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Using the Outcome Questionnaire 45.2 in Obesity Treatment

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USING THE OUTCOME QUESTIONNAIRE 45.2 IN OBESITY TREATMENT

by

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Each person whose signature appears below certifies that this dissertation, in his/her opinion, is adequate in scope and quality as a dissertation for the degree Doctor of Public Health.

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ABSTRACT OF THE DISSERTATION

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Purpose: The purpose of this study was to determine if the Outcome Questionnaire 45.2 (OQ-45) can be used in the treatment of obesity to predict participant dropout and initial treatment success, in terms of weight loss (Lambert et. al, 2002a). The OQ-45 has been used with success to predict dropout from psychotherapy in clinical populations. It was hypothesized that higher pretreatment OQ-45 scores would be associated with less program completion and less weight loss by the end of treatment.

Method: The study employed a non-experimental time series design. Seventy-eight participants were recruited from the three local obesity treatment programs, which varied in length from 8 to 12 weeks. Participants were asked to complete the OQ-45 and report their current weight at the beginning of each treatment session.

Analysis: Of the 76 participants with valid pretreatment OQ-45 scores, 27.6% had scores at or above the cutoff value of 64, indicating psychological distress. Overall, one-third (32.9%) of participants completed their treatment program by attending at least half of the eight sessions. Participants with high OQ-45 cutoff scores were significantly less

likely to complete the treatment program compared to those with low scores (14.3% vs. 40.0% respectively, $p = 0.03$). Pretreatment OQ-45 cutoff scores did not predict either attendance at the second treatment session or weight loss success in terms of pounds lost. However, even when controlling for gender, ethnicity, and treatment site, high OQ-45 scores predicted program dropout (OR = 4.41 [95% CI = 1.07 – 18.10] p=.039), but not weight loss failure.

Implications for Preventive Care: Obesity has proven to be especially difficult to treat, in part due to the high attrition rates from treatment programs. This study demonstrates the potential use of the OQ-45 in obesity treatment to predict participants who are more likely to drop out of treatment. This may allow health care professionals to focus attention on those at increased risk for attrition, thereby improving treatment outcomes.

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CHAPTER 1

INTRODUCTION

A. Statement of the Problem

Obesity, as defined by a body mass index (BMI) of at least 30, is a serious problem in the U.S. and the rest of the world, earning the terms epidemic or even pandemic. Studies estimate that in the U.S. 25%, of adult women and 20% of adult men can be classified as obese (National Task Force on the Prevention and Treatment of Obesity, 2000). If one includes individuals who are considered overweight (BMI 25.0-29.9) the number increases to 65% for all adults age 20 years and over based on data collected from NHANES III (CDC, 2005). Recent statistics indicate that 127 million adults in the U.S. are overweight, 60 million obese, and 9 million severely obese (BMI $\geq$ 40) (American Obesity Association, 2005).

Obesity is a major public health problem associated with significant increases in morbidity and mortality (Friedman, 2000). The potential negative consequences of obesity are many, with insulin resistance, diabetes mellitus, hypertension, dyslipidemia, and coronary heart disease among some of the more common and severe outcomes. Obesity is also related to coronary heart disease, sleep apnea, osteoarthritis, cholelithiasis (gallstones), infertility and an increased risk of breast, uterine, colon, and prostate and cancers (NIH Guidelines, 2003; National Task Force on the Prevention and Treatment of Obesity, 2000). A longitudinal population based study by Whitmer, Gunderson, Barrett-Connor, Quesenberry, and Yaffe (2005), found that being obese in middle age increased the risk of future dementia independent of other comorbid conditions. Therefore,

overweight and obesity have a big impact on the health of the population in the United States.

Epidemiological and actuarial research indicates that when BMI levels are significantly above normal (BMI $\geq$ 30), life expectancy decreases with an increase risk of death from 50% - 100% (NIH Guidelines, 2003; Friedman, 2000; National Task Force on the Prevention and Treatment of Obesity, 2000). While some researchers estimate that obesity is associated with more than 100,000 deaths per year (Flegal, Graubard, Williamson, & Gail, 2005), others suggest that much of the mortality associated with obesity can be explained by lack of physical activity rather than BMI per se (Hu, Willett, Li, Stampfer, Colditz & Manson, 2004; Wessel, et al., 2004; Jacobs & Pereira, 2004). Regardless, the total costs attributed to obesity are staggering and estimated to be almost $100 billion annually (Wolf & Colditz, 1998). Sturm and Lakdawalla (2004) estimate that by 2020, obesity related costs could account for 20% of health-care dollars for those aged 50-69 years.

Obesity can lead to emotional, psychological, and social problems (Hamilton, 2002). It is related to psychopathology such as major depression and suicidal ideation (Carpenter, Hasin, Allison, & Faith, 2000). Studies have also linked obesity to impaired social adjustment, personality disturbances, and emotional immaturity (Valtolina, 1996). Obese individuals are often stigmatized at work and in social settings (Friedman, 2000). The National Institutes of Health, the American Heart Association, the World Health Organization, the US Surgeon General, and the Centers for Disease Control and Prevention all agree that obesity significantly impairs quality of life (Hill & Billington, 2002).

There are many treatment approaches to managing obesity with varying levels of success. In the mid 1970s, very low-calorie liquid diets (liquid-protein diets) were introduced. In the 1980s the second generation of very low-calorie diets (VLCD) became available, the most well know examples being the *Optifast*, and *Health Management Resources*, programs. This decade also saw the rise in consumer based prepackaged low-calorie diets from franchise companies such as Jenny Craig, and NutriSystem (Miller, 1999). In the 1990s, fat-free diets and fat-free foods became popular, and post 2000 high protein/fat diets became common. Many self-help books were written on the subject of weight loss such as *Pritikin, T-factor, Fit for Life, Zone Diet, Eat More Weigh Less* (Miller, 1999). Katz (2005) conducted a careful review of such weight loss programs and concluded that short-term weight loss is consistently achieved by any approach that advocates caloric restriction. Unfortunately the short-term successes of many programs seldom translate into lasting weight loss success.

In the last decade professional weight loss programs have become more integrated in their approach to obesity management. Most professional programs now integrate diet changes with increases in exercise and focus on lifestyle modification as opposed to just weight loss (Wadden et al., 1997; Miller, 1999). An additional component that many programs now utilize is behavior therapy to address ways to implement behavior change and weight loss maintenance strategies (Serdula, Khan, & Dietz, 2003; NIH Guidelines, 2003).

Another approach to obesity treatment is pharmacological interventions, the two most popular medications being sibutramine (Meridia) and orlistat (Xenical). The research indicates that weight loss medications may be the most useful in facilitating the

maintenance of weight loss rather than actual weight loss itself. The biggest barriers to these medications are their cost (> $100/month), which may not be covered by insurance, their side effects (e.g., loose stools, oily spotting), and the fact that weight is immediately regained once the medication is discontinued (Fabricatore & Wadden, 2003; Jakicic et. al, 2001; Devlin, Yanovske, & Wilson, 2000).

The final and most extreme treatment for obesity is surgery. Bariatric surgery is typically recommended for individuals with a BMI $\geq$ 40 kg/m^2 or who have a BMI > 35 kg/m^2 with two comorbid medical conditions (e.g., type 2 diabetes) and who have tried the non-invasive methods of weight loss listed above. The two most common surgeries are vertical banded gastroplasty, and gastric bypass (Fabricatore, & Wadden, 2003; Devlin, Yanovske, & Wilson, 2000). The prevalence of gastric bypass surgeries almost tripled from 23,100 in 1997 to an estimated 63,100 in 2002 (Lambert, 2003). Solomon, and Dluhy (2004), note that bariatric surgery is currently the most successful approach to treating patients with severe obesity, which can reverse or prevent the development of a number of diseases associated with obesity.

Despite the variety of treatments, there has been little success in preventing and treating obesity as seen by the continuing rise in the prevalence of obesity (CDC, 2005). Regardless of approach, most individuals (>90%) who lose weight will eventually relapse or surpass their original weight (Friedman, 2000; Foreyt, & Goodrick, 1993; Kramer et al., 1989). These outcomes are even worse when one considers the high rate of dropout or attrition in obesity treatment programs with dropout rates as high as 80% reported in the literature (NIH, 1998). This lack of success has lead some researchers to advocate completely abandoning the use of energy-restrictive diets for obesity management and

just use exercise as a way to improve health, not to lose weight (Miller, 1999), and while this is an option, it does not address the issue of weight loss, which is still important for overall health and disease management.

The current crisis in obesity management lead Hill and Billington to conclude their 2002 article on the subject with the following statement: "It's time for the medical community to take obesity seriously. To avoid treating an obese patient is no more acceptable than to avoid treating a patient with diabetes mellitus. It's time to bring the involved parties to the table to learn how to manage obesity. The treatment of obesity must be held to the same standards as other serious diseases. (p. 970)."

In summary, obesity is a serious health threat in the Unites States, and while there are many different treatment approaches to weight management, there has been little success in achieving good results in terms of treatment outcomes especially when one considers the problem of treatment attrition. However, there has been some success in outpatient psychotherapy settings using the Outpatient Questionnaire 45.2 (OQ-45) to decrease rates of attrition and improve outcomes (Lambert et. al, 2002b).

B. Theoretical Model of the Outcome Questionnaire 45.2

Managed care companies have begun to use outcome measures in response to pressure from government agencies, insurance providers, and consumers as a way to track the effectiveness of psychotherapy interventions. Unfortunately most of these outcome measures are designed for use with specific disorders (e.g., major depression, phobias) and can often be costly. The OQ-45 was developed in a collaborative effort between two large managed care corporations and a university-based research program,

and in response to the need for a quick and economical way to assess psychotherapy outcomes that could be used in ongoing treatment (Lambert et. al, 1998).

The main task of psychotherapy is helping clients make changes in their life. Outcome research involves examination of the presence and magnitude of initial and long-term changes that result from psychotherapy (Lambert & Hill, 1994). Most recent psychotherapy outcome research operates under a clinical trials paradigm that compares the improvement of a sample of patients who received a specific psychotherapy with matched patients who receive a competing treatment, no treatment, or placebo. "Effectiveness research" investigates patient change in the context of psychotherapy as it is practiced in day-to-day clinical settings, and utilizes evaluations (e.g., post-therapy surveys or program evaluations) that typically do not have adequate experimental control. Unfortunately, effectiveness research, while being more generalizable to clinical practice, often does not affect practice because of the way that the reports are written and the time that it takes to make them available to the clinician. These features make it all but impossible to give a clinician feedback that can be used to affect treatment for the patient(s) or client(s) being studied (Lambert et. al, 2001).

There are three fundamental questions that can be asked about treatment. The first question, assessed by clinical trials, is "Does a specific treatment work under special, experimental conditions?" which is the main question asked by clinical scientists. The second question, "Does the treatment work in practice?" is asked by mental health service researchers (e.g., effectiveness research). The final question, "Is the patient's condition responding to the treatment as it is being applied?" is of daily concern to clinicians and comes from a patient-focused paradigm. Clinicians need to know the best treatment for a

patient and whether or not it is working. In addition, clinicians need this feedback during the course of treatment as they are more interesting in the assessment of the client during therapy and are not as interested in the assessment of outcomes after treatment ends (Howard et. al, 1996).

Patient-focused research attempts to discover empirical methods to improve outcomes for individual patients within an ongoing practice, and is really an extension of quality assurance efforts. This research allows predictions about patient progress and potential modification of treatment plans due to its feedback mechanism. Patient-focused research is a "bottom-up" method that ensures quality care without relying on the general finding of past research (Lambert, 2001).

C. Outcome Questionnaire 45.2

The OQ-45 was designed to assess patient progress in therapy, and predict which patients are most likely to be treatment failures through repeated administration during the course of treatment and at termination. The OQ-45 consists of 45 questions that assess a client's subjective discomfort-SD (intrapsychic functioning), interpersonal relationships-IR, and social role performance-SR. It includes items that assess intensity of symptomatic complaints (mainly anxiety and depression), problematic interpersonal relationships, and dysfunction within social roles. In addition, it includes items that measure positive mental health or quality of life (i.e., subjective well-being). Items in this instrument measure common problems across many disorders, highlighting the symptoms that are most common. In addition, items also tap certain socially and personally relevant characteristics that affect one's quality of life (Lambert et. al, 2002a; Lambert et. al, 1998).

Each item is scored on a 5-point Likert scale (0=never; 1=rarely; 2=sometimes; 3=frequently; 4=almost always) (see appendix B). This yields a possible total score of 0-180, with higher scores relating to psychopathology. Clients who change their score by 14 points, over the course of therapy (positive or negative), are considered to have made a reliable change that can then be related to outcome. The cut-off point that marks the point where a person's score is more likely to come from the dysfunctional population than a functional one was set at 64/63, and is the weighted midpoint (a value based on combined data) between the means of the normative functional and dysfunctional populations (Lambert, et al., 2004). A score of 63 or below indicates that the patient is functioning more like non-patients than patients, meaning that their overall ability to function in life is comparable to individuals who are not currently seeking psychotherapy (Lambert et. al, 2002a; Lambert et. al, 1998).

The OQ-45 was designed as a screening tool for applications in treatment management. The manual states that it can be used for the following: (1) as a measure of current psychological distress level; (2) as an outcome measure administered before and after treatments; and (3) to help facilitate the use of computerized decision support tools in psychotherapy (Lambert, et al., 2004). The OQ-45 has successfully been used to enhance psychotherapy treatment outcomes by providing useful feedback to therapists about a patient's progress (Lambert, 2002b).

Repeatedly, studies on outpatient psychotherapy using the OQ-45 have shown that providing feedback to therapists on level of patient distress, and their relative change in distress is beneficial to treatment outcomes. In these studies therapists were provided one of the four following messages based on a client's score on the OQ-45: (1) the client

is functioning in the normal range, consider termination; (2) the rate of change the client is making is in the adequate range, no change in the treatment plan is recommended; (3) the rate of change the client is making is less than adequate, consider altering the treatment plan by intensifying treatment, shifting intervention strategies, and monitoring progress especially carefully as the client may end up with no significant benefit from therapy; and (4) the client is not making the expected level of progress, chances are he/she may drop out of treatment prematurely or have a negative treatment outcome, steps should be taken to carefully review this case and decide upon a new course of action such as referral for medication or intensification of treatment, also be aware of client's readiness to change. Almost twice as many clients in the feedback groups stay in therapy longer and have improved outcomes as compared to clients in control groups. It should be noted that there were no attempts to direct clinicians' actions in regards to the feedback from the OQ-45. The goal was to simply give them feedback on their patient's progress and treatment response, and then to observe how that affected treatment outcomes (Lambert et al., 2001; Lambert et al., 2002b; Whipple et al., 2003). This is important because it demonstrates that providing a therapist with feedback on how a patient is doing in terms of psychological well-being (OQ-45 scores), can improve treatment outcomes. It is believed that the improved patient outcomes result from increased interest and investment on the part of the therapists towards patients identified as responding poorly to treatment (Lambert et al., 2005).

D. Specific Aims and Objectives

This research addressed the applicability of using the OQ-45 to predict dropout in the treatment of obesity. While the OQ-45 has been shown to be a useful tool in

predicting therapy dropouts in a clinical mental health setting (Lambert, Hansen, & Finch, 2001), it has not been assessed for use in the treatment of obesity.

Research has shown a relationship between obesity treatment and emotional status or psychological wellbeing. Wadden et al. (2001) found that the severely obese report poor emotional well-being. Yass-Reed, Barry & Dacey (1993) found that emotional difficulties are predictive of obesity treatment dropout. Obesity treatment programs have also been shown to improve the mood of participants (Wing, Epstein, Marcus, and Kupfer, 1984). Indeed, it has recommended that obesity treatment programs include a cognitive behavioral component (National Task Force on the Prevention and Treatment of Obesity, 2000). It is clear that psychological well-being has some relation to obesity and its treatment. For these reasons it was believed that the OQ-45, which was designed to measure psychological well-being in outpatient psychotherapy, would have utility in the treatment of obesity especially in terms of improving treatment outcomes. The research questions were:

1. Do cutoff scores on the pretreatment OQ-45 predict obesity treatment attendance at the following (second) session?
2. Do cutoff scores on the pretreatment OQ-45 predict completion of the obesity treatment program (or conversely, dropout) as determined by attendance of at least 4/8 treatment sessions?
3. Do cutoff scores on the pretreatment OQ-45 predict initial program success, as measured by weight loss of 1-2 lb./wk by the final session attended if the participant attended at least four of eight treatment sessions?

4. Do cutoff scores on the pretreatment OQ-45 predict program completion controlling for gender, ethnicity, and BMI?
5. Do cutoff scores on the pretreatment OQ-45 predict initial weight loss controlling for gender, ethnicity, and BMI?

E. Implications for Preventive Care and Psychology

As noted above there are many options when it comes to obesity treatment. Unfortunately the outcomes of obesity treatment are poor, in part due to poor attendance and high dropout rates. After studying the literature on weight loss and behavior modification programs, researchers found that one can expect to lose approximately 22 pounds during an average 18-week program. Unfortunately 33% of this weight will be regained in the first year after the treatment program, with a 90% - 95% relapse rate after 2 years (Friedman, 2000; Foreyt, & Goodrick, 1993; Kramer et al., 1989). It is important to keep in mind that these high relapse rates are for individuals who complete treatment programs. Individual dropout rates for treatment programs are high, with rates of 80% being documented for certain programs (NIH Technology Assessment Conference Panel, 1993).

The OQ-45 has also been used to determine differences in the effectiveness of therapists by analyzing the rate at which their patients showed improvements as measured by changes in scores on the OQ-45 (Okiishi, Lambert, Nielsen, & Ogles (2003). It has even been used by the Consumer Reports magazine to determine the success of psychotherapy (Neilsen et al. (2004). But while the OQ-45 has been normalized and used on a broad cross-section of clinical populations, it has never been studied in the treatment of obesity. If it is possible to norm the OQ-45 for use in obesity treatment it could be

used to help clinicians and treatment providers identify patients who are at risk for dropping out of treatment and in need of additional interventions. In the long run this may increase the number of patients who complete treatment and help improve treatment outcomes.

CHAPTER 2

REVIEW OF LITERATURE

A. Weight Loss Goals in Obesity Treatment Programs

Research demonstrates that weight reductions of 5 - 10% are effective in reducing or eliminating certain disorders (e.g., CVD, type 2 diabetes) associated with obesity (Blackburn, 1995). Indeed, reviewers of obesity treatment often recommend weight loss in the 10% range (Fabricatore & Wadden, 2003; Finer, 2003; NIH, 1998). Most obesity researchers recommend that weight loss goals should be no more than 1-2 pounds per week (Finer, 2003; Labib, 2003; Noel & Pugh, 2002; NIH, 1998).

Unfortunately these goals do not always match patient's goals. In a study of this topic, Foster et al. (1997) found that patient's weight loss goals averaged 32% (vs. 10%) by the end of the program, and reported that physical discomfort and appearance were the most important reasons for selecting their goal weight. Even after losing an amount of weight that more closely matched treatment recommendations and experiencing physical and psychosocial benefits, patients were still dissatisfied with their weight loss.

A similar study found that women desired weight loss of up to 42% as compared to a personal goal of 29% for men (Linne et al., 2002). This gender bias may be explained by one's motivation for weight loss. Researchers have found women are more likely to attempt weight loss due to concerns about physical appearance whereas men are more likely to attempt weight loss due to concerns for their health (Cheskin & Donze, 2001).

In summary, experts recommend that weight loss goals should not exceed 1-2 pounds per week for whatever time period is needed for the obese individual to a lose

10% of their total weight. Therefore in this study, initial weight loss was considered successful if the individual lost at least one pound per week by the end of treatment eight weeks later.

B. Success of Obesity Treatment Programs

Obesity remains a serious health risk in the U.S. after years of research and a multitude of obesity treatment programs. Survey data indicate that as many as 33 - 40% of women and 20-24% of men are trying to reduce their weight. Furthermore 28% of males and females are trying to maintain their weight. There has been little, if any, success in preventing and treating obesity evidenced by the continuing rise in the prevalence of obesity (CDC, 2003).

The most comprehensive review of obesity treatment can be found in the *Clinical Guidelines on The Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report* produced by the NIH (1998). Reviews of 34 randomized controlled trials (RCT) assessing the efficacy of low calorie diets (LCDs) found that LCDs typically resulted in 8% weight loss over 3-12 months, regardless of treatment duration. In 25 of the studies, treatment duration was $\geq$ 6 months and the rest ranged from 3-6 months. Reviews of 15 RCTs that combined physical exercise with a LCD found similar results to LCDs alone, with the addition of increases in cardiovascular fitness. A review of 22 RCTs of obesity programs that utilized behavior therapy strategies to reinforce changes in diet and physical activity, found that a weight loss of 10% could be achieved over four months to one year. The report goes on to state that because weight loss typically declines after six months, treatment providers and patients should focus on weight management and maintenance thereafter (NIH, 1998).

Other reviewers have found that weight loss averages about one pound each week during weight loss programs with 60-70% of the weight loss maintained for one year (Brownell & Wadden, 1992). Summerbell, Jones, and Glasziou (1998) conducted a meta-analysis of 119 weight loss programs and concluded that low fat diets and low energy diets are basically the same in terms of weight loss outcomes.

Unfortunately, regardless of approach, most individuals (>90%) who lose weight will eventually relapse to their original weight, typically at the 3-5 year mark (Friedman, 2000; NIH, 1993; Brownell & Wadden, 1992).

1. Predicting Obesity Treatment Outcomes

Predicting obesity treatment outcomes (e.g., treatment completion, successful weight loss) can be difficult. In a study of 60 obese women, researchers found that the more initial health related dysfunction reported, the more weight regained after treatment. Baseline psychological characteristics (positive vs. negative mood states) did not predict program adherence or weight loss. In addition, while subjective predictions of success after three weeks predicted short-term and total weight loss, they did not predict the ultimate outcome two years later (Karlsson et al., 1994).

Weight loss partners are also related to treatment outcomes. Gorin et al. (2005) found that participants of weight loss programs who had at least one successful weight loss partner (who lost $\geq$ 10% by 6 months) lost significantly more weight at 6, 12, and 18 months compared to those with unsuccessful partners and those without partners, demonstrating the role psychosocial and emotional support plays in obesity treatment.

Other research has focused on using psychological tests or measures to predict obesity treatment outcomes. Researchers studying weight loss in a hospital-based

program found that baseline psychological functioning, as measured by the Brief Symptom Rating Scale and the Bulimic Investigatory Test was not predictive of weight loss at the completion of the treatment program. However, while baseline level of mood and binge eating status did not predict compliance or weight reduction, individuals with a higher degree of weight loss experienced greater improvements in more dimensions of emotional functioning (Tseng et al., 2002). In a related study, Poston, Ericsson, Linder, Nilsson, Goodrick, & Foreyt (1999) attempted to determine if stable personality traits (e.g., neuroticism, extroversion) as measured by the Karolinska Scales of Personality (KSP), were predictive of weight loss. The KSP did not predict initial weight loss after the treatment program or 12-month relapse status. Similar difficulties with predicting outcomes have been seen with other types of psychological measures as well.

Researchers have attempted to predict treatment outcomes with self-report measures of dieting readiness and self-efficacy. In one such study, researchers examined the psychometric and predictive properties of the Dieting Readiness Test (Fontaine, Cheskin, & Allison, 1997). After studying a group of 410 obese adults, the researchers found that although the DRT was psychometrically sound, it was not a strong predictor of weight loss or program attendance. In addition, the Weight Efficacy Lifestyle Questionnaire was found to be psychometrically sound, but not predictive of treatment attendance or weight loss (Fontain & Cheskin, 1997). Researchers used the Stages of Change Questionnaire (SCQ) to try to predict program attendance and treatment outcomes; results indicate that the SCQ did neither (Macqueen, Brynes, & Frost, 1999). Finally, in a review of 25 research studies using the Eating Behavior Inventory (EBI), O'Neil and Rieder (2005) found that the amount of change in scores on the EBI

consistently correlates in a positive manner with the weight loss experienced by individuals undergoing obesity treatment. Only one of the studies reviewed found that baseline EBI score predicted treatment dropout. Thus most self-report measures used to predict obesity treatment outcomes are not able to demonstrate an associating between score and outcomes, one exception being the EBI.

2. Predicting Obesity Treatment Dropout

Another important aspect of obesity treatment outcomes is program attrition. Davis and Addis (1999) conducted a review of 20 behavioral medicine groups, including 13 weight loss programs, in an attempt to determine predictors of program dropout. They found that psychological variables (e.g., emotional problems) and severity of symptoms were more predictive of attrition, which averaged 32% among the weight loss programs, than demographic variables such as age and income. In a related study of attrition, researchers examined 143 adults in a multidisciplinary obesity treatment program and found that higher levels of depression, psychiatric comorbidity, current smoking, being sedentary, and having non-treated hypertension were all associated with treatment attrition (Clark, Niaura, King, & Pera, 1996). Pekarik, Blodgett, Evans, and Weirzbicki (1984) followed 52 women in a university based weight loss program. They found that early dropouts had high anxiety compared to late dropouts and those who completed the program. Reviews of obesity treatment program attrition have identified some features common to those individuals who drop out from treatment early. These features are greater weight loss expectations, greater weight gain in the two weeks prior to the program, and lower expectations of family support (Pratt, 1989: Fowler, Follick, Abrams, & Rickard-Figueroa, 1985).

Other researchers have examined motivation for weight loss and its relation to program outcomes including attrition. Williams, Grow, Freedman, Ryan, and Deci, (1996) studied 128 patients in an *Optifast* (VLCD) treatment program. They found that the degree of a patient's autonomous motivation (i.e., behavior chosen as an expression of one's self where a complete sense of choice was involved) for seeking treatment predicted greater weekly attendance, weight loss, and weight loss maintenance at 23 months. Researchers studying the *Optifast* combined with behavior therapy, found certain variables that were most predictive of treatment dropout. These variables included fewer number of past diets, history of emotional difficulties, expected stress in the coming six months, and fewer close friends (Yass-Reed, Barry, & Dacey, 1993).

Van Staden, and Gerhardt (1991) conducted a survey of 50 obese individuals who had previously dropped out of an obesity treatment program in an effort to determine factors common to these individuals related to their treatment experience. The researchers found that motivational issues, perception of self, psychosocial constraints, and previous experience with weight loss programs were all related to treatment dropout. The researchers found that motivational issues were the most important with the two biggest being related to participants' doubt about their own ability to maintain the goal weight set by the program and the decision to rejoin a weight loss program was found to be more difficult that the initial enrollment. Psychosocial problems such as an increase in antisocial feelings as weight decreased were also noted by a few individuals.

From the above research it appears that stable personality features such as introversion and extroversion are not predictive of obesity treatment outcomes, but that overall psychological distress may show some ability to predict outcomes such as

treatment dropout and attrition. Additionally, while participant motivation and psychosocial support seem to be predictive of outcomes, more sophisticated measures developed to predict obesity treatment outcomes do not.

C. Obesity and Mental Health

The relationship between obesity and mental health or psychological well-being is complex. When exploring this topic one has to examine not only the obese individual's mental health, but their interaction with society and how obesity treatment affects their emotional status.

1. Obesity and Psychological Distress

Research attempting to link obesity with mental health has been mixed. In a literature review of this topic, Valtolina (1996) discovered that some researchers found associations of obesity and personality disturbances, impaired social adjustment, and emotional disturbance and immaturity, while others found no substantial evidence linking obesity with psychopathology. Carpenter et al. (2000) found that the relationship between relative body weight and clinical depression was different based on gender. Obesity was associated with an increased risk of major depression for women, but a decreased risk among men. In a study of 1,730 individuals, Dong, Sanchez, and Price (2004) found that extreme obesity was correlated with an increased risk for depression across gender and racial groups, even after familial depression, chronic physical disease, and demographic risk factors were controlled for. Thus it appears that the relationship between obesity and psychopathology is not always clear.

2. *Obesity and Psychosocial Distress*

Individuals who are obese are often stigmatized at work and in social settings (Friedman, 2000). Rogge, and Greenwald (2004) reported that obese individuals described frequent experiences of being discriminated and stigmatized in their daily life, on the basis of their weight. Klaczynski, Goold, and Mudry (2004) found a negative correlation between negative attitudes toward obesity and self-esteem that was primarily mediated by the belief that obesity is caused by personality shortcomings. Evans, Rich, and Davies (2004) suggest that part of the reason for society's negative and stigmatizing view of obesity, is the way that the obesity industry including science uses language that is meant to cause alarm and fear. Tabloids for example with use words like war, crisis and terrifying when introducing an article on obesity.

Obesity is also related to negative psychosocial consequences. The majority of severely obese (BMI $\geq$40), especially those who apply for bariatric surgery report a decrease in health-related quality of life. Other studies of bariatric surgery candidates show significant levels of eating disorder psychopathology (Grilo et al., 2005). In addition, the severely obese report poor emotional well-being and functional status (Wadden et al., 2001). Thus it appears that society tends to stigmatize individuals who are obese, which can lead to emotional distress and decreased quality of life, which can in turn make it challenging for weight loss interventions to be successful.

3. *Obesity Treatment and Psychopathology*

Other research has linked obesity treatment with improved psychological outcomes. Renjilian et al. (2001) found that psychological functioning, as measured by the Symptom Checklist 90 and the Beck Depression Inventory, improved at the

completion of treatment regardless of treatment type (e.g., individual vs. group therapy). In a review of the literature, French and Jeffery (1994) found that while early studies of weight loss showed that dieting had negative psychological effects (e.g., increased depression, anxiety, and irritability), more recent studies find that obesity treatment leads to more positive effects (e.g., increased mood, feeling of well-being, and decreases in depression). Researchers studying variables related to continued obesity treatment attendance concluded their article by saying that the implementation of weight loss programs that did not attend to emotional issues could lead to participant frustration and eventual program failure (Pekarik et. al, 1984).

Research using the MMPI to determine if psychopathology was associated with obesity and obesity treatment found that levels of Hypochondriasis, Depression, and Social Introversion all decreased in patients attending a clinical weight loss program. In addition, patients whose scores were the most elevated at baseline experience the greatest reductions (Valtolina, 1996). Wadden et. al (1992), studied 76 obese women in an attempt to determine, among other things, the psychological correlates of weight loss. They found that higher scores on the Beck Depression Inventory predicted greater weight loss, and proposed that individuals who suffer greater dysphoria may be more motivated to comply with treatment, which appears to contradict prior research. Elfhag et al. (2004), found that signs of perceptual and cognitive distortions on the Rorschach test predicted less weight loss, while more weight loss was correlated with Food Contents, which is a specific way of responding to certain items on the test.

Wing, Epstein, Marcus, and Kupfer (1984) reviewed 10 studies that investigated the relationship between weight loss and mood change in behavioral weight loss

programs. The studies reviewed suggested that participation in behavioral weight loss programs may be associated with decreasing levels of anxiety and depression. They noted that while the magnitude of change was not large, this would be expected because the patients in the studies investigated were not clinically depressed or anxious.

In conclusion, the research linking obesity with psychopathology has been somewhat mixed with studies finding that obesity is linked to certain kinds of psychopathology and others finding no such link. However, most studies found that obesity treatment does tend to result in improved psychological functioning.

D. Possible Factors Related to Obesity Treatment Failure

While the simple answer as to why obesity treatment fails is that an individual's net caloric expenditure fails to exceed or equal their net caloric intake, researchers have suggested that weight regain is due to complex interactions between many factors including physiological, environmental and psychological factors (Khaodhiar & Blackburn, 2002). In review of this topic Hill and Wyatt (1999) determined that weight regain is due more to "environmental relapse" than "metabolic relapse." Most obese individuals simply find it impossible to maintain appropriate diet and physical activity patterns in an environment that promotes energy intake and not physical activity.

In a study exploring relapse and coping among dieters, researchers identified three main types of relapse crises: mealtime, especially those involving meals and social gatherings; low-arousal, occurring mostly at home while feeling "OK" or bored, and often precipitated by food stimuli or hunger; and emotional upset situations, that resulted from negative emotions typically experienced at home. Upset situations typically result in overeating especially if food-related cues were present. Cognitive and behavioral coping

strategies were found to be associated with positive outcomes, if they were employed (Grilo, Shiffman, & Wing, 1989). In another study of this topic, researchers identified the following psychological factors associated with weight regain: failure to achieve weight goals and dissatisfaction with their success, evaluation of self-worth based on physical shape/weight, a dichotomous or black/white thinking style (e.g., individuals thinking a program is a complete failure if they have not achieved their personal goals), and the tendency to use food to regulate one's mood. The authors concluded by saying that psychological factors could provide an explanation of why so many people fail to maintain weight loss after initial successes (Byrne, Cooper, & Fairburn, 2003).

1. Treatment Drop-Out

One explanation of treatment failure is obesity treatment program attrition. As previously mentioned, individual dropout rates for obesity treatment programs can be as high as 80% for certain kinds of programs (NIH, 1998). Some reviewers have found that attrition is typically around 10% - 15% for most programs (Brownell & Wadden, 1992), while other studies report rates of 23% (Wadden et al., 1997). Grace, Summerbell, and Kopelman (1998) conducted a study of a specialist weight loss clinic and found that 38% of newly referred patients failed to attend their first appointment, 21% failed to attend their second and only 41% attended the clinic regularly.

Pratt (1989) conducted a review of the literature on obesity treatment attrition and found that rates vary between 0.5% and 83% in worksite weight loss programs compared 23% to 64% in clinic-based programs and 50% to 95% in commercial weight loss programs. Definitions of attrition varied among the different studies, from a definition that emphasized the percentage of dropouts by the completion of the program to one that

defined attrition as the percentage of participants who did not attend at least 4 out of 12 treatment sessions.

In the early 1990s, the American Council on Science and Health investigated some of the most financially successful diet programs and among other things, reported the following program attrition rates: *Jenny Craig*, 90%; *Medifast* 65%; and *Optifast*, 60% (Woznicki, 1991). While there is considerable variability in obesity treatment attrition rates, it is enough of a concern that researchers have warned that treatment weight losses are actually overestimated because they often fail to take program attrition into account (Rapoport, 1998).

In summary, there are many factors that contribute to the poor outcomes of obesity treatment programs. The factors include the failure of individuals to adhere to a healthy diet, and dissatisfaction after when unable to achieve their own weight loss goals. Still another serious factor that is related to the poor outcomes in obesity treatment is treatment program attrition with figures being documented as high as 80% or even 90% for some commercial programs.

E. Conclusion

Current guidelines are that obesity treatment weight loss goals should range from 5% - 10% of total weight, lost in 1-2 lb./wk increments (Fabricatore & Wadden, 2003; Finer, 2003; NIH, 1998; Labib, 2003; Noel & Pugh, 2002). While many treatment programs are successful at helping those who complete the program lose between 5% and 10% of their body weight in the first year following treatment (NIH, 1998), more than 90% of all individuals regain that weight in 3-5 years (Friedman, 2000; NIH, 1993; Brownell & Wadden, 1992). Obesity treatment failure is related to many physiological,

environmental, and psychological factors (Khaodhiar & Blackburn, 2002). In addition, the high rate of attrition from obesity treatment is a significant complication that leads to even lower success rates (Wadden et al., 1997; Brownell & Wadden, 1992). While some psychological factors predict treatment success (Clark et al., 1996), these findings have not always been stable. Therefore, there is a need to further study what factors predict attrition and weight loss, and then explore what can be done to then improve those outcomes. The knowledge gained from this study may be useful in helping more individuals complete obesity treatment, which can benefit their health.

CHAPTER 3

METHOD

A. Design

This study involved a non-experimental time series design. Participants were asked to complete the OQ-45 at the beginning of treatment (baseline) and at the beginning of each subsequent treatment session.

B. Participants

Seventy-eight Participants were recruited from three local area obesity treatment programs; Beaver Medical Clinic's eight week *Lifestyle* program, the Lite-Weigh's eight week *Pathways* obesity program, and Loma Linda University Center for Health Promotion's (LLUCHP) variable length *Optifast* program.

C. Sample Size

Seventy-eight adult (age $\geq$18) participants were recruited from three different obesity treatment centers by program staff. Of the total sample, 22 (24.7%) were male, 55 (61.8%) were female. Seventy-six (85.4%) spoke English as their primary language, while 1 (1.1%) Spoke Spanish as their primary language. The average baseline BMI for the sample was 39.70 (SD = 10.29). Fifty (56.2%) of the total sample identified themselves as Caucasian, 5 (5.6%) as African American, 15 (16.9%) as Hispanic, 3 (3.4%) as American Indian, 4 (4.5%) as Other.

There were 21 participants in the *Optifast* program, 10 males and 11 females, with a mean baseline BMI = 40.43 (SD = 10.71). There were 36 participants from the *Pathways* program, 8 males and 28 females, with a mean baseline BMI = 40.18 (SD =

10.38), and 21 individuals were recruited from the *Lifestyle* program, 4 males and 17 females, with a mean baseline BMI = 38.17 (SD = 10.11).

D. Description of Obesity Treatment Programs

Beaver Medical Clinic's *Lifestyle* program is a 12-week program that emphasizes nutritional changes to aid in weight loss. Upwards of 60 individuals enroll in the class, which is offered every 8-weeks. The *Lite-ways* obesity program is an 8-week program that focuses on making better nutritional choices and increasing exercise. There are 15-20 individuals enrolled in this program at any given time. Loma Linda University Center for Health Promotion's (LLUCHP) *Optifast* program is a very low calorie meal replacement program that also includes lectures on activity and stress management. The *Optifast* program has no set beginning or end time and groups average around eight each week. Participants complete the first portion of the program when they have lost 10% of their initial weight or by the end of week 12. All programs include both men and women, and multiple ethnic groups.

E. Study Variables

The variables assessed in this study were: demographics (gender, ethnicity, primary language); OQ-45 score; dropout status defined as attending at least four of eight sessions; and success at the end of the treatment program as defined by 1-2 pounds/week of weight loss by the end of the obesity treatment program.

The independent (predictor) variable was the OQ-45 score at baseline. More specifically, scores were categorized into those that fall below the clinical cutoff score of 64 and those who met or exceeded this cutoff. This cutoff score has been used previously to categorize individuals into those who are more similar to the general population (OQ-

45 score <64) and those who are more similar to individuals undergoing outpatient psychotherapy (OQ-45 score ≥64). Pretreatment OQ scores thus categorized were used to predict success at the end of the treatment program and obesity treatment dropout (or conversely, program completion.

The dependent (outcome) variables measured were the following: 1) attendance at the following (second) treatment session (categorical), analyzed for the second session only; 2) program completion (categorical), as measured by attendance of at least four of eight treatment sessions; and 3) initial weight loss by the end of eight weeks of the program averaging 1-2 pounds per week (categorical).

F. Measurements

The questionnaire used in this research was the OQ-45 (see example in Appendix B). The student license fee ($30) was paid and the right to reproduce and use the questionnaire for research during graduate training obtained from the authors. The OQ-45 consists of 45 questions that assess a client's subjective discomfort-SD (intrapsychic functioning), interpersonal relationships-IR, and social role performance-SR. Normative data for the OQ-45 has been reported from across the country. It has an internal consistency of $\alpha = 0.93$ and 3-week test-retest (without treatment) value of $r = 0.84$ (Lambert et al., 1996a; Lambert et al., 1996b). Concurrent validity of the OQ-45 has been assessed and found to be significant at the $p = 0.01$ level with the following tests: SCL-90R (0.73), BDI (0.80), Taylor manifest anxiety scale (0.86), STAI (0.64 for state anxiety; 0.80 for trait anxiety), Inventory of Interpersonal problems (0.66), and the Social Adjustment Scale (0.65) (Lambert et al., 2002a; Lambert et al., 1996b). A factor analysis conducted by Mueller, Lambert, and Burlingame (1998), found that a single distress

factor that can be derived from the OQ-45, although confirmatory analysis identified the three subscale scores of subjective discomfort, interpersonal relationships, and social role performance.

G. Data Collection

Questionnaires were collected from each site by the researcher, who then entered the information into a database. Each treatment program director received a group of questionnaires and a letter of intent document (LID) (see Appendix A) to include in the paperwork of the program. The LID was included with the initial questionnaire in order to explain the purpose, procedures, risks, and benefits of the study. Questionnaires were included in the preliminary treatment program paperwork and provided at the beginning of each subsequent treatment session. Each questionnaire was identified by the use of the participants' father or father figures initials in an effort to assure participant anonymity while allowing matching of multiple questionnaires for each participant to be collected and tracked over time.

H. Ethical Issues

All questionnaires included a LID, a letter of appreciation, the OQ-45, and the demographic data sheet including weight. Data entry was completed and the surveys stored in a locked file cabinet in the investigators office. The study protocol was approved by the Loma Linda University Institutional Review Board (IRB) prior to initiating the study.

I. Data Analysis.

Data analysis was as follows for the given research questions:

1. Do cutoff scores on the pretreatment OQ-45 predict obesity treatment attendance at the following (second) session?

   A Chi-square analysis was conducted between pretreatment OQ-45 scores (categorized based on the clinical cutoff score of 64+) and program status (i.e., whether or not they returned for the following treatment session).

2. Do cutoff scores on the pretreatment OQ-45 predict completion of the obesity treatment program (or conversely, dropout) as determined by attendance of at least 4/8 treatment sessions?

   A Chi-square analysis was conducted between pretreatment OQ-45 scores (categorized based on the clinical cutoff score of 64) with completion of the treatment program as measured by attending at least 4/8 sessions.

3. Do cutoff scores on the pretreatment OQ-45 predict initial program success, as measured by weight loss of 1-2 lb./wk by the final session attended if the participant attended at least four of eight treatment sessions?

   Next a Chi-Square analysis was conducted between pretreatment OQ-45 scores (categorized based on the clinical cutoff score of 64) and weight loss (i.e., whether or not the participant lost 1-2 lb./wk during the program).

4. Do cutoff scores on the pretreatment OQ-45 predict program completion controlling for gender, ethnicity, and BMI?

   A logistic regression analysis was used to compare the pretreatment OQ-45 score with completion of the treatment program as measured by attending at least four of eight sessions while controlling for site, gender, ethnicity, and BMI.

5. Do cutoff scores on the pretreatment OQ-45 predict initial weight loss controlling for gender, ethnicity, and BMI?

   A logistic regression analysis was used to compare the pretreatment OQ-45 score with initial program success, as measured by weight loss of 1-2 lb./wk by the end of the obesity treatment program while controlling for site, gender, ethnicity, and BMI.

CHAPTER 4

PUBLISHABLE PAPER

Using the Outcome Questionnaire 45.2 in Obesity Treatment

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Abstract

Purpose: The purpose of this study was to determine if the Outcome Questionnaire 45.2 (OQ-45) [1] can be used in the treatment of obesity to predict participant dropout and initial treatment success, in terms of weight loss. The OQ-45 has been used with success to predict dropout from psychotherapy in clinical populations. It was hypothesized that higher pretreatment OQ-45 scores would be associated with treatment program dropout and less weight loss at the end of treatment.

Method: The study employed a non-experimental time series design. Seventy-eight participants were recruited from three local obesity treatment programs, which varied in length from 8 to 12 weeks. Participants were asked to complete the OQ-45 and report their current weight at the beginning of each treatment session.

Analysis: Of the 76 participants with valid pretreatment OQ-45 scores, 27.6% had scores at or above the cutoff value of 64, indicating psychological distress. One-third (32.9%) of participants completed their treatment program by attending at least half of the eight sessions. Participants with high versus low OQ-45 cutoff scores were significantly less likely to complete the treatment program (14.3% vs. 40.0%, $p = 0.03$). Pretreatment OQ-45 cutoff scores did not predict either attendance at the following (second) treatment session or weight loss success. Even when controlling for gender, ethnicity, and treatment site, high OQ-45 scores predicted program dropout (OR = 4.41 [95% CI = 1.07 – 18.10] p=.039), but not weight loss failure.

Discussion and Conclusion: Obesity has proven to be especially difficult to treat, in part due to the high attrition rates from treatment programs. This study demonstrates

the potential use of the OQ-45 in obesity treatment to predict participants who are more likely to drop out of treatment. This may allow health care professionals to focus attention on those at increased risk for attrition, thereby improving treatment outcomes.

Introduction

Obesity, as defined by a Body Mass Index (BMI) of at least 30, is a serious problem in the U.S. and the rest of the world, earning the terms epidemic or even pandemic. Studies estimate that in the U.S. 25% of adult women and 20% of adult men can be classified as obese.[2] If one includes individuals who are considered overweight (BMI 25.0-29.9) the number increases to 65% for all adults age 20 years and over based on data collected from NHANES III.[3] Recent statistics indicate that 127 million adults in the U.S. are overweight, 60 million obese, and 9 million severely obese.[4]

Obesity is a major public health problem associated with significant increases in morbidity and mortality.[5]The potential negative consequences of obesity are many, with insulin resistance, diabetes mellitus, hypertension, dyslipidemia, and coronary heart disease among some of the more common and potentially severe comorbidities. Obesity is also related to sleep apnea, osteoarthritis, cholelithiasis, infertility and an increased risk of breast, uterine, colon, prostate and cancers.[2, 6] A longitudinal population-based study by Whitmer et al. (2005) found that being obese in middle age increased the risk of future dementia independent of other comorbid conditions.[7]

Obesity Treatment Outcomes

Unfortunately there has been little success in preventing and treating obesity as seen by the continuing rise in the prevalence of obesity and the low success rates of treatment programs.[3] Regardless of approach, most individuals (>90%) who lose weight

will eventually relapse or surpass their original weight.[5, 17, 18] These outcomes are even worse when one considers that many individuals never even complete treatment with attrition being as high as 80% in some programs.[20]

Predicting obesity treatment outcomes, including program completion, is challenging but necessary to improve the success rate of treatment programs. In a study of 60 obese women, researchers found that the more initial health related dysfunction reported, the more weight regained after treatment. Baseline psychological characteristics were not predictive of program adherence or weight loss. In addition, while subjective predictions of success after three weeks in a program predicted short-term and total weight loss, they did not predict successful weight loss maintenance two years later.[22]

Davis and Addis (1999) reviewed 13 weight loss programs in an attempt to determine predictors of program dropout.[30]They found that psychological variables (e.g., emotional problems) and severity of symptoms were more predictive of attrition than demographic variables. Obesity treatment attrition averaged 32%, with early dropouts experiencing higher levels of emotional distress, and late dropouts experiencing less anxiety about self-managing a chronic condition. In a related study of attrition, researchers examined 143 adults in a multidisciplinary obesity treatment program and found that higher levels of depression, psychiatric comorbidity, current smoking, being sedentary, and having non-treated hypertension were all associated with treatment attrition.[31]

Reviews of obesity treatment program attrition identify features common to those individuals who drop out from treatment early. These features are greater weight loss expectations, greater weight gain in the two weeks prior to the program, and lower

expectations of family support.[32,33]However, there has been little success in consistently identifying variables on which to intervene.

Researchers have examined motivation for weight loss and its relation to program outcomes. Williams et al. studied 128 patients in an *Optifast* (VLCD) treatment program and found that the degree of a patient's autonomous motivation (i.e., behavior chosen as an expression of one's self where a complete sense of choice was involved) for seeking treatment predicted weekly attendance and the maintenance of weight loss at 23 months.[34] In a similar study of a combined *Optifast* and behavior therapy, researchers found variables that predictive of treatment dropout included the number of past diets, history of emotional difficulties, expected stress in the coming six months, and number of close friends.[35]

Van Staden and Gerhardt conducted a survey of 50 obese individuals who had previously dropped out of an obesity treatment program in an effort to determine factors common to these individuals related to their treatment experience.[36] Motivational issues, perception of self, psychosocial constraints, and previous experience with weight loss programs were all related to treatment dropout.

Obesity is a serious health threat in the Unites States, and while there are many different treatment approaches to weight management, there has been little success in achieving good results in terms of treatment outcomes, in part due to the high dropout rates. However, there has been some success in outpatient psychotherapy settings using the OQ-45 to decrease rates of attrition and improve outcomes.[37]

Outcome Questionnaire 45.2

One method of improving outcomes in therapy is the use of the Outcome Questionnaire-45.2 (OQ-45), which was designed to assess patient progress in therapy, and predict which patients are most likely to be treatment failures through repeated administration during the course of treatment and at termination. The OQ-45 consists of 45 questions assessing a client's subjective discomfort (SD) (intrapsychic functioning) (e.g., "I am a happy person," and "I feel hopeless about the future,"), interpersonal relationships (IR) (e.g., "I get along well with others", and "I feel lonely"), and social role performance (SR) (e.g., "I work/study too much"). It includes items that assess intensity of symptomatic complaints (mainly anxiety and depression), problematic interpersonal relationships, and dysfunction within social roles. In addition it includes items that measure positive mental health or quality of life (i.e., subjective well-being). Items in this instrument measure common problems across many disorders, highlighting the most common symptoms. Items also tap certain socially and personally relevant characteristics that affect one's quality of life.[1, 38]

Each item is scored on a 5-point Likert-type scale (0=never; 1=rarely; 2=sometimes; 3=frequently; 4=almost always), yielding a possible total score between 0-180, with higher scores relating to pathology. Clients who change their score by 14 points (positive or negative) are considered to have made a reliable change that can then be related to either positive or negative outcomes. Such individuals may be labeled as "improved," "recovered," "unchanged," or "deteriorated." The cut-off point that marks the point where a person's score is more likely to come from the dysfunctional population than a functional one was estimated to be 64 based on a weighted midpoint (a value based

on combined data) between the means of functional and dysfunctional normative populations. A score of 63 or below indicates that the patient is functioning more like non-patients than patients, meaning that their overall ability to function in life is comparable to individuals not currently seeking psychotherapy.[1, 38]

The OQ-45 has successfully been used to enhance psychotherapy treatment outcomes through the use of feedback. In these studies therapists were given one of the four following messages based on a client's score on the OQ-45: 1) the client is functioning in the *normal range*, consider termination; 2) the rate of change the client is making is in the *adequate range*, no change in the treatment plan is recommended; 3) the rate of change the client is making is *less than adequate*, consider altering the treatment plan by intensifying treatment, shifting intervention strategies, and monitoring progress especially carefully as the client may end up with no significant benefit from therapy; and 4) the client is *not making the expected level of progress*, chances are he/she may drop out of treatment prematurely or have a negative treatment outcome; as such, steps should be taken to carefully review this case and decide upon a new course of action such as referral for medication or intensification of treatment, and also be aware of client's readiness to change. Almost twice as many clients in the feedback groups stay in therapy longer and have improved outcomes as compared to clients in control groups. It is important to note there was no intervention other than the feedback about the clients' OQ-45 scores.[1, 37, 39]

This study addressed the applicability of using the OQ-45 in the treatment of obesity. While the OQ-45 has been shown to be a useful tool in predicting therapy dropout in a clinical mental health setting, [40] it has not been assessed for use in the

treatment of obesity or to predict next session dropout. It was hypothesized that because emotional distress has been associated with obesity and with poor outcomes from obesity treatment, the OQ-45 would predict outcomes in obesity treatment. The present study examined the role of the OQ-45 in obesity treatment. In particular, it was expected that high OQ-45 cutoff scores would predict program dropout and program failure (i.e., in terms of initial weight loss).

Method

Design

This study was a non-experimental time series design. Participants completed the OQ-45 and current weight at the beginning of treatment and at the beginning of each subsequent treatment session. Participants were recruited from three local area obesity treatment programs: The Beaver Medical Clinic's *Lifestyle* program, the Lite-Weighs *Pathway* program, and Loma Linda University Center for Health Promotion's (LLUCHP) *Optifast* program. The study protocol was approved by the LLU Institutional Review Board (IRB) prior to initiating the study.

Description of Obesity Treatment Programs

Beaver Medical Clinic's *Lifestyle* program is a 8-week program that emphasizes nutritional changes to aid in weight loss. Upwards of 60 individuals enroll in the class, which is offered every eight weeks. The *Pathways* obesity program is an 8-week program that focuses on making better nutritional choices and increasing exercise. There are 15-20 individuals enrolled in this program at any given time. The LLUCHP *Optifast* program is a very low calorie meal replacement program that also includes lectures on physical activity and stress management. The *Optifast* program has no set beginning or end time

and group sizes average around eight participants each week. Participants typically complete the first portion of the program after 10-12 weeks. All programs include both men and women, and multiple ethnic groups.

Data Collection

Treatment program directors received a group of OQ-45 questionnaires, which they distributed to participants at the beginning of treatment and each subsequent treatment session. Each questionnaire was identified by the use of the participants' father or father figures initials in an effort to maintain participant anonymity while allowing multiple questionnaires for each participant to be collected and tracked over time. Each study packet included a demographic sheet where participants recorded their gender, ethnicity, height, and weight. While participants self-reported their weight (either at the beginning or end of the session), each program site did have a scale that group members used each week. BMI was calculated using the self-reported height and weight measurements. Data were collected up to eight weeks.

Results

Demographics

Of the total sample (N = 78), 22 (28.6%) were male, 55 (71.4%) were female. Over half (64.9%) identified themselves as Caucasian, 6.5% as African American, 19.5% as Hispanic, 3.9% as American Indian, and 5.2% as Other. The average baseline BMI for the sample was 39.82 (SD = 10.3). There were 21 participants (10 males and 11 females) in the *Optifast* program, 36 participants (8 males and 28 females) from the *Pathways* program, and 21 individuals (4 males and 17 females) from the *Lifestyle* program. Of the 46 participants with at least two weight measurements, just over half (54.3%) reached the

recommended weight loss of 1-2 lbs per week. They also showed an average weight loss of -6.42 (or a -2.5% drop) and an average decrease in BMI of 1.15 (or a 2.9% drop). For all participants, just over half (51.3%) attended the second treatment session, and the average number of sessions completed was 2.78, with 28 (35.9%) attending only the first session. See Table 1 for sample characteristics.

Seventy-eight participants completed a baseline OQ-45 with a mean pretreatment score of 52.87 and a range of 20 to 110, with 28.2% had scores at or above 64 (see Table 2). Due to extreme pretreatment values and variability in OQ-45 scores for two participants, they were dropped from the analysis, resulting in 76 participants. Of those, 21 (27.6%) of the pretreatment OQ-45 scores were at or above the cutoff (64+), and 39 (51.3%) attended the second treatment session. Overall, 25 (32.9%) participants completed the program (attending at least four of the eight treatment sessions), and 23 of 44 participants (52.3%) experienced initial weight loss of 1-2 pounds per week, calculated from the first and last weights reported.

Data Analysis

Next session attendance. There was no association pretreatment OQ-45 cutoff score and whether or not participants returned for the following (second) obesity treatment session (χ^2 (1, 75) = .394, p = 0.530), with 57.1% (high OQ) vs. 49.1% (low OQ) attending the second session.

Program completion. Participants who scored at or above the OQ-45 cutoff score pretreatment were significantly less likely to complete the obesity program compared to those who scored below the cutoff of 64, 14.3% vs. 40.0% completion rates, respectively (χ^2 (1, 75) = 4.552, p = 0.033).

Program success in terms of weight loss. There was no association of pretreatment OQ-45 cutoff scores and initial program success, as measured by weight loss of 1-2 lb./wk by the last weight recorded for the 44 participants who attended at least two treatment sessions where weight was reported (χ^2 (1, 43) = .744, p = 0.388), 41.7% vs. 56.3% weight loss success for high vs. low OQ-45 scorers, respectively.

Predicting program dropout with covariates. In order to examine pretreatment OQ-45 cutoff scores on program dropout, logistic regression equations were calculated on program dropout (defined as attending less than 4 sessions), with program site, gender, ethnicity, and BMI entered simultaneously. High pretreatment OQ-45 cutoff scores significantly predicted program dropout when gender, site, and ethnicity were statistically controlled (OR = 4.41 [95% CI = 1.07 – 18.10], p = 0.039) compared to (OR = 4.00 [95% CI = 1.05 – 15.2] p = 0.042) with no covariates, but was borderline when BMI was added to the equation (OR = 4.28 [95% CI = 0.96 – 19.2] p = 0.057). None of the covariates reached significance in the model, and thus did not predict dropout, when the equation included OQ-45 cutoff score.

Predicting program weight loss failure with covariates. In order to examine pretreatment OQ-45 scores for initial program failure (defined as less than 1-2 pounds of weight loss each week, based on at least two measurements), logistic regression equations were calculated with treatment site, gender, and ethnicity, and BMI entered simultaneously. High pretreatment OQ-45 scores did not predict weight loss failure, either with all the covariates (OR = 2.69 [95% CI = 0.4 – 20.3], p = 0.338), or when OQ-45 cutoff score was entered alone (OR = 1.80 [95% CI = 0.5 – 6.9], p = 0.391).

Comparisons between high and low OQ-45 scorers. In an effort to explore the relationship between OQ-45 and pretreatment and final weight and BMI values, independent *t*-tests were calculated between high and low OQ-45 scorers (Refer to Table 2). There was a trend for final weight to be lower for low scorers (M = 233.1, SD = 79.5) compared to high scorers (M = 280.6, SD = 45.2, p = 0.058). Pretreatment BMI was significantly lower for low OQ-45 scorers (M = 38.2, SD = 9.9) compared to high scorers (M = 43.8, SD = 10.2, p = 0.040), as well as final BMI values (low scorers with M = 37.1, SD = 11.0 compared to high scorers, M = 45.7, SD = 8.4, p = 0.019). There were no significant differences in the amount of weight lost between high and low OQ-45 scorers, in part because there were significantly fewer high scorers who completed treatment and thus had a second weight value (n=12 for high versus 32 for low OQ-45 scorers).

Correlations among attendance, weight and BMI changes, and OQ-45 scores. Finally, in order to examine the relationship between number of sessions attended and weight loss, correlations were calculated between these variables. Number of sessions attended was significantly correlated with weight loss (r = -.403, n = 44, p = 0.007) and a decrease in BMI (r = -.366, n = 44, p = 0.015). Raw pretreatment OQ-45 scores were not correlated with either change in weight (r = .096) or BMI (r = .062) changes.

Discussion

In this study OQ-45 cutoff scores predicted program dropout, even when controlling for site, gender, and ethnicity. It did not predict next session attendance or weight loss success in obesity treatment programs. Individuals who scored at or above the OQ-45 cutoff of 64 were significantly less likely to complete the treatment program

compared to low scorers (14.3% versus 40.0%), with program completion defined as attending at least half (or four of eight) of the treatment sessions.

Over one-fourth of the initial OQ-45 scores (27.6%) were at or above the clinical cutoff of 64, indicating that while most weight loss participants' overall ability to function in life was comparable to functional individuals, some were clearly similar to scores of those undergoing psychotherapy.[1, 38] This is in agreement with prior research that suggests the presence of emotional distress in the obese population.[14] It is interesting to note that while 27.6% of the participants scored above the cutoff on their initial OQ-45 score, only 14.3% (3 of 25 participants) of those who completed treatment were at or above the clinical cutoff.

The limitations of this study should be considered when drawing conclusions. The most significant weakness is the reliance on completed self-reported study instruments to determine program attendance and completion. It would have been valuable to obtain authorization from participants, allowing access to their official treatment records to determine treatment attendance. This would provide a more accurate count of individuals who actually completed treatment as opposed to simply dropping out of the study. It is plausible that some individuals who continued to remain in the treatment program decided to drop out of the study and not complete any more surveys, resulting in a misrepresentation of their program status. In spite of this limitation, statistically significant findings between OQ-45 cutoff scores and program completion were found. This means that the findings are even stronger when one considers this possible extra source of error variance. It is possible that if this study were to be repeated with access to participants' medical records, the results would be more robust.

In addition, it should be noted that the participants were enrolled in three different obesity programs. While this does provide some generalizability, one should be careful when applying these findings to other types of obesity treatment programs, such as those used in conjunction with bariatric surgery.

This study used the OQ-45 in a novel way by predicting program dropout from a single baseline score, and did so in a new patient population (individuals engaged in obesity treatment). Given these parameters, the OQ-45 predicted treatment dropout, providing justification for further study of the OQ-45 in the obesity treatment population.

Implications for Behavioral Health Services

Obesity is a serious health concern both in the United States and abroad. There are currently many options when it comes to obesity treatment. Unfortunately regardless of the treatment, the outcomes of obesity treatment are poor, and it is important to keep in mind that the high relapse rates are often reported only for individuals who complete treatment programs and do not include those who drop out. Individual dropout rates for treatment programs are high, with rates of 80% documented for certain programs. In fact, the current study had an overall dropout rate of 67.1%, which is in line with previous research.[41]

It is vital that future studies address this issue of program attrition in an effort to find effective ways to predict and subsequently increase the number of individuals who complete obesity treatment programs. Decreasing overall treatment dropout will improve treatment program outcomes, and is then more likely to result in more individuals achieving successful weight loss. Indeed, this study demonstrates that the more sessions that attended, the more weight was lost. In addition, as noted in the present study,

psychopathology may be present in a significant portion of individuals undergoing treatment (27.6% in this study). Screening for this with instruments such as the OQ-45 and then addressing it within the framework of the treatment program may ultimately improve the outcomes of obesity treatment.

Table 1. Characteristics of Sample

	n	Percent of sample or Mean (SD)
Gender (n=78)		
• Male	22	28.6
• Female	55	71.4
Ethnicity (n=77)		
• Caucasian	50	64.9
• African American	5	6.5
• Hispanic	15	19.5
• American Indian	3	3.9
• Other	4	5.2
Program (n=78)		
• *Optifast*	21	26.9
• *Pathways*	36	46.2
• *Lifestyle*	21	26.9
Pretreatment OQ-45 score	78	52.87 (19.6)
Pretreatment OQ-45 cutoff (64+) (% high) (n=78)	22	28.2
Weight loss of at least 1-2 lb./wk (% yes) (n=46)	25	54.3
Attended second session (% yes) (n=78)	40	51.3
Completed program (4/8 sessions) (% yes) (n=78)	27	34.6
Number of sessions completed	78	2.78 (1.7)
Weight change between first and last session	46	-6.42 (9.6)
BMI change between first and last session	46	-1.15 (1.7)

Table 2. Pretreatment and Final Weight and BMI Values

	OQ-45	n	Mean (SD)	t-test	p-value
Baseline Weight	Low	52	239.2 (73.7)	-1.69	0.096
	High	19	271.8 (67.9)		
Final Weight	Low	32	233.1 (79.5)	-1.95	0.058
	High	12	280.6 (45.2)		
Baseline BMI	Low	52	38.2 (9.9)	-2.09	0.040
	High	19	43.8 (10.2)		
Final BMI	Low	32	37.1 (11.0)	-2.45	0.019
	High	12	45.7 (8.4)		

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CHAPTER 5

DISCUSSION

A. Prediction of Program Dropout and Initial Weight Loss Success

In the present study, OQ-45 cutoff scores predicted program dropout, even when controlling for treatment site, gender, and ethnicity. However, OQ-45 cutoff scores were not able to predict next session attendance or weight loss success in the obesity treatment programs studied. Individuals who scored above the OQ-45 cutoff of 64+ were significantly less likely to complete the treatment program compared to low scorers (14.3% versus 40.0%), with program completion defined as attending at least half (or four of eight) of the treatment sessions. These findings remained even after treatment site, gender, and ethnicity were statistically controlled. This supports a study by Davis and Addis (1999) who found that psychological variables (e.g., emotional problems) were more predictive of program attrition than demographic variables. It should be noted that the drop out rate of

There are a number of possible reasons why the OQ-45 was unable to predict attendance at the second session. As noted previously the OQ-45 was constructed as an outcome tool for individual psychotherapy and was intended to be used pre and post treatment to track changes in client progress (Lambert, et al., 2004). In using the OQ-45 for outcome studies, researchers theorized that significant worsening of OQ-scores could indicate an imminent drop out from therapy (Lambert et al., 2001; Lambert et al., 2002b; Whipple et al., 2003). In this study it was the baseline score and not change in score that was hypothesized to predict attendance at the following session of treatment. This

hypothesis has not been previously explored in the OQ-45 research. Indeed, using only an initial or baseline OQ-45 score to predict outcome at the end of treatment was unique to this study and may not be appropriate in traditional therapy research as the goal of psychotherapy is different than the goals of obesity treatment.

The goal of psychotherapy is the improvement of the psychological functioning of the client, which directly relates to one's overall psychological distress, which is what the OQ-45 was designed to measure. The goal of obesity treatment is weight loss. It is only because psychological variables appear to influence treatment (especially treatment attrition) that the OQ-45 has any utility in studies of obesity treatment. Since emotional distress has been shown to be related to treatment outcomes (Davis & Addis, 1999), it would follow that a self-report measure that assesses emotional distress could have utility in predicting outcomes (especially attrition) in obesity treatment. The fact that 28% of the participants in this study scored above the clinical cutoff score further supports this association.

B. OQ-45 Scores

Over one-fourth of the initial, or pretreatment OQ-45 scores (27.6%) were at or above the clinical cutoff of 64. This indicates that while most weight loss participants' overall ability to function in life was comparable to functional individuals, a significant number of participants endorsed levels of psychological distress similar to individuals undergoing psychotherapy (Lambert et al., 2002; Lambert, Okiishi, Finch, & Johnson, 1998). This is in agreement with prior research that suggests the presence of emotional distress in the obese population (Carpenter, Hasin, Allison, & Faith, 2000). It is interesting to note that while 27.6% of the participants scored above the cutoff on their

initial OQ-45 score, only 14.3% (3 of 25 participants) of those who completed treatment were above the clinical cutoff. While this may support previous research suggesting that obesity treatment leads to improvements in psychological functioning (Renjilian,et al., 2001), it is just as likely to result from the high attrition rate of emotionally distressed individuals. It is also possible that this is related to the BMI differences found at the end of treatment between high and low scorers.

In this study, individuals who scored low on the baseline OQ-45 had lower BMI values compared to those participants who scored above the clinical cutoff on the baseline OQ-45. By the end of the study the trend was for the BMI values, of those with lower Baseline OQ-45 scores, to decrease as compared to those with high baseline OQ-45 scores whose BMI values tended to increase. Therefore, the fewer individuals with OQ-45 scores above the cutoff score at the end of the study could be related to the dropout rate of individuals who had trouble losing weight. While it is logical that individuals who are successful at losing weight during a weight loss program drop out at a lower rate, this has not been clearly documented. However, research has found higher dropout rates associated with weight. Studies have found higher attrition in those individuals who had greater weight loss expectations and with those who gained more weight prior to starting a weight loss program (Pratt, 1989: Fowler, Follick, Abrams, & Rickard-Figueroa, 1985).

C. Strengths and Limitations of Study

The limitations of this study need to be considered before drawing any conclusions. The most significant weakness of this study is the reliance on completed surveys to determine program attendance and completion. It would have been valuable to obtain authorization from participants, allowing access to their official treatment records

to determine actual treatment attendance. This would provide a more accurate count of those individuals who actually completed treatment as opposed to simply dropping out of the study. It is plausible to assume that some individuals who continued to remain in the treatment program decided to drop out of the study and not complete any more surveys, resulting in a misrepresentation of their program status. Access to medical records would have also allowed for the collection of more complete demographic variables such as age. It is possible that age was related to program completion with older or younger participants less likely to complete treatment. However, in spite of these limitations, statistically significant findings were found between OQ-45 cutoff scores and program completion.

The participants in this study were enrolled in three different obesity programs. While this does provide some generalizability, one should be careful when applying these findings to other types of obesity treatment programs, such as those used in conjunction with bariatric surgery. Also, since this study utilized an adult population only, these results can not be applied to adolescent obesity treatment.

Another limitation of this study is that successful completion of treatment was arbitrarily set at 4 out of 8 sessions. While some obesity treatment programs are quite short, the majority last longer (NIH, 1998). This could limit the generalizability of these finding to longer programs. It could be argued that true completion of a program should be the attendance of 8 of 8 or at least 7 out of 8 program sessions; however, other studies have defined attrition as the percentage of participants who did not attend at least 4 out of 12 treatment sessions (Pratt, 1989). Unfortunately, the labeling of a participant as one who has completed a program vs. one who has not is complex and requires a certain

amount of subjectivity. Regardless OQ-45 scores did successfully predict outcome based on the criteria of this study. Also, this study did not look at success past program completion. This is a limitation in that successful outcomes in obesity treatment are typically measured at least two year post treatment.

Finally, it should be noted that the OQ-45 has never been normalized for use in the obese population. This means that it might not be appropriate to assume that the OQ-45 scores are valid for the population studied here. The cutoff score of 64, which is supposed to reliably distinguish those individuals who are more like individuals undergoing outpatient psychotherapy, may not be appropriate in the obese population. However, the fact that the OQ-45 was not normalized for this population means that the error variance would increase and thus decrease the ability of the OQ-45 to detect a significant difference between groups, which in this study it was able to do.

This study used the OQ-45 in a novel way to predict program dropout from a single baseline score, and did so in a new patient population (individuals enrolled in obesity treatment). Within these parameters, the OQ-45 predicted treatment dropout, which provides justification for additional study of the OQ-45 in the obesity treatment population. In addition, since baseline OQ-45 predicted dropout, it provides further evidence of the role that psychological or emotional factors play in obesity treatment.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

A Conclusions

Obesity is a major public health problem associated with significant increases in morbidity and mortality (Friedman, 2000). The potential negative consequences of obesity are many, with insulin resistance, diabetes mellitus, hypertension, dyslipidemia, and coronary heart disease among some of the more common and potentially severe consequences. Obesity is also related to sleep apnea, osteoarthritis, cholelithiasis, infertility and an increased risk of breast, uterine, colon, and prostate and cancers (National Task Force on the Prevention and Treatment of Obesity, 2000; NIH, 1998). Unfortunately, while there are many approaches to obesity treatment, most individuals (>90%) who lose weight will eventually relapse to their original weight, typically at the 3-5 year mark (Friedman, 2000; NIH, 1993; Brownell & Wadden, 1992). Added to this problem is the issue to treatment program attrition which can be significant.

In this study baseline OQ-45 scores were able to predict program completion, defined at attendance at 4 out of 8 treatment sessions. Individuals who scored above the clinical cutoff score were less likely to complete treatment. These findings held true even when gender, treatment site, and ethnicity were controlled for. Baseline OQ-45 scores were not able to predict attendance and the second treatment session nor initial weight loss of at least one pound of weight loss for each week of treatment attended.

This study lends support to the notion that obesity treatment program attrition is an important issue that needs to be addressed in treatment programs. Just as other researchers have found attritions rates as high as 80% even 90% for some commercial

weight loss programs (Woznicki, 1991), this study had a 65% dropout rate. While most obesity research focuses on the poor long-term treatment outcome for individuals who complete treatment, it can be argued that treatment program attrition needs to be part of the overall picture when discussing the success or failures of obesity treatment.

In addition, this study provides some evidence that the OQ-45 can be used to predict program completion. If future studies replicate this finding then there is the possibility that that the OQ-45 could be used by treatment providers to tailor their programs to address program dropout and the emotional distress issues experienced by many clients in a more direct manner. Prior research with the OQ-45 in more traditional outpatient psychotherapy settings has demonstrated the utility of using the instrument to address and reduce potential treatment dropout (Lambert, 2002b). If the OQ-45 is found to predict dropout in other studies, then the next step will be to study if it can be used to address the issue of dropout at the level of the program participant.

B. Application to Preventive Care and Psychology

Preventive care practitioners are some of the most educated and qualified health care professionals in the area of lifestyle change. In addition to a health science background, they have additional knowledge and training in advanced nutrition, exercise physiology, and health promotion. This training makes them particularly suited to designing and directing obesity treatment programs.

Preventive care practitioners can work collaboratively with other obesity treatment providers such as dieticians and health psychologists to develop comprehensive treatment programs. These programs should combine the most effective techniques and information related to diet, exercise, and health psychology. According to this study

individuals who are experiencing the most psychological or emotional distress are more likely to drop out of treatment. This demonstrates the importance of assessing emotional status during the initial stages of a treatment program. In conclusion, preventive care practitioners, in collaboration with other obesity treatment providers can help to decrease the attrition from treatment programs and thereby improve treatment success.

C. Recommendations for Clinical Practice

1. Promote within obesity treatment programs a greater understanding and appreciation of the role that emotions and emotional distress can play in treatment success. This can be done by translating research on emotions and obesity into clinical practice. Obesity treatment programs should be adjusted to include education and training on how emotions can affect lifestyle change, and how program participants can address emotional difficulties before they lead to negative treatment outcomes.
2. Make curriculum adjustments to the DrPH Preventive Care Program that would further enhance and promote the basic understanding of human psychology and the role that emotions play in health behavior change, particularly in obesity treatment. Preventive Care students need to be comfortable addressing emotions, at least on a basic level.
3. Within the field of clinical health psychology, address the applicability of using psychological assessments in the treatment of chronic illnesses such as obesity.

D. Recommendations for Research

1. Conduct more in-depth research on the role that emotional well-being plays in health behavior change with the goal being the improvement of obesity treatment programs.
2. Conduct a study with the purpose of developing normative data of the OQ-45 in the obese population. One goal of such a study would be to determine if the cutoff score of 64 is appropriate in this population or whether it should be adjusted.
3. Conduct a follow-up study on this one that would follow more individuals enrolled in longer obesity treatment programs. One of the goals of this research could be to determine if there are gender differences in OQ-45 responding and whether or not those differences affect treatment outcomes.
4. Conduct future research to see if providing OQ-45 feedback to therapists or health professionals involved in obesity treatment has an effect on program completion or initial weight loss.

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Appendix A

Informational letter

Using The Outcome Questionnaire 45.2 In Obesity Treatment

Informational letter

Purpose
You are invited to participate in this study. The goal of this study is to gather information that will help increase understanding of how to best meet the needs of individuals who are enrolled in a weight management program.

Requirements for Participation
You must be over 18 years of age to participate in this study. You must also be currently involved in a group treatment program for obesity.

Procedure
If you are willing to participate, you will answer some questions that will take approximately 7 minutes to complete. These questions will ask about your gender, current age, ethnic origin, educational background, weight, and various questions related to your current emotional well-being.

Risks
Participating in this study exposes you to some risk of experiencing anxiety based on the self-reflection you will do when completing the questionnaires. The chance of this risk occurring is only slightly greater than that experienced in everyday situations.

Benefits
You will probably not receive any direct benefit from participating in this study. However, your participation will help professionals understand how obesity treatment providers can better meet the needs of individuals such as yourself.

Participants' Rights
Your participation in this study is completely voluntary. You have the right to stop responding to the questions in this survey at any time. If you decide to stop, please give your packet to the program director.

Anonymity
All of the information that is collected in this study will be kept strictly anonymous. Please do not put your name anywhere on the questionnaire packet. No personal identification codes will be used in this study. Any publication resulting from this study will refer to the participants as a group.

Additional Costs/Reimbursement
There is no cost to you for participating in this study nor is there any monetary reimbursement for your effort.

Impartial Third Party Contact
If you wish to contact an impartial third party not associated with this study regarding any complaint you may have about the study, you may contact the Office of Patient Relations, Loma Linda University Medical Center, Loma Linda, CA 92354, or call the Office of Patient Relations at (909) 559-4647 for further information.

Informed Consent Statement
Once you have read the contents of this informational letter, your completion of the survey will indicate your voluntary consent to participate in this study. This consent does not waive your rights, nor does it release the investigators, institution, or sponsors from their responsibilities. You may call the graduate student investigator, Adam Arechiga, M. A., or the faculty advisor, Edward Fujimoto, Dr.PH., at Loma Linda University, Department of Health Education & Promotion during routine office hours at (909) 558-4599 if you have additional questions or concerns. Please keep this letter for future reference.

Thank you for your time and attention!

Adam Arechiga, MA, CHES
Department of Health
Education & Promotion
Loma Linda University
(909) 558-8577

Edward Fujimoto, DrPH, CHES
Department of Health
Education & Promotion
Loma Linda University
(909) 558-4575

Appendix B

Outcome Questionnaire 45.2

Outcome Questionnaire (OQ™-45.2)

Instructions: Looking back over the last week, including today, help us understand how you have been feeling. Read each item carefully and mark the box under the category which best describes your current situation. For this questionnaire, work is defined as employment, school, housework, volunteer work, and so forth. Please do not make any marks in the shaded areas.

ID # (Father or father figure's initials)

_____

Session #_____ Date___/___/___

		Never	Rarely	Sometimes	Frequently	Almost Always	SD	IR	SR
1.	I get along well with others.	4	3	2	1	0			
2.	I tire quickly	0	1	2	3	4			
3.	I feel no interest in things.	0	1	2	3	4			
4.	I feel stressed at work/school	0	1	2	3	4			
5.	I blame myself for things.	0	1	2	3	4			
6.	I feel irritated	0	1	2	3	4			
7.	I feel unhappy in my marriage/significant relationship.	0	1	2	3	4			
8.	I have thoughts of ending my life	0	1	2	3	4			
9.	I feel weak.	0	1	2	3	4			
10.	I feel fearful	0	1	2	3	4			
11.	After heavy drinking, I need a drink the next morning to get going. (If you do not drink, mark "never")	0	1	2	3	4			
12.	I find my work/school satisfying	4	3	2	1	0			
13.	I am a happy person.	4	3	2	1	0			
14.	I work/study too much	0	1	2	3	4			
15.	I feel worthless.	0	1	2	3	4			
16.	I am concerned about family troubles	0	1	2	3	4			
17.	I have an unfulfilling sex life.	0	1	2	3	4			
18.	I feel lonely	0	1	2	3	4			
19.	I have frequent arguments.	0	1	2	3	4			
20.	I feel loved and wanted	4	3	2	1	0			
21.	I enjoy my spare time.	4	3	2	1	0			
22.	I have difficulty concentrating	0	1	2	3	4			
23.	I feel hopeless about the future.	0	1	2	3	4			
24.	I like myself.	4	3	2	1	0			
25.	Disturbing thoughts come into my mind that I cannot get rid of.	0	1	2	3	4			
26.	I feel annoyed by people who criticize my drinking (or drug use). (If not applicable, mark "never")	0	1	2	3	4			
27.	I have an upset stomach.	0	1	2	3	4			
28.	I am not working/studying as well as I used to.	0	1	2	3	4			
29.	My heart pounds too much.	0	1	2	3	4			
30.	I have trouble getting along with friends and close acquaintances.	0	1	2	3	4			
31.	I am satisfied with my life.	4	3	2	1	0			
32.	I have trouble at work/school because of drinking or drug use. (If not applicable, mark "never")	0	1	2	3	4			
33.	I feel that something bad is going to happen.	0	1	2	3	4			
34.	I have sore muscles.	0	1	2	3	4			
35.	I feel afraid of open spaces, of driving, or being on buses, subways, and so forth.	0	1	2	3	4			
36.	I feel nervous.	0	1	2	3	4			
37.	I feel my love relationships are full and complete.	4	3	2	1	0			
38.	I feel that I am not doing well at work/school	0	1	2	3	4			
39.	I have too many disagreements at work/school.	0	1	2	3	4			
40.	I feel something is wrong with my mind.	0	1	2	3	4			
41.	I have trouble falling asleep or staying asleep.	0	1	2	3	4			
42.	I feel blue.	0	1	2	3	4			
43.	I am satisfied with my relationships with others.	4	3	2	1	0			
44.	I feel angry enough at work/school to do something I might regret.	0	1	2	3	4			
45.	I have headaches.	0	1	2	3	4			

	+	+
Total=		

10431 Stevenson Road, Box 346, Stevenson, MD 21153-0346
(ATT Voice mail): 1-800-488-APCS(2727) (Fax/Voice): 1-410-363-7492

Appendix C

Patient Information Form

Patient Information

Participant ID#_____ ***(Please write your father's (or father figure's) first,middle, and last initials***

Date _____

To be completed by yourself (the participant):

What is your gender?

☐ Male
☐ Female

What is your ethnicity/race?

☐ Caucasian
☐ African American
☐ Hispanic
☐ Asian American
☐ Pacific Islander
☐ American Indian
☐Other _____

What is your primary language?
☐ English
☐ Spanish
☐ Other _____

What is your current weight (as measured at the clinic)?

wt.(lb.) _____

What is your current height?

Ht. (ft./in.) _____

Do you feel this program will be successful in helping you to lose weight and manage your lifestyle? ☐ Yes ☐ No (***answer only on first session***)

Do you feel this program was successful? ☐ Yes ☐ No (***answer only on last session***)

Appendix D

Debriefing Letter

Debriefing Letter or Letter of Intent

Dear Participant,

Thank you again for participating in this study. You have just filled out two questionnaires. I would like to let you know why this information is needed for this study.

The purpose of this study is to gain a deeper understanding of how professionals in the obesity treatment field can best meet the needs of program participants. To be confident of our results, it is important that the nature of this study not be revealed to other potential participants. Please do not share this information with other individuals who have not participated in this study and may like to do so.

I would like to remind you that your identity is anonymous on this survey. No one, including those conducting this research, will ever know who you are based on your responses to this questionnaire, because you were asked not to put your name anywhere on the packet. The personal identification number that is being used to identify your survey packet was randomly assigned and not related to your personal information, and can not be used in any way to access your personal information. Therefore, you can feel safe in knowing that your identity cannot be connected to the questions you answered.

Again, if you have any questions, concerns, or comments about this survey, please contact the graduate student investigator, Adam Arechiga, M.A., at (909) 558-8577 or the faculty advisor, Edward Fujimoto, Dr.PH. at Loma Linda University's Department of Health Education & Promotion at (909) 558-4575. If either person is unavailable, please feel free to leave a message with your first name and telephone number. Please keep this page for your future reference.

If interested, you may obtain general results of this study by contacting Adam Arechiga, M.A. or the faculty advisor Edward Fujimoto, Dr.PH. at the numbers provided above.

Thank you for your time and effort in this study.

Best wishes,

Adam Arechiga, MA, CHES
Department of Health
Education & Promotion
Loma Linda University

Edward Fujimoto, DrPH, CHES
Department of Health
Education & Promotion
Loma Linda University