The University of Chicago

Predictors of Suicidality:

Experiences of Weight-Related Stigma in Candidates for Bariatric Surgery

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June 2009

A paper submitted in partial fulfillment of the requirements for the Master of Arts degree in the Master of Arts Program in the Social Sciences

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Abstract

Objective: Obesity stigma is related to depressed mood in obese surgery-seeking clients. This study examines whether obesity stigma also relates to suicidality in this population.

Research Methods and Procedures: 262 severely obese candidates for bariatric surgery were administered the Beck Depression Inventory (BDI), the Suicidal Behaviors Questionnaire (SBQ) and the Stigmatizing Situations Inventory (SSI) before treatment.

Results: In a hierarchical linear regression analysis, gender, minority status, disability status and employment status did not account for a significant portion of the variance in SBQ scores in the first step. In the second step of the model, SSI scores significantly predicted SBQ scores (b=0.248, P=0.000) and this independently contributed to 5.9% of the variance in SBQ scores.

Conclusions: This suggests that in severely obese candidates for bariatric surgery, suicidality is related to obesity stigma. A more extensive investigation of this effect is suggested for future research.

Predictors of Suicidality

Experiences of Weight-Related Stigma in Candidates for Bariatric Surgery

Obese individuals are more likely to consider and attempt suicide than the general population. Contrary to popular belief, this effect occurs independently of psychiatric disorders, psychiatric comorbidity, and physical health problems (Mather, Cox, Enns, & Sareen, 2009). While studies have shown that weight predicts suicidal ideation and suicide attempts, this link is difficult to explain without tying in physical or psychological conditions. There is, however, a third type of impairment that has so far received little scientific attention in relation to suicidality in obese populations: the social impairment produced by weight-related stigma.

Experiences of weight-related stigma could be the missing link between obesity and suicidality. Empirical evidence suggests that weight-related stigma predicts depression more than factors like physical disability or binge-eating (Chen et al., 2007), and that depression often increases the risk for suicidal ideation and behavior. In line with this research, the present study proposes that an investigation into weight-related social stigma could provide important insights for the prediction, prevention and reduction of suicidal ideation in obese populations. To do this, it will focus on a population that, according to the literature, is highly vulnerable to both weight-related stigma and suicidal ideation: severely obese candidates for bariatric surgery. More specifically, this study hypothesizes that weight-related social stigma functions as a predictor of not only depression, but also suicidality in surgery-seeking obese populations.

After addressing the relevance of studying severely obese candidates for bariatric surgery, the present research study will then examine existing evidence supporting the link between

weight-related stigma, depression and suicidality. The concept of obesity stigma will then be discussed in relation to the psychosocial mechanisms it involves, as well as its effects on the quality of life of obese persons. Because of its strong impact in the lives of obese persons, it is hypothesized that stigma functions as a predictor of suicidality. This hypothesis is tested empirically and analyses and results are then presented and discussed in the context of previous research. Avenues for further scientific exploration will be proposed, both for obese populations in general, and for bariatric surgery candidates in particular.

Bariatric surgery refers to a set of gastrointestinal surgical techniques (i.e. gastric bypass, gastric-banding) that are offered to severely obese individuals in order to reduce the health risks associated with their weight. The increased demand for this procedure reflects the rise in the number of severely obese individuals in the US as well as the procedure's growing popularity: the annual number of bariatric surgeries conducted in the US between the early 1990s and 2003 rose from around 16,000 to approximately 103,000 (Steinbrook, 2004). In addition, between 1998 and 2003, the number of practicing surgeons who were members of the American Society for Bariatric Surgery quadrupled (Steinbrook, 2004). Due to its rapid increase in popularity, bariatric surgery offers a fertile ground for research on morbid obesity and its biological, psychological and social consequences.

Due to the dramatic increase in demand for bariatric surgery, surgery-seeking individuals are becoming increasingly relevant for obesity research, particularly because this type of surgery specifically addresses a population that is currently on the rise, namely clients who are severely obese by medical standards. The measure used for categorizing individuals by weight is the Body Mass Index (BMI = kg/m^2), which indicates the body weight to height ratio. Thus, an adult with

a BMI over 25 is overweight, someone with a BMI over 30 is obese and a person with a BMI that exceeds 40 falls into the category of severe, morbid or class III obesity. Severely obese men are at least 100 pounds overweight while severely obese women are at least 80 pounds over the normal weight limit for their height (Steinbrook, 2004). According to the National Institutes of Health (1991), the weight requirement to qualify for bariatric surgery is a BMI of 35 with medical comorbidities, or a BMI of 40. Very often, this excess body weight negatively affects a person's physical health and mental well-being.

Consequences of Obesity

Obesity poses serious health risks. Based on data from the American Obesity Association, Spence-Jones (2003) estimated that obesity and obesity-related problems lead to approximately 62 million medical appointments per year, and contribute to at least 300,000 deaths annually. Health risks associated with obesity include hypertension, type 2 diabetes mellitus, coronary heart disease, dislipidemia, stroke, gallbladder disease, hypercholesterolemia, osteoarthritis, sleep apnea, respiratory problems, chronic joint pain, back injury and different forms of cancer (Spence-Jones, 2003).

As a chronic medical illness, obesity further impairs the capacity to perform functional activities. Research conducted by Stewart and Brook (1983) on a sample of almost 6,000 people aged 14 to 61 found that being overweight was associated with an impaired ability to walk, climb stairs, work, participate in sports, and also caused increased pain and worry. The fact that obese persons experience more physical difficulties in everyday life compared to the general population was also supported by the findings of a study on Dutch adults (Seidell et al., 1986), which found a link between obesity and shortness of breath. In addition to increasing physical

pain and affecting a person's experience of health, obesity also affects a person's self-concept (Fontaine & Bartlett, 1998) and feelings of anxiety and depression (Sullivan et al., 1993).

To further explore the relationship between obesity and experiences of depressed mood, Onyike, Crum, Lee, Lyketsos and Eaton (2003) conducted a population study in which they analyzed responses from 39,695 persons. They found that severely obese respondents reported depression rates that were almost five times higher than those reported in the other obesity and overweight categories. Furthermore, results from clinical research seem to provide further support for this finding, showing that 25%-30% of bariatric surgery candidates suffer from current symptoms of depression, while a vast majority (70%) report a lifetime history of depression (Jones-Corneille, Wadden & Sarwer, 2007).

The link between obesity and depression is hardly surprising given the many ways in which excess weight can negatively influence a person's life. Physical disability, poor health, eating disorders and other psychiatric conditions could all be responsible for an obese person's depressed mood. A recent study (Chen et al., 2007) tested these assumptions using self-reports from a sample of 60 surgery-seeking adults. They assessed the degree to which depression correlates with weight-related physical disability, the presence of binge-eating and weight-related stigma. Contrary to popular assumptions, significant relationships were found neither between weight-related physical disability and depression, nor between binge-eating and depression. The only statistically significant relationship was found between depressed mood and weight-related stigma, indicating that stigma, rather than disability or eating disordered behavior, acted as a predictor of depression. The results obtained by Chen et al. (2007) were also confirmed by a more recent study on 117 bariatric surgery candidates that also found an association between

weight-related stigma and depressed mood (Sarwer, Fabricatore, Eisenberg, Sywulak & Wadden, 2008). Depression, however, is not the most dangerous psychological affliction severely obese persons struggle with.

Not only are extremely obese persons at a higher risk of depression, they are also more likely to have suicidal thoughts and to attempt suicide. In a family study, Dong, Li, Li and Price (2006) found that BMI functions as an independent predictor for attempted suicide. Furthermore, their findings revealed that individuals suffering from extreme obesity are also at a higher risk for attempted suicide than those who are obese but have a lower BMI, even after controlling for possible confounding variables such as age, sex and race. In order to explain why body mass would correlate with suicidality, however, it is necessary to reconsider the negative consequences of obesity.

A recent study (Mather et al., 2009) examined the link between obesity and psychiatric conditions (depression, mania, anxiety, substance dependence, and suicidality) while also taking into account the physical illness burden and sociodemographic factors related to obesity. Using data from nearly 40,000 respondents, the researchers found that for obese subjects, suicidal ideation and attempts occurred independently of the effects of psychiatric illnesses, psychiatric comorbidity, or physical health problems. Their findings suggest that there must be another factor that mediates the relationship between obesity and suicidality.

Since depression and suicidality have a strong bond, it is possible that what predicts depression also predicts suicidality. As previous research on obese subjects indicates, depressed mood is strongly associated with obesity (Carpenter et al., 2000) but is predicted more strongly by obesity stigma independent of physical disability and disordered eating behavior (Chen et al.,

2007). Similarly, suicidality is strongly associated with obesity independent of health problems and psychiatric afflictions (Mather et al., 2009), but it is yet unknown whether suicidality can be predicted by obesity stigma. The present study addresses this possibility.

Weight-Related Stigma and its Harmful Effects

Stigma, as understood in this study, is a social construct that derives its meaning from cultural, historical and situational factors (Dovidio, Major & Crocker, 2000). Overweight and obese persons often experience weight-related societal stigma. Stigmatized individuals possess an objective, observable attribute that represents a devalued social identity in a particular social context (Crocker, Major, & Steele, 1998). Stigma has many relevant dimensions, but the two most important aspects that influence the level of stigmatization across all types of stigma are visibility and controllability (Crocker et al., 1998). For people whose stigmatized attribute is visible, the stigma can be the primary schema through which others form opinions of them. Stigmatized attributes are believed to be controllable if their possessor can be considered responsible for them, or when the condition could be reduced or eliminated by the actions of the stigmatized individual. Individuals who are overweight and obese not only possess a negative attribute that is objective and easily observable, but they are also often believed to be responsible for their condition. Due to the interplay between the dimensions of visibility and controllability, overweight and obese persons experience high levels of stigmatization.

Far from being a universal judgment, the negative evaluation of overweight is socially determined and highly context-specific. For example, in non-western developing nations where malnutrition and infectious diseases represent the main causes of death, being thin is a highly undesirable feature (Rothblum, 1992). For these cultures, higher weight indicates higher status

and wealth. Research conducted in India, Latin America, Puerto Rico and Kenya suggests that these cultures value a higher body weight more than thinness (Rothblum, 1992). Furthermore, in some cultures of sub-Saharan Africa, overweight and obesity are regarded as signs of success, wealth, and health, and are often associated with optimism and happiness (Renzaho, 2004). Even in North America, obesity was admired at the turn of the 20th century: "wealthy consumers exhibited their wealth around their waist. Fat cheeks and ample stomachs were visual cues that individuals were healthy, not infected with the dreaded slim tuberculosis" (Grivetti, 2001, p. 5).

In the US today, however, perceptions of obesity have changed dramatically. The majority of people consider weight-gain to be a disastrous possibility that should be avoided at all costs. For instance, one study found that 24% of women and 17% of men preferred to hypothetically give up 3 or more years of their lives in exchange for their desired weight, while others preferred the risk of smoking to avoid weight-gain (Puhl & Brownell, 2003a). These numbers provide a glimpse of the extent to which being overweight is considered negative and unacceptable, an attitude held not only by non-obese people, but internalized also by those who are overweight and obese (Puhl & Brownell, 2003).

While most overweight individuals experience weight-related stigma in various degrees, the severely obese are particularly vulnerable to it due to their highly visible excess weight. For example, Rand and MacGregor (1990) analyzed data from 57 gastric bypass surgery patients and found that 91% reported experiencing negative attitudes from work colleagues because of their weight, 84% felt uncomfortable to be seen in public and 81% avoided fast food restaurants to avoid stigma. Furthermore, a study by Ashmore, Friedman, Reichmann and Musante (2008) found that most treatment-seeking severely obese patients experienced stigmatizing situations in

the form of others making unflattering assumptions about them due to their weight, being avoided, excluded or ignored because of their weight and encountering physical obstacles. The most frequent experiences of stigma were nasty comments from others (98%), nasty comments from family members (89%) and loved ones feeling embarrassed by the patients' size (89%). Social weight-related stigma in the lives of obese people is often intertwined with more or less conscious attributions of blame.

The widespread belief that overweight and obese persons are to blame for their weight is rooted in two phenomena that coexist in today's society: media pressures to lose weight and people's tendency to infer personality traits from behaviors. The role of media messages appears to play an important part in the way it shapes perceptions of weight. For example, over a time span of 16 months, McCabe and Ricciardelli (2005) asked 433 boys and 246 girls with the average age of 13 to report to what extent different factors influenced their weight-change behavior. The researchers found that peers and media messages were the most frequently reported factors for girls, while boys felt more pressured by family and friends to increase muscle mass. Another study analyzing the role of puberty, media and popularity in adolescents' strategies to change their weight and muscle tone (McCabe, Ricciardelli & Finemore, 2002) gathered data from 1185 adolescents aged 13 years on average. For females, results suggested that perceived media influences to lose weight were associated with strategies to lose weight such as changing one's eating behavior and exercising. Thus, media messages may suggest that weight loss is achievable through changes of behavior. Although this message can be true, it is incomplete and bears another, more subtle message: if weight loss depends on behavior, then weight gain is also the result of one's behavior.

Behaviors are usually understood in terms of the reasons behind them (Gilbert & Malone, 1995). Since obesity is often attributed to a person's behaviors, the actions that are believed to lead to weight gain are also subject to interpretation. However, judgments about others' actions and character traits often rely on incomplete information and heuristics, and are therefore susceptible to cognitive biases. The correspondence bias, a term coined by Gilbert and Malone in 1995, refers to a person's tendency to infer personality traits from behaviors that could be explained completely by the situation in which they occur. The correspondence bias does not mean that the conclusions it facilitates are by definition erroneous. It does, however, refer to a flaw in the way those conclusions are reached, namely people's tendency to infer a correspondence between personality and behavior despite being aware of situational factors that may completely account for that behavior - people can attribute a person's behavior to the situation and still believe that the behavior corresponds to that person's personality (Krull, 2001). Thus, when obesity is considered to be the result of a person's behavior, observers who apply the correspondence bias also believe that the behaviors that cause obesity are best explained by the obese individual's personality.

Indeed, people of all ages associate obesity with negative personality characteristics, a connection that is formed at a very early age. Children, for instance, associate obesity with being mean, stupid, ugly, unhappy, lazy, selfish, having few friends and being a liar. A study conducted by Brylinsky and Moore (1994) asked 368 kindergarten children to rate line drawings of thin, average-weight and chubby body types on 12 pairs of bipolar adjectives, such as works hard/lazy, happy/sad, smart/stupid, cute/ugly, etc. The responses revealed that younger children rated the chubby target more negatively than the thin target on attributes of social interaction

(attractiveness, politeness, popularity and intelligence), but assigned higher ratings to the chubby child on the the physical dimension (strength, health, physical dominance). Thus, the chubby target was considered less attractive, polite, popular and intelligent than the thin target, yet stronger, healthier and more physically dominant. While this study showed the existence of weight-related stereotypes at a young age, it remained unclear whether weight-related stigmatization also occurred at this early age.

To address this question, Cramer and Steinwert (1998) conducted two studies on preschoolers in order to determine the existence and degree of weight-related stigmatization in this age group. Their first study asked 30 children to listen to a series of short stories in which one child was mean to another child, and to then identify the mean child in the story from two images: a thin child and a chubby child. For every story, the chubby child was selected as mean significantly more often than the normal weight child. A second study addressed the same issue in a larger sample of children between the ages of 3 and 5 (n=83). This time, the children were asked to identify the mean actor in the story from 3 targets: a thin, an average-weight and a chubby child, and to explain their choice. Results showed that children consistently chose the chubby target as the mean actor in the story, while the thin and average weight targets were chosen equally often. The most frequently reported reasons for choosing the chubby target were related to activity, body size (i.e. bigness) and body weight (i.e. fatness). Thus, children considered body mass an indicator that the chubby target was mean. Although many beliefs and cognitions change between childhood and adulthood, this heuristic may remain fairly unaffected by the process of maturation. Since obesity is evaluated negatively and is often considered to be the result of a person's personality features rather than situational factors, the obese individual's

personality as a whole is judged negatively.

Blaming obese people for their condition facilitates negative behaviors towards them. Puhl and Brownell (2003) argue that attributional models of weight stigma (i.e. the correspondence bias) include the notion that people get what they deserve in life. A series of survey studies conducted by Crandall (1994) reveal that there are clear associations between rejection of overweight individuals and a social ideology of blame. In a survey study, Crandall and Moriarty (1995) asked 415 participants about their attitudes towards 66 different health conditions and found that participants considered obesity to be a disease under the personal control of the obese person, which led to a strong rejection of the obese person. Thus, considering an ill person responsible for his or her illness appears to make it more psychologically acceptable for someone to reject this person.

Rejection of the obese occurs on a very large scale, as obese individuals experience forms of weight-related prejudice or bias in a wide variety of contexts. Some examples include interactions with employers, colleagues, teachers, physicians, nurses, mental health professionals, landlords, peers, media, parents, and children (Puhl, Andreyeva & Brownell, 2008). In education settings, obese persons are harassed and rejected by peers, experience negative attitudes from teachers, and report lower college acceptances and more wrongful dismissals from college (Canning & Mayer, 1966; Neumark-Sztainer, Story & Faibisch, 1998). Furthermore, overweight students experience bias from their own parents, as studies reveal that overweight students receive less financial support from their parents regardless of their parents' socioeconomic situation (Crandall, 1995). In most contexts, however, the consequences of discrimination and bias are the same: obese persons are avoided, rejected and marginalized (Puhl

& Brownell, 2003).

To sum up, weight-related stigma occurs when people believe that being overweight is the visible result of the obese person's actions, and that these actions are a reflection of the obese person's character. Weight-related stigma can lead people to behave negatively towards the obese, to discriminate against them, and to infer negative personality traits and qualification levels based on body mass alone. Because the victims of weight-related stigma are socially rejected and isolated, they may also experience more symptoms of depression. While research studies have found a direct association between body mass and depression (Onyike et al., 2003; Jones-Corneille et al., 2007), and body mass and suicidality (Dong et al., 2006; Mather et al., 2009), more recent findings suggest that depression in candidates for bariatric surgery can be predicted by experiences of weight-related stigma.

In order to assess the degree to which the influence of weight-related stigma also affects suicidal ideation in severely obese individuals, this study will focus on data collected from pre-surgery psychological evaluations of candidates for bariatric interventions. This population has so far received little scientific attention, despite increasing rapidly and representing a highly vulnerable group. Because research on this group is highly relevant to the social and medical reality in the US today, this study seeks to replicate findings regarding the function of stigma as a predictor of depression (Chen et al., 2007), and attempts to shed light on the predictive link between weight-related stigma and suicidal ideation. Based on the existing literature, the present research sets out to test two hypotheses: first, that in subjects seeking bariatric surgery, experiences of weight-related stigma function as a predictor of depression, and second, that in this population, weight-related stigma also predicts suicidality.

Method

Sample

The data used in this study was collected via paper and online questionnaires between July 2007 and February 2009 as part of the pre-surgery assessment of candidates for bariatric surgery at the University of Chicago Medical Center. From an initial sample of 440 respondents, only those were selected who had provided written consent to their data being used in research studies. Due to the fact that several patients completed the same questionnaires repeatedly at different times, a set of rules was created and applied systematically in the following order when deciding which of the multiple responses to include in analysis: (1) responses with a higher number of completed questionnaires, (2) responses from an earlier time in order to exclude the possibility that online questionnaires were completed post-surgery. Furthermore, when multiple responses occurred within a time frame of multiple hours, (3) the more complete or earlier response was combined with the data from the later response based on the assumption that there would not be major differences between the two times. Furthermore, two cases were excluded from analysis because they indicated their reasons for consultation to be other than weight-loss surgery. The final sample, thus, resulted in 262 overweight and obese candidates for bariatric surgery. This study was approved by the Institutional Review Board of The University of Chicago.

Measures

Candidates were asked to fill out a range of questionnaires before presenting to their in-person psychological assessment which was conducted as part of a comprehensive evaluation of

their eligibility for bariatric surgery. The questionnaires that were analyzed for the purpose of this study are the Beck Depression Inventory (BDI), the Suicidal Behaviors Questionnaire (SBQ) and the Stigmatizing Situations Inventory (SSI). Participants were unaware if and to what extent their answers on the questionnaires would affect their eligibility for surgery. After filling out the questionnaires, candidates received a full psychiatric evaluation and were referred to treatment if necessary.

Depressed Mood. The Beck Depression Inventory (BDI-II; Beck, 1996) is the most widely used self-scoring tool for assessing the severity of depressive symptoms. Based on diagnostic criteria for Major Depressive Disorder as they are defined in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association [*DSM-IV*], 1994), the BDI-II consists of 21 items (i.e. sadness, pessimism, feelings of worthlessness), each encompassing statements with increasing severity and numeric value (0-3). The evaluation of the severity of depressive symptoms is done based on the total score, so that scores between 0 and 13 represent minimal depression, 14–19 mild depression, 20–28 moderate depression, and 29–63 severe depression. Thus, the higher the total BDI score, the more severe the patient's depression. The BDI-II has good internal consistency and convergent validity (Storch, Roberti, & Roth, 2004) as well as high criterion validity and short-term test-retest reliability (Sprinkle et al., 2002). Cronbach's Alpha for the BDI was high in the present study ($\alpha = 0.89$).

Suicidality. Patients' risk for suicide was assessed using the Suicidal Behaviors Questionnaire (SBQ-14; Linehan, 1996). This questionnaire was initially developed by Addis and Linehan

(1989) as a self-report measure of suicidal ideation consisting of 30 detailed questions about suicidal thoughts, plans and actions. Recently (1996) Linehan revised it so as to assess 14 suicidal behaviors (SBQ-14) through up to 34 questions regarding past, present and expected suicidal behaviors (i.e. “Have you thought about or attempted to kill yourself”, “Do you currently have a plan for how you would go about killing yourself, if you decided to do it?”). The SBQ-14 addresses not only issues of suicide thoughts and suicidal behavior, but also assesses the patient's expectations regarding suicide: how likely it is that they would consider suicide, that they would attempt suicide, that death would occur as a result of such an attempt, that suicide would solve problems and that means for attempting suicide are available. The time reference is divided into the following categories: “the past several days including today”, “last month”, “the last 4 months”, “the last year” and “lifetime”. The SBQ-14 has high internal reliability and concurrent validity (Brown, 2001). In the present study, Cronbach's Alpha for the SBQ was 0.92.

The measure of suicidality used in this study was the SBQ question “Have you thought about or attempted to kill yourself in your lifetime?” with answer choices ranging from 0-6 (0=”No”; 1=”It was just a passing thought”; 2=”I briefly considered it, but not seriously”; 3=”I thought about it and was somewhat serious”; 4=”I had a plan for killing myself which I thought would work and seriously considered it”; 5=”I attempted to kill myself, but I do not think I really meant to die”; 6=”I attempted to kill myself, and I think I really hoped to die”). This item has also been shown to have a high criterion-related validity and has been used as an indicator of suicidality in previous research (Osman et al., 2001).

Weight-related stigma. This was assessed using the Stigmatizing Situations Inventory (SSI;

Myers & Rosen, 1999). The SSI is divided into two parts, one addressing weight-related stigmatizing situations encountered by the participants (50 items), and the second one assessing coping strategies employed by participants upon encountering weight-related stigmatizing situations (99 items). In this study, stigmatizing situations were divided into 10 categories (Appendix A), while coping mechanisms and responses to stigmatizing situations were subdivided into 21 categories (Appendix B). For the purpose of this study, only weight-related stigmatizing situations were considered for analysis, with answer choices ranging from 0 (never) to 3 (multiple times in life). Internal consistency of the stigmatizing situations total score was high ($\alpha = 0.90$), although consistency coefficients for the individual subscales showed some variation (Table 1).

Table 1: Cronbach's Alpha Reliability Coefficients for Stigmatizing Situations Subscales (N=262)

Variable	# Items	α	M	SD	Range
Stigmatizing Situations Total Score	10	0.9	0.84	0.57	0-3
Comments from children	4	0.83	1.3	0.96	0-3
Others making negative assumptions about you	3	0.84	1.32	1.08	0-3
Physical barriers	6	0.85	1.38	0.9	0-3
Being stared at	5	0.76	0.59	0.65	0-3
Nasty comments from family	7	0.79	1.01	0.71	0-2.82
Nasty comments from others	11	0.86	0.72	0.63	0-3
Being avoided, excluded, ignored	2	0.59	0.8	0.9	0-3
Loved ones being embarrassed by your size	3	0.55	0.82	0.76	0-3
Job discrimination	3	0.79	0.39	0.67	0-3
Being physically attacked	1	-	-	-	0-3

Data Analysis

Preliminary Analysis

Frequencies and descriptive statistics were first run in order to obtain an initial overview of the data. To be able to conduct correlation statistics, categorical variables including more than two nominal categories were recoded into dichotomous variables. Thus, ethnicity categories (African-American, Hispanic, Caucasian, Asian, Pacific Islander) were recoded into a broader minority status that included only two categories: non-minority (Caucasian) and minority (African-American, Hispanic, Asian, Pacific Islanders). Disability status was determined based on the type of insurance used to cover treatment expenses. Thus, a new variable for disability was computed based on type of insurance: private insurance was considered to indicate "no disability", while either Medicare, Medicaid, or a combination of Medicare, Medicaid and private insurance were taken to indicate disability. The question "are you currently employed" was also recoded to reflect the time spent in a work environment: not currently employed (retired, unemployed, unemployed on disability), employed part-time and employed full-time.

Subscales were computed for all stigmatizing situations based on Myers and Rosen's (1999) guidelines, and because, with the exception of one, all stigmatizing situations significantly correlated with each other, a composite score was computed for all experiences of weight-related stigma. Furthermore, to determine levels of depression, a total score was computed for the BDI by calculating the sum of all items.

Correlations were then conducted between the predicted variables (depression and suicidality) and the hypothesized predictor (stigma) while also taking into account demographic factors that could affect scores of depression and suicidality (body mass, gender, ethnic

background, minority status, disability, employment status) (Table 2).

Primary Analysis

The first hypothesis (experiences of weight-related stigma predict depression) was tested through a hierarchical linear regression analysis, with the depression score as the dependent variable, demographic variables (gender, minority status, disability status and employment status) as the first step and the stigmatizing situations total score as the second step (Table 3). In order to address the second hypothesis (whether weight-related stigma predicts suicidality), a hierarchical linear regression (Table 4) was conducted to assess the predictive value of the experience of stigma controlling for demographic predictors associated with suicidality. Gender, minority status, disability status and employment status were entered in the first step, and stigmatizing situations were entered in the second step.

Results

Sample Characteristics

Participants' ages ranged between 19 and 73 years, with a mean age of 44 years. The sample consisted of 60 males (22.9%) and 202 females (77.1%). While the majority (52.3%) of subjects reported being married, 31.3% were single (never married), 14.1% divorced and 2.3% widowed. In terms of race and ethnic distribution, 50% identified themselves as Caucasian, 40.5% as African-American, 9.2% as Hispanic and 0.4% as Asian or Pacific Islander. The highest education level attained by the majority of participants was some college or associates degree (41.2%), followed by a completed college degree (39.3%), high school or equivalent (18.7%)

and some high school (0.8%). The majority of respondents were employed full-time (66.4%) with an income between $30,000-$49,000 per annum (24.4%) at the time of data collection. Furthermore, Body Mass Index ranged between 25.68 and 102.71, with an average BMI of 48.74.

Preliminary Analysis

Gender and Race effects. Independent sample T-tests testing gender (male vs. female) and minority status (minority vs. non-minority) in relation to BMI, depression and stigma found no significant differences with the exception of higher rates of depressed mood in females ($p<.05$) and higher body mass in the minority group ($p<.01$). Gender and minority status were therefore included in the primary analysis.

Self-Reported Stigmatizing Experiences. Descriptive statistics conducted with the individual subscales of the Stigmatizing Situations Inventory showed that candidates for bariatric surgery reported relatively few experiences with weight-related stigma. On the majority of subscales, subjects reported experiencing stigmatizing situations on average less than once in their lifetime ($M<1$). Only four types of stigmatizing situations were experienced more than once in the lifetime ($M>1$): comments from children (M=1.30, Median=1.25, SD = 0.96, Range=0-2.56), negative assumptions by others (M=1.32, Median=1.33, SD = 1.08, Range=0-3), physical barriers (M=1.38, Median=1.33, SD = 0.9, Range=0-3) and nasty comments from family (M=1.01, Median=0.85, SD = 0.71, Range=0-3).

Correlations. Correlations were conducted between the hypothesized predictors (body mass, gender, minority status, disability status, employment status and stigma) and suicidality and depression (Table 2).

Table 2: Correlations between Depression, Body Mass Index, Stigma and Demographic Factors (N=262)

	Gender	Minority	Disability	Employment	Stigma	Depression	Suicidality
BMI							
Pearson Correlation	-.084	.199**	.280**	-.137*	.258**	.076	.074
Sig. (2-tailed)	.176	.001	.000	.026	.000	.222	.234
Gender							
Pearson Correlation	-	.000	-.084	-.017	.073	.121	.077
Sig. (2-tailed)		1.000	.177	.786	.240	.051	.213
Minority							
Pearson Correlation		-	.104	.013	-.005	.045	-.107
Sig. (2-tailed)			.093	.828	.942	.469	.084
Disability							
Pearson Correlation			-	-.547**	-.034	.050	.060
Sig. (2-tailed)				.000	.585	.424	.334
Employment							
Pearson Correlation				-	.126*	-.016	-.075
Sig. (2-tailed)					.041	.797	.228
Stigma							
Pearson Correlation					-	.306**	.242**
Sig. (2-tailed)						.000	.000
BDI (Depression)							
Pearson Correlation						-	.208**
Sig. (2-tailed)							.001
Suicidality							
Pearson Correlation							-
Sig. (2-tailed)							

*p<.05, **p<.01

Results revealed no significant relationship between depression and body mass (r = .076, p = .222) or suicidality and body mass (r = 0.74, p = .234), suggesting that in severely obese persons, an increase in weight has no significant impact on their experiences of depressed mood or thoughts of suicide. Weight-related stigma, however, was significantly and positively

correlated with both depression ($r = .306$, $p<.001$) and suicidality ($r = .242$, $p<.001$), indicating a stronger association of depressed mood and suicidality with experiences of weight-related stigma than with body mass.

With the exception of the stigmatizing situation of being physically attacked, all stigmatizing situations significantly correlated with suicidality. Nevertheless, none of the individual stigmatizing situations subscales reached statistically significant correlations with suicidality on their own.

Primary Analysis

Hypothesis 1: Experiences of weight-related stigma function as a predictor of depression.

Because the correlation between depression and stigma was highly significant, a test of the first hypothesis sought to confirm previous findings that weight-related stigma predicts depression in severely obese individuals. Demographic factors (gender, minority status, disability status and employment status) were controlled for in the analysis based on existing literature suggesting that these factors may play a role in self-reports of depressed mood (Carpenter et al., 2000; Ashmore et al., 2008). A hierarchical linear regression analysis with depression as the dependent variable and demographic factors (gender, minority status, disability and employment status) and stigma as predictors (Table 3) revealed that stigma was the only significant predictor of depressed mood (Beta = .306, $p<.001$) and accounted for 8.8% of the total variability in depression scores.

Table 3: Hierarchical Linear Regression results for depressed mood, entering minority status, disability status, employment status and stigma as predictors (N=262)

Variable	ΔR2 [a]	β [b]
Block 1 (Demographic Variables)	.020	
Gender		.100
Minority Status		.045
Disability Status		.020
Employment Status		-.042
Block 2 (Weight-Related Stigma)	.088***	
Stigmatizing Situations Score		.304***

[a] R2 =indicates the amount of variance accounted for by each additional step in the hierarchical linear regression.
[b] β = standardized beta estimates for the final hierarchical linear regression model generated are presented as an estimate of effect size.
*p<.05, **p<.01, ***p<.001

Hypothesis 2: Weight-related stigma predicts suicidality.

A hierarchical linear regression analysis (Table 4) was then conducted in order to assess the degree of weight-related stigma predicts suicidality in severely obese candidates for bariatric surgery.

Table 4: Hierarchical Linear Regression results for suicidality, entering minority status, disability status, employment status and stigma as predictors (N=262)

Variable	ΔR2 [a]	β [b]
Block 1 (Demographic Variables)	0.025	
Gender		0.059
Minority Status		-0.106
Disability Status		0.015
Employment Status		-0.095
Block 2 (Weight-Related Stigma)	0.059***	
Stigmatizing Situations Score		0.248***

[a] R2 =indicates the amount of variance accounted for by each additional step in the hierarchical linear regression.
[b] β = standardized beta estimates for the final hierarchical linear regression model generated are presented as an estimate of effect size.
*p<.05, **p<.01, ***p<.001

Demographic factors of gender, minority status, disability status and employment status were again controlled for based on previous findings suggesting their possible influence on suicidality (Carpenter et. al., 2000; Ashmore et. al., 2008). Suicidality was entered as the

dependent variable, while gender, minority status, disability and employment status were controlled for in the first step of the regression analysis and the stigmatizing situations total score was entered in the second step.

The results revealed a statistically significant predictive value of the stigmatizing situations total score (Beta = .254, $p<.001$), with this variable accounting for 5.9% of the total variability in suicidality scores. A similar effect was not observed for any of the demographic variables (gender, minority status, disability status or employment status).

To sum up, statistical analyses found support for both hypotheses, indicating that in severely obese individuals seeking bariatric surgery, depression correlates more strongly with weight-related stigma than with other variables including body mass, and that weight-related stigma functions as a predictor of both depression and suicidality.

Discussion

The present study sought to replicate previous findings that in severely obese individuals seeking bariatric surgery, experiences of weight-related stigma function as a predictor of depressed mood, and to test the hypothesis that weight-related stigma also predicts suicidality in this population. Both hypotheses were supported by the data, showing that when controlling for gender, minority status, disability, and employment status, weight-related stigma predicts both depressed mood and suicidality. While stigma has statistical significance in predicting suicidality, the low percentage of accounted variability (5.9%) indicates that stigmatizing situations alone cannot be regarded as the sole predictor of suicidality, but rather as a component in a broader model of interactions, and that additional predictors need to be considered.

One such predictor may be a person's body mass. The existing literature suggests that obesity itself has a strong influence on depression and suicidality in obese populations. Although the relationship has been documented in several studies (Sullivan et al., 1993; Dong et al., 2006), the present study found no association between BMI and depression and between BMI and suicidality. This result can be explained by the fact that the research sample in the present study consisted predominantly of severely obese individuals (average BMI = 48.7), while previous studies also included lower weight categories (obese in Sullivan et al, 2003; normal-weight in Dong et al., 2006). Since the present study selected a sample with a high BMI range as opposed to one with a broad BMI range, the lack of variability may have led to this finding.

Another factor that has been found to be related to depression and suicidality in previous research is gender. For example, Carpenter et al. (2000) found that increased body weight correlated with increased depression, suicidal ideation and suicide attempts in females, while increased body weight decreased the risk for these factors in men, suggesting that a gender effect can be expected when measuring depressed mood and suicidality in a sample of candidates for bariatric surgery. A study by Ashmore and colleagues (2008) confirmed that bariatric surgery-seeking females report more depressed mood than their male counterparts. This finding was also confirmed by the present study, as a statistically significant difference in self-reported depressed mood was found between genders, with women scoring higher than men on the Beck Depression Inventory.

Effects of gender on depressed mood in obese populations could be consequences of stigma. Puhl and Brownell (2003) found that women with a BMI between 30 and 35 were more than three times more likely than their male counterparts to report weight-related discrimination,

with the difference narrowing, but remaining statistically significant as BMI increased. The present study, however, found no gender differences in self-reports of stigmatizing situations, which may result from the uneven gender distribution (60 men, 202 women) or from sample selection. It could also be the case that, while experiencing similar stigmatizing situations, men and women have different coping strategies which may affect their mood in different ways. Furthermore, based on the results from this study, suicidality appears not to be gender-specific. While the same factors of gender distribution and sample selection could have played a role, further research is necessary to address gender differences in strategies for coping with obesity stigma and their possible implications for suicidality.

Experiences of stigmatizing situations were infrequent in the present study, occurring on average once or slightly more than once in participants' lifetime. Similar results were found in a study by Sarwer and colleagues (2008), where self-reports of stigmatizing situations were low among bariatric surgery candidates. In addition, Sarwer et al. (2008) found no correlation between body mass and stigmatizing situations, and consequently suggested that obesity may have become more socially acceptable and less stigmatized.

The data from the present study, however, poses problems for this interpretation. Body mass was found to be strongly associated with most stigmatizing situations, suggesting that weight-related stigma still dominates societal perceptions of obesity. Thus, an alternative explanation is necessary to account for the low reports of lifetime experiences with weight-related stigma. One possibility is that surgery-seeking obese people have lived with excessive weight – and possibly the stigma associated with it – for several years, and may have either internalized the stigma as a coping mechanism (Puhl & Brownell, 2003) or developed a higher

threshold for when stigmatizing situations are experienced as upsetting and when they stand out in memory. Alternatively, it is also possible that weight-related stigma is expressed more subtly and involves aspects that are not covered by the Stigmatizing Situations Inventory despite its comprehensive set of items.

This study found an unexpected relationship between stigma and employment status, indicating that the more time an obese person spends at work, the more frequently they experience weight-related stigma. This could occur as a result of the fact that, compared to part-timers and those not currently employed, full-time employees have more opportunities to interact with others. Upon further investigation however, employment status was found to be associated only with nasty comments from family and feelings of being excluded, avoided, or ignored. This suggests that when severely obese individuals are employed full-time, they experience more nasty comments from their families than if they are unemployed or work part-time.

This is interesting especially in light of the fact that nasty comments from family members were not associated with BMI, while most other stigmatizing situations were. It appears that weight-related stigma from family members differs, to some extent, from stigma from others, and is not directly related to the weight of the obese person, but rather to the obese person's ability to work and function within society. Obesity is often attributed the social meaning of not being able to avoid “the temptations of indulgence and sloth” (Drew & Bielby, 2007, p.12), while dieting and exercise indicate the contrary. It is possible that, much like dieting and exercise, employment is also conceptualized as a proactive stance and a sign of agency, which could therefore lead to stigmatizing beliefs that if a person is not disabled and is capable of being active and functioning in society, then obesity must be either that person's choice or a

character flaw. Research is needed to investigate this possibility, and to provide a more in-depth analysis of obesity stigma within and beyond family interactions.

Although the present study revealed significant results, any conclusions need to be interpreted in light of several limitations regarding the chosen sample, the factors that were controlled for and the conceptualization of the measured factors. First, the sample consisted exclusively of severely obese persons seeking bariatric surgery. This is a very specific focus, and it is not yet clear to what extent the results can be generalized beyond this population, for example to severely obese persons not seeking surgery or to other weight categories. Further research is therefore necessary to verify these results against data from underweight, normal weight, overweight and obese people, as well as in comparison to a control group of severely obese people not seeking surgery. Second, factors such as psychiatric conditions or other obesity-related physical conditions were not controlled for. Although the study controlled for disability, obesity-related health problems may severely impact a person's quality of life without causing disability.

A third limitation relates to the conceptualization of suicidality and stigma. In this study, suicidality was understood as active and conscious and was assessed based on whether a person explicitly thought of or attempted suicide. Passive suicide, in the sense that a person makes no effort to stay alive, was not assessed through the measures used in this study, although it may be a relevant addition to the model. Furthermore, despite focusing specifically on a sample of bariatric surgery-seeking obese persons, stigma was measured only in relation to obesity, without addressing the stigma of bariatric surgery. The stigma of bariatric surgery refers to the negative assumption that the procedure is morally questionable, medically risky and unnecessarily

financially extravagant (Drew & Bielby, 2007). Compared to socially "appropriate" ways to lose weight such as dieting and exercising, weight-loss surgery is often believed to be "the easy way out" that requires no effort on the patient's side (Earvolino-Ramirez, 2008). A study addressing this stigma showed that severely obese people who decided to undergo the surgical procedure were aware of this stigma (Drew & Bielby, 2007). Further studies are necessary to investigate the extent to which the combination of weight-related stigma and bariatric-surgery stigma affects the emotional well-being of surgery-seeking obese persons, as this may play a role in self-harming thoughts and behaviors.

This study opens several new avenues for further scientific attention. For example, it is possible that seeking bariatric surgery and attempting suicide are both extreme, yet diametrically opposed, strategies for changing one's social status as a severely obese person under the pressure of societal stigma. A qualitative study (Wysoker, 2005) investigated the lived experience of choosing bariatric surgery to lose weight and found that all interviewed subjects (N=8) repeatedly emphasized that bariatric surgery was "a last resort", since numerous diets and weight-loss strategies had failed and they felt that their weight "was never going to change" and that surgery was "the final step" that they could take (p. 29). Such feelings of hopelessness and last resort can also influence suicidal ideation and suicide attempts.

Also related to the desire to obtain a less stigmatized social status are the strategies obese individuals use in order to cope with weight-related stigma. Further research could address the possibility that weight-related stigma encourages unhealthy coping strategies such as unhealthy eating, lack of physical activity and self-harm and thereby leads to a higher dissatisfaction with oneself and more frequent and more intense experiences of depressed mood.

Because weight-related stigma is a complex phenomenon that occurs at all levels of society, efforts to reduce symptoms of depression and rates of suicide mortality in obese populations need to focus on reducing attributions of blame and improving societal attitudes regarding obesity. First, awareness needs to be raised about the consequences of stigma and that, contrary to assumptions that stigma motivates obese individuals to lose weight (Puhl and Brownell, 2003a) and to lead a healthy lifestyle, in reality stigma severely affects the mental well-being and possibly even the physical health of overweight and obese persons. Second, attributions of blame can be reduced by educating the general public regarding the factors that contribute to obesity, as well as the factors that create and maintain negative stereotypes. It may be easier for people to abandon prejudice if it is not framed as an inherent component of their personal belief system, but rather if prejudice is explained as unfiltered and unverified attributions inferred from incomplete or misleading external information. A third way to reduce obesity stigma is to address the issue based on a social consensus approach (Puhl & Brownell, 2003a), which holds that the strength of stigma depends on how bias is expressed in a person's relevant in-group and may be fueled by that person's need for acceptance. Thus, if a person who is prejudiced about obesity learns that valued peers have a positive and accepting attitude towards those who are affected by this condition, it is likely that she will also adjust her personal beliefs to be more similar with her peers' attitudes.

Paralleling efforts to reduce stigma, teaching adequate and effective coping strategies to overweight individuals of all ages may also be a way to reduce depressed mood and suicidality in this population. Since attitude change does not happen overnight, such strategies to reduce obesity stigma and enhance coping need to be enforced over a long period of time in order to

produce visible and lasting effects.

To sum up, the present study found empirical support for the hypothesis that weight-related social stigma predicts depression and suicidality in severely obese candidates for bariatric surgery. While further research is needed before the complex model of suicidality in this context can be fully understood, these results suggest that experiences with weight-related stigma may influence suicidal thoughts and behaviors in severely obese surgery-seeking adults. These findings emphasize the need for more effective strategies to reduce obesity stigma, such as awareness about the deleterious effects of stigma, about sources of prejudice and biological causes of obesity, as well as for efforts to enhance social consensus regarding the undesirable nature of stigma, and to teach obese individuals adequate and effective coping strategies in the face of weight-related discrimination.

References

Addis, M. & Linehan, M. M. (1989). Predicting suicidal behavior: Psychometric properties of the Suicidal Behaviors Questionnaire. Poster presented at the Annual Meeting of the Association for the Advancement Behavior Therapy, Washington, D.C.

American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.

Ashmore, J. A., Friedman, K. E., Reichmann, S. K., & Musante, G. J. (2008). Weight-based stigmatization, psychological distress, and binge-eating behavior among obese treatment-seeking adults. *Eating Behaviors, 9,* 203-209.

Beck, A. T., Steer, R. A., Ball, R., Ranieri, W. (1996). Comparison of Beck Depression Inventories -IA and -II in psychiatric outpatients. *Journal of personality assessment, 67,* 588–97.

Brown, G. (2001). A review of suicide assessment measures for intervention research with adults and older adults. Retrieved April 27, 2009 from http://sbisrvntweb.uqac.ca/archivage/15290520.pdf.

Brylinsky, J. A., & Moore, J. C. (1994). The identification of body build stereotypes in young children. *Journal of Research in Personality, 28,* 170-181.

Canning, H., Mayer, J. (1966). Obesity – its possible effects on college acceptance. *New England Journal of Medicine, 275,* 1172-1174.

Carpenter, K. M., Hasin, D. S., Allison, D. B., & Faith. M. S. (2000). Relationships between obesity and DSM-IV Major Depressive Disorder, suicide ideation, and suicide attempts: results from a general population study. *American Journal of Public Health, 90,* 251-257.

Chen, E. Y., Brocchieri-Ricciardi, L. E., Munoz, D., Fischer, S., Katterman, S., Roehrig, M., et al. (2007). Depressed mood in class III obesity predicted by weight-related stigma. *Obesity Surgery, 17,* 669-671.

Cramer, P., & Steinwert, T. (1998). Thin is Good, Fat is Bad: How early does it begin? *Journal of Applied Developmental Psychology, 19,* 429-451.

Crandall, C. S. (1994). Prejudice against fat people: ideology and self-interest. *Journal of Personality and Social Psychology, 66,* 882-894.

Crandall, C. S. (1995). Do parents discriminate against their heavy-weight daughters? *Personality and Social Psychology Bulletin, 21,* 724-735.

Crandall, C. S., & Moriarty, D. (1995). Physical illness stigma and social rejection. *The British Journal of Social Psychology, 34,* 67-83.

Crocker, J., Major, B., & Steele, C. (1998). Social stigma. In D. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), Handbook of social psychology (4th ed., pp. 504-553). Boston: McGraw Hill.

Dong, C., Li, W.D., Li, D., & Price, R.A. (2006). Extreme obesity is associated with attempted suicides: results from a family study. *International Journal of Obesity, 30,* 388-390.

Dovidio, J. F., Major, B., & Crocker, J. (2000). Stigma: introduction and overview. In T.F. Heatherton, R.E. Neck, M.R. Hebl, & J.G. Hull (Eds.) *The social psychology of stigma* (pp. 1-28). Guilford Press.

Drew, P., & Bielby, D. D. (2007). Transforming Discourses, Transforming Selves: Weight Loss Surgery Patients' Renegotiations of Medicine's Institutional Logics. *Paper presented at the annual meeting of the American Sociological Association, New York, New York City.* Retrieved April 27, 2009 from http://www.allacademic.com/meta/p183049_index.html.

Earvolino-Ramirez, M. (2008). Living with bariatric surgery: totally different but still evolving. *Bariatric Nursing and Surgical Patient Care, 3,* 17-24.

Fontaine, K., & Bartlett, S. (1998). Estimating Health-Related Quality of Life in Obese Individuals. *Disease Management & Health Outcomes, 3,* 61-70.

Gilbert, D. T., & Malone, P. S. (1995). The correspondence bias. Psychological Bulletin, 117, 21-38.

Grivetti, L. (2001). Psychology and cultural aspects of energy. *Nutrition Reviews, 59,* S5–S12.

Jones-Corneille, L. R., Wadden, T. A., Sarwer, D. B., (2007). Risk of Depression and Suicide in Patients with Extreme Obesity Who Seek Bariatric Surgery. *Obesity Management, 3,* 255-260.

Krull, D. S. (2001). On partitioning the Fundamental Attribution Error: dispositionalism and the correspondence bias. In Gordon B. Moskowitz (ed.), *Cognitive Social Psychology: the Princeton symposium on the legacy and future of social cognition.* Lawrence Erlbaum Associates.

Linehan M. (1996). *Suicidal Behaviors Questionnaire (SBQ)* [unpublished manuscript]. Seattle, Washington: University of Washington.

Mather, A. A., Cox, B. J., Enns, M. W., Sareen, J. (2009). Associations of obesity with psychiatric disorders and suicidal behaviors in a nationally representative sample. *Journal of Psychosomatic Research, 66,* 277-285.

McCabe, M. P., & Ricciardelli, L. A. (2005). A prospective study of pressures from parents, peers, and the media on extreme weight change behaviors among adolescent boys and girls. *Behaviour Research and Therapy, 43,* 653-668.

McCabe, M. P., Ricciardelli, L. A., & Finemore, J. (2002). The role of puberty, media and

popularity with peers on strategies to increase weight, decrease weight and increase muscle tone among adolescent boys and girls. *Journal of Psychosomatic Research, 52,* 145– 153.

Myers, A., & Rosen, J. C. (1999). Obesity stigmatization and coping: Relation to mental health symptoms, body image, and self-esteem. International Journal of Obesity, 23, 221–230.

National Institutes of Health. (1991). Gastrointestinal Surgery for Severe Obesity. *NIH Consensus Statement Online 1991 Mar 25-27*, 9, 1-20. Retrieved May 5, 2009 from http://consensus.nih.gov/1991/1991GISurgeryObesity084html.htm.

Neumark-Sztainer, D., Story, M., Faibisch, L. (1998). Perceived stigmatization among overweight African-American and Caucasian adolescent girls. *Journal of Adolescent Health, 23,* 264-270.

Onyike, C. U., Crum, R. M., Lee, H. B., Lyketsos, C. G., Eaton, W.W. (2003). Is obesity associated with major depression? Results from the third National Health and Nutrition Examination Survey. *American Journal of Epidemiology, 158,* 1139-1147.

Osman, A., Bagge, C. L., Gutierrez, P. M., Konick, L. C., Kopper, B. A., & Barrios, F. X. (2001). The Suicidal Behaviors Questionnaire-Revised (SBQ-R): validation with clinical and nonclinical samples. *Assessment, 8,* 443-454.

Puhl, R. M., & Brownell, K. D. (2003). Ways of coping with obesity stigma: review and conceptual analysis. *Eating Behaviors, 4,* 53 – 78.

Puhl, R. M., & Brownell, K. D. (2003a). Psychosocial origins of obesity stigma: toward changing a powerful and pervasive bias. *Obesity Reviews, 4,* 213-227.

Puhl, R. M., Andreyeva, T., & Brownell, K. D. (2008). Perceptions of weight discrimination: prevalence and comparison to race and gender discrimination in America. *International*

Journal of Obesity, 32, 992–1000.

Rand, C. W., & MacGregor, A. M. C. (1990). Morbidly obese patients' perceptions of social discrimination before and after surgery for obesity. *Southern Medical Journal, 83,* 1391-1395.

Renzaho, A. M. N. (2004). Fat, rich and beautiful: changing socio-cultural paradigms associated with obesity risk, nutritional status and refugee children from sub-Saharan Africa. *Health & Place,* 10, 105-113.

Rothblum, E. (1992). Women and Weight: an international perspective. In U.P. Gielen, L.L. Adler, & N.A. Milgram (Eds.) *Psychology in International Perspective*. Amsterdam, The Netherlands: Swets & Zeitlinger.

Sarwer, D. B., Fabricatore, A. N., Eisenberg, M. H., Sywulak, L. A., & Wadden, T. A. (2008). Self-reported Stigmatization Among Candidates for Bariatric Surgery. *Obesity, 16*, S75–S79.

Seidell, J. C., Bakx, K. C., Deurenberg, P., Burema, J., Hautvast, J. G., Huygen, F. J. (1986). The relation between overweight and subjective health according to age, social class, slimming behavior and smoking habits in Dutch adults. *American Journal of Public Health, 76,* 1410-1415.

Spence-Jones, G. (2003). Overview of obesity. *Critical Care Nursing Quarterly, 26,* 83-88.

Sprinkle, S. D., Lurie, D., Insko, S. L., Atkinson, G., Jones, G. L., Logan, A. R., et al. (2002) Criterion Validity, Severity Cut Scores, and Test–Retest Reliability of the Beck Depression Inventory—II in a University Counseling Center Sample. *Journal of Counseling Psychology, 49,* 381-385.

Steinbrook, R. (2004). Surgery for severe obesity. *The New England Journal of Medicine,*

350(11), 1075-1079.

Stewart A. L., & Brook R. H. (1983). Effects of being overweight. *American Journal of Public Health, 73,* 171-178.

Storch, E. A., Roberti, J. W., & Roth, D. A. (2004). Factor structure, concurrent validity, and internal consistency of the Beck Depression Inventory-Second Edition in a sample of college students. *Depression and Anxiety, 19,* 187-189.

Sullivan, M., Karlsson, J., Sjöström, L., Backman, L., Bengtsson, C., Bouchard, C., et al. (1993). Swedish obese subjects (SOS) - an intervention study of obesity. Baseline evaluation of health and psychosocial functioning in the first 1743 subjects examined. *International Journal of Obesity, 17,* 503-512.

Wysoker, A. (2005). The lived experience of choosing bariatric surgery to lose weight. *Journal of the American Psychiatric Nurses Association, 11,* 26-34.

Appendix A

Stigmatizing Situations Inventory
Categories & Sample Questions for Stigmatizing Situations
(adapted from Myers & Rosen, 1999).

1 **Comments from children**
"As an adult, having a child make fun of you"
"A child coming up to you and saying something like 'You're fat!'"

2 **Others making negative assumptions about you**
"Other people having low expectations of you because of your weight."
"Having people assume you have emotional problems because you are overweight."

3 **Physical barriers**
"Not being able to fit into seats at restaurants, theaters, and other public places."
"Not being able to find clothes that fit."

4 **Being stared at**
"Being stared at in public."
"Groups of people pointing and laughing at you in public."

5 **Nasty comments from family**
"A spouse/partner calling you names because of your weight."
"A parent or other relative nagging you to lose weight."

6 **Nasty comments from others**
"Having strangers suggest diets to you."
"Being offered fashion advice from strangers."

7 **Being avoided, excluded, ignored**
"Being unable to get a date because of your size."
"Being singled out as a child by a teacher, school nurse, etc. because of your size."

8 **Loved ones being embarrassed by your size**
"Having a spouse or partner be ashamed to admit being with you."
"Having family members feel embarrassed by you or ashamed of you."

9 **Job discrimination**
"Losing a job because of your size."
"Not being hired because of your weight, shape, or size."

10 **Being physically attacked**
"Being hit, beaten up, or physically attacked because of your weight."

Appendix B

Stigmatizing Situations Inventory
Categories & Sample Questions for Coping Styles
(adapted from Myers & Rosen, 1999).

1 **Positive self-talk:** “I think, 'It's who I am on the inside that matters.'”

2 **'Heading off' negative remarks:** “I make eye contact and say 'hi' to people who might be staring.”

3 **Using faith, religion, prayer:** “I think to myself, 'God is on my side.'”

4 **Self-love, self-acceptance:** “I do something nice for myself to make me feel better.”

5 **Negative self-talk:** “I think that no one will ever love me because of my weight.”

6 **Eating:** “If people make me feel badly about my weight, I just eat more.”

7 **Social support from not-fat people:** “I get support from my spouse/partner.”

8 **Refuse to diet:** “I think to myself that I will not diet in order to please other people.”

9 **See the situation as the other person's problem:** “I regard people who have problems with overweight as small-minded and childish.”

10 **Humor, witty comebacks or joking:** “I laugh it off or joke about it.”

11 **Refuse to hide, be visible:** “I make a point of not hiding my body.”

12 **Ignoring situation, making no response:** “I pretend I did not hear the remark and walk away.

13 **Cry, isolate myself:** “I cry about it, then get over it.”

14 **Responding positively, being 'nice':** “I just say hello and am friendly.”

15 **Social support from other fat people:** “I talk to other overweight people.”

16 **Avoid or leave situation:** “I quit jobs where I encounter stigma or discrimination.”

17 **Diet:** “I go on a diet to reduce or avoid discrimination/stigma based on weight.”

18 **Educate self or others about fat stigma:** “I educate other people about fat acceptance and weight control.”

19 **Responding negatively, insulting back:** “I tell the other person off.”

20 **Seeking therapy:** “I talk to a counselor or social worker.”

21 **Physical violence:** “I fight back physically.”