outcome. The data from the present study reinforces this notion and contributes additional insights.

The primary finding is that the Health Perceptions scale of the HSQ has a predictive relationship with weight-loss post-surgery in our sample of 24 bariatric surgery patients, accounting for 30% of the variance in %EWL at six months post-surgery. The Health Perceptions scale measures a person’s general psychological perceptions of their physical health. A high score on this scale indicates that a person subjectively perceives that their physical health is poor, regardless of the objective nature of their health status. For example, if an individual is in relatively good health from the perspective of a third-party medical evaluation, but still perceives that their health is poor, they will typically score high on this scale. Therefore the Health Perceptions scale could be viewed essentially as a measure of psychological distress, not necessarily medical distress, since it is a gauge of a person’s subjective psychological perceptions of their medical status. This supports the first hypothesis because it indicates that psychological
distress below the severe range, as measured by a person’s negative psychological perceptions of their physical health, is a positive predictor of weight-loss outcome.

Furthermore, several scales on the MMPI-2, MBMD, and HSQ that indicate psychosocial distress were positively correlated with weight loss. It is important to note that because these are correlations they are not predictive in nature, and thus not as inherently meaningful. Nevertheless, while not predictive, they are important in the context of the first hypothesis due to the fact that in all cases the direction of the correlation suggested that higher distress was associated with better outcome. The specific correlations indicated that psychological and social problems that have a perceived negative effect on a person’s practical activities of daily living, such as inhibition in their ability to complete day-to-day tasks due to physical problems, inability to engage in pleasurable social activities, perceived ongoing physical pain, and perceived generalized lack of energy and vitality, are more likely to be found in individuals who are more successful with weight loss post-surgery. Additionally, these scales are somewhat conceptually similar to the Health Perceptions scale of the HSQ because, with the exception of the Social Introversion scale of the MMPI-2, it could be argued that they illustrate the individual’s subjective perception of problems in their quality-of-life due to health-related concerns. The correlations also reinforce the hypothesis because the psychosocial problems they represent generally are not severe enough to significantly inhibit judgment and insight.

**Physical Distress and Post-Surgery Outcome**

Contrary to the second hypothesis no predictive relationship was found between physical distress as measured by number of co-morbid medical diagnoses and %EWL 6 months post-surgery. Although the hypothesis was logical, the lack of significance is not surprising as the
relationship between number of co-morbid diagnoses and %EWL does not appear to have been studied previously, thus there is no research to suggest otherwise. It is possible that the number of subjects included in the study did not yield enough statistical power to find significance. Another possibility is that co-morbid diagnoses in-and-of-themselves do not necessitate medical distress. Theoretically this would fit the first hypothesis because it implies that a person’s subjective perceptions of their physical health are more important than their objective medical diagnosis.

**Support Group Attendance and Post-Surgery Outcome**

The third hypothesis, that support group attendance would be a positive predictor of %EWL post-surgery, was also not supported. This result is more puzzling in light of past research suggesting a reliable positive relationship between support group attendance and post-surgery outcome. One likely explanation, similar to the second hypothesis, is that the number of subjects included in the study did not yield enough statistical power to find significance.

**Implications of the Results**

Overall, the results of this study emphasize the importance of psychosocial variables apart from purely medical variables in the prediction of successful weight-loss post-surgery, and emphasize in particular the importance of the patient’s psychological perceptions of their physical health. The predictive strength of the Health Perceptions scale of the HSQ is the most important result that reinforces this notion, and the significant correlations, while not as statistically meaningful, reinforce the relationship between pre-surgery psychosocial distress and successful weight loss. It is significant that an individual’s perceptions of their health status, as compared to other seemingly more important variables such as number of actual medical co-
morbidities, emerged as the only predictive variable. This suggests that a person’s objective medical status may not be as important as their psychological perceptions of their health for predicting successful weight-loss. It is speculated that this is because perceived health-related distress is a crucial motivating factor when making significant health-behavior changes. Medical diagnoses alone, when divorced from a person’s psychological acknowledgement that poor physical health is causing problems in their day-to-day life, may not be as distressing as when a person has medical diagnoses along with the corresponding acknowledgement that the diagnoses are leading to a poor quality-of-life. For instance, a person who is obese, but does not view their obesity as having a significant negative impact on their health-related quality-of-life in spite of contradictory interpretations from outside observers, is not as likely to be motivated to lose weight post-surgery. Conversely, an individual who is obese and also perceives that their obesity is significantly impairing their health-related quality-of-life is much more likely to expend more effort toward making behavioral changes in order to lose weight. Therefore, it can be argued that when considering motivation for change in bariatric surgery patients it is important to consider their subjective perceptions of their health-related quality-of-life as equally or more important than their objective health status.

The results reinforce the importance of pre-surgical psychological evaluations for bariatric surgery patients, and by extension any major medical procedure that requires significant lifestyle changes. The results also imply that the method and interpretation of psychological assessment should consider the individual’s psychological perceptions of their physical health as an important potential predictor of their treatment success. Therefore, it is suggested that pre-surgical screenings may be improved by incorporating a component aimed at providing a
comprehensive assessment of psychological perceptions of physical health. An assessment that hones in on this variable will likely be a more accurate tool for determining which patients are more likely to achieve a good outcome, and vice versa.

From a broader perspective, the results of this study highlight the importance of assessing an individual’s subjective perspective of their physical distress when they present with a primary medical problem. An individual’s subjective experience of their physical health, along with their motivation to comply with treatment and ability to follow-through with health behavior changes, are likely strongly influenced by psychological factors. Psychological assessment and evaluations in a variety of medical settings can assist in forming an accurate conceptualization of a patient’s health status and provide guidance in determining their course of treatment.

The results of this study are congruent with previous research emphasizing the importance of an individual’s subjective perceptions of their physical health for determining their overall health-related quality-of-life, sometimes above and beyond the influence of the number or extent of actual medical problems. For example, Rodger, Jolley, Thompson, Lanigan, and Crofts (1999) found that individuals who were Hepatitis C positive and aware of their infection scored significantly worse on quality-of-life measures than individuals who were Hepatitis C positive but not aware of their infection. Therefore, the subjective perception that one is HCV positive appears to have a negative effect on health-related quality-of-life above-and-beyond the effect of the actual presence of the virus. Similarly, Pais-Ribeiro, da Silva, Meneses, and Falco (2007) studied a population of epileptic individuals and found that a person’s perception of their cognitive functioning and/or an optimistic orientation toward their epilepsy was a stronger predictor of health-related quality-of-life than the frequency of actual seizures. When considered
in the context of the results of the current study, research appears to be building a consensus that health status alone is insufficient information for measuring perceived health-related quality-of-life. The psychological status of the individual, specifically their beliefs, attitudes, and emotions regarding their health status, may be just as or even more important. Thus, health professionals and psychologists should be cautious when making assumptions about a person’s health-related quality-of-life based solely upon medical information, such as number and severity of medical problems. An important moderating variable is the individual’s psychological perceptions of their health, which if positive may enable them to live a well-adjusted life even in the face of significant medical diagnoses, and if negative may cause a person with relatively insignificant medical problems to nevertheless experience a significantly poor quality-of-life.

**Limitations**

There are several important limitations to consider when interpreting the results of this study. First, this was a single-center design with a relatively small number of participants, thus the generalizability of the results are limited. The study was conceived from the outset as a pilot study and the results are best viewed as an indicator for future research.

Second, given scheduling conflicts for both the surgeon and patient, the 6-month evaluation did not occur at exactly six months post-surgery (the evaluation ranged from approximately 5.5 to 6.5 months after the surgery date). Future studies should strive to make follow-up measurement more precise.

Third, studies have demonstrated that on-average the majority of bariatric surgery patients achieve maximal weight-loss at approximately one year post-surgery. Therefore, while knowing pre-surgical variables that are predictive of success at six months post-surgery is important, a
similar study that investigates predictive variables at one year post-surgery would probably be more relevant to health professionals and psychologists. Furthermore, data suggests that after one year post-surgery the majority of bariatric surgery patients begin to gain relatively small amounts of weight back over a period of approximately seven years, with their weight reaching a plateau at eight years post-surgery on average (Sjostrom et al., 2004). While it is helpful to be able to identify individuals who will perform well during the initial 1 year weight-loss timeframe, it would probably be more helpful to identify patients who will do better over the long-term, specifically those who do not gain weight back or gain weight back at a lower rate during the 1-to 8-year period. Therefore, a follow-up to this study that uses the same participants and looks at pre-surgical predictive variables at one year post-surgery, and ideally at eight years post surgery, will likely shed even more light on the psychosocial and medical variables that are predictive of success.
References


Appendix A

Patient Informed Consent
PATIENT INFORMED CONSENT

Alexander Patterson, MA
Doctor of Psychology Graduate Program at George Fox University

Phone: 206/ 697-0115 apatterson05@georgefox.edu

In Cooperation with Dr. Rajan Nair, Bariatric Surgeon

Research Study

Biological, Psychological, and Social Predictors of Weight-Loss following Roux-En-Y Bariatric Surgery

My name is Alex Patterson and I volunteer as the Bariatric Surgery Support Group leader at Salem Hospital. I am not an employee of Salem Hospital or Dr. Nair, the surgeon who performed your recent bariatric procedure. However, Dr. Nair agreed to send all his bariatric patients information about my research project, which is part of my graduate work for my Doctor of Psychology degree at George Fox University.

My research study is designed to gather patient information and identify common factors among bariatric patients that may help to predict successful weight loss after surgery. The primary benefit of this study will be to help the medical and mental health community identify good candidates for bariatric surgery. No medical care or procedures are involved, but I do need your permission to review your medical information from Dr. Nair’s office records.

If you agree to participate in this research study, I will collect basic information about you, like your age, gender, marital status, etc. Also included will be your health status before surgery, including your pre-surgery psychological tests, and your weight loss since surgery. All information will come from your medical records and the questionnaire on the next page.

Your participation in this research study involves your time to read this consent form and answer 6 questions on the enclosed sheet. Participation in this research is completely voluntary and you can even choose not to answer one or more of the 6 questions. If you choose not to participate in this research, there is no penalty and your decision will not affect your relationship with me, Dr. Nair, or Salem Hospital. You are free to withdraw from this study at any time. However, if your information has already been collected and cannot be identified from other participants, it will be included in the study, but no more information about you will be collected.

Your information will not be used for any other purpose but this research, and it will not be shared with anyone not involved in the research. Your name and anything that could personally identify you will be removed when all data is collected and will not appear in my research results.
or any presentation or publication. With all the safeguards that will be taken to protect your information, there remains a very small risk that your information could be inadvertently disclosed to someone outside this research project.

This research has been reviewed and approved by the George Fox University Human Subjects Research Committee, and the Salem Hospital Institutional Review Board has accepted their approval. If you have questions about the study, or anything on this consent form, please contact me at the phone and email address above.

If you have questions or concerns about your rights as a research participant, you may call the George Fox University Human Subjects Research Committee at 503/538-8383.

Your signature below means that you agree to participate in this research study, and authorize me to collect information about you from your bariatric surgery medical records and your psychological tests done before your surgery.

After you sign and return this consent form, Dr. Nair and I will also sign, and then send you a copy by mail. A signed copy will also be filed in your medical record at Dr. Nair’s office.

I voluntarily agree to participate in the research study as described above

Patient Signature _________________________________ Date _________

Printed Name _________________________________ Date _________

Bariatric Surgeon _________________________________ Date _________

Rajan Nair, MD

Researcher ______________________________________ Date _________

Alexander Patterson, MA
QUESTIONNAIRE

(You may choose not to answer one or more of these questions, and still participate in the study)

1. Marital Status (circle one) Single    Married    Divorced    Widowed    Partnered

2. Years of formal education (high school diploma/GED = 12) ______________

3. Hours per week you work at your current job (if not employed, enter 0) ______________

4. Number of children under 18 who live with you ______________

5. Approximate annual gross (before taxes) household income ______________

6. Number of bariatric surgery support group meetings attended ______________
   (include attendance before and after surgery)

PLEASE RETURN YOUR SIGNED CONSENT FORM
AND THIS QUESTIONNAIRE
IN THE ENVELOPE PROVIDED

THANK YOU FOR PARTICIPATING IN THIS RESEARCH
ALEXANDER L. PATTERSON, PSY.D.
720 SE 125th Avenue
Vancouver, WA  98683
(206) 697-0115
alexander.patterson@va.gov

EDUCATION

2010 – Present  Postdoctoral Fellowship, Health Psychology
Portland Veterans Affairs Medical Center, Portland, Oregon

2010  PsyD, Clinical Psychology
Graduate School of Clinical Psychology (A.P.A. Accredited)
George Fox University, Newberg, Oregon
Internship: Vanderbilt University-Department of Veterans Affairs
Consortium, Nashville, Tennessee (A.P.A. Accredited)
Dissertation: Psychosocial and Physical Health Variables as Predictors of
Weight-Loss 6 Months After Roux-en-Y Bariatric Surgery

2007  Master of Arts, Clinical Psychology
George Fox University, Newberg, Oregon

2005  Bachelor of Arts, History
University of Washington, Seattle, Washington

RESEARCH POSITIONS

2010 – Present  Research Fellow
Benjamin Morasco, Ph.D., Portland Veterans Affairs Medical Center,
Portland, Oregon
• Provided with mentorship in grant writing and production of original
research projects. Currently working on two first-authored empirical
research papers. Skills Obtained: Design of empirical studies,
statistical analysis, research composition, formal research presentation,
and preparation/revision of papers for publication.

2009 – 2010  Research Intern
James Jackson, Psy.D., Center for Health Services Research/Division of
Allergy, Pulmonary, and Critical Care Medicine, Vanderbilt University
School of Medicine, Nashville, Tennessee
• Provided with mentorship in grant writing and production of original
research projects. Created two literature reviews (currently in
preparation). Assisted with the development and submission of a
$42,000 grant proposal (and related IRB documents) for an ancillary
study of muscle density (via DEXA scan) in a cohort of Intensive Care Unit survivors currently enrolled in an National Heart Lung and Blood Institute (NHLBI) study (ALTOS study).

- Assisted with a large National Institute of Aging funded prospective study (BRAIN-ICU study) investigating long-term neuropsychological, psychological, functional, and quality of life outcomes in Intensive Care Unit survivors. **Skills Obtained:** Coordinate wide-ranging aspects of patient follow-up; administer and score comprehensive evaluations that assess cognition, depression, PTSD, and overall functioning; certified in the use of the Clinical Dementia Rating Scale (CDR) by Washington University in St. Louis.

- Assisted with a grant-funded prospective research study investigating the relationships between PTSD and delirium in ICU survivors. **Skills Obtained:** Administer psychodiagnostic tests and self-report questionnaires to study participants; organize testing data; attended a day-long training in the administration of the Clinician-Administered PTSD Scale (CAPS), conducted by Dr. Frank Weathers, CAPS developer.

- Assisted with a grant-funded multi-site Department of Veterans Affairs research study focused on identifying concepts and terminologies that non-mental health clinicians employ when describing patients with PTSD. This study uses sophisticated “text mining” techniques to analyze electronic medical records. **Skills Obtained:** analyzed clinical reports and identified specific language used to describe PTSD symptoms; participated in conference calls with researchers from diverse clinical perspectives.

2007 – 2009

**Research Assistant**
Benjamin Morasco, Ph.D., and Peter Benson, Psy.D., Portland Veterans Administration Medical Center, Portland, Oregon

- Assisted with an NIH-funded research study investigating the relationship between chronic pain and Hepatitis C among individuals in a substance abuse treatment program. **Skills Obtained:** Trained extensively in administration and scoring of the Structured Clinical Interview for DSM Disorders (SCID), organized research data using SPSS, served as a liaison between the primary investigator and the Internal Review Board.

- Assisted with a program evaluation investigating the utilization of services by chronic pain patients before and after the implementation of a brief multi-disciplinary consultation program. **Skills Obtained:** Organized data using SPSS, composed manuscript sections and designed poster to present research findings, served as a liaison between the primary investigator and the Internal Review Board.
2004 – 2005

Research Assistant
Amy Wagner Ph.D., University of Washington, Seattle, Washington

- Assisted with a study investigating the relationship between facial expression and physiological arousal in women who have post-traumatic stress disorder resulting from a sexual assault. Skills Obtained: Recruited subjects, organized data using SPSS, assisted with biofeedback equipment, met weekly with the supervisor to discuss scholarly articles.

PEER-REVIEWED PUBLICATIONS

Abstracts:


Patterson, A. L., Peterson, M., Campbell, C., & Gathercoal, K. Health perception is predictive of weight loss 6-months post Roux-en Y bariatric surgery. *Psychosomatic Medicine* 72(3), A

Manuscripts in Preparation:


Patterson, A. L., Fuller, B. E., Morasco, B. J., Mcquesten, M., & Gritzner, S. Factor Structure of the Beck Depression Inventory-II in a Hepatitis C-Positive Population.

Patterson, A. L., Peterson, M., Campbell, C., & Gathercoal, K. Health perception is predictive of weight loss 6-months post Roux-en Y bariatric surgery

Patterson, A. L., & Morasco, B. J. Psychological and social predictors of health-related quality of life after organ transplantation: a review

Patterson, A. L., & Jackson, J. C. Defining cognitive impairment within medical populations: a review.

PEER-REVIEWED PRESENTATIONS


SUPERVISED CLINICAL EXPERIENCE

2010-Present

Postdoctoral Fellowship, Health Psychology
Portland Veterans Affairs Medical Center, Portland, Oregon
- Advanced training in health psychology with emphasis on liver disease treatment, including pre-liver transplant psychological assessments, pre-Interferon/Ribavirin psychological assessments, and short-term psychotherapy with medical outpatients.

2009-2010

Clinical Internship
Vanderbilt University – Department of Veterans Affairs Consortium, Nashville, Tennessee (A.P.A. Accredited)
- Completed 4-month rotations in Behavioral Medicine/Hospice, Organ Transplant, Inpatient Psychiatry, and Neuropsychology. Completed a year-long rotation in outpatient psychotherapy.

2008 – 2009

Primary Care Behavioral Health
Providence Medical Center, Newberg, Oregon
- Conducted behavioral health interventions with clients who were referred from their primary care physician
- Consultation/liaison with physicians to facilitate patients’ ongoing medical care

2007 – 2009

Behavioral Health Consultation Team
Providence Medical Center, Newberg, Oregon
- Provided 24-hour on-call services to the hospital. Assessed for suicidality, homicidality, psychosis, and other serious mental disorders.
- Utilized short-term solution-focused therapy techniques to reduce utilization of the emergency department for pain treatment

2007 – 2008

Substance Abuse Treatment Program
Portland Veterans Administration Medical Center, Portland, Oregon
- Performed comprehensive psychological assessments (including neuropsychological and personality instruments) of veterans who were referred from the methadone maintenance program
2007 – 2008  
**Bariatric Surgery Program**  
Salem Hospital, Salem, Oregon  
- Provided group therapy for 15-25 pre- and post-surgery patients, with an emphasis on psychoeducation

2006 – 2007  
**Corrections Mental Health**  
Multnomah County Detention Center, Portland, Oregon  
- Conducted intake interview, psychological assessments (including neuropsychological and personality instruments) and provided short and long-term individual psychotherapy to adult inmates

### RELEVANT EMPLOYMENT EXPERIENCE

2007 – 2009  
**Clinical Specialist**  
ProtoCall Services Inc., Portland, Oregon  
- Provided crisis-stabilization, short-term therapy, risk-assessment, and referral, over the telephone.

2008 – 2009  
**Pain Management Program Administrator**  
Providence Medical Center, Newberg, Oregon  
- Administered a comprehensive pain management program aimed at reducing cost and increasing treatment effectiveness for pain patients in the community who present in the emergency department.

2008 – 2009  
**Behavioral Health Consultation Team Coordinator**  
Providence Medical Center, Newberg, Oregon  
- Performed administrative duties for a team of seven masters-level doctoral students and four clinical supervisors on the Behavioral Health Consultation Team (see Supervised Clinical Experience section)

2004  
**Intern**  
King County Prosecutor’s Office, Involuntary Treatment Section, Seattle, Washington  
- Assisted prosecutors with the legal trials of individuals facing involuntary treatment due to psychiatric illness

### PROVISION OF SUPERVISION

2008 – 2009  
**George Fox University**  
University Health and Counseling Center, Newberg, Oregon  
- Provided weekly individual supervision to clinical psychology doctoral students providing services in the university Health and Counseling Center.