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Implications of weight-based stigma and self-bias on quality of life among individuals with Schizophrenia

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Abstract

Obesity has been associated with significant stigma and weight-related self-bias in community and clinical studies, but these issues have not been studied among individuals with schizophrenia. A consecutive series of 70 obese individuals with schizophrenia or schizoaffective disorder underwent assessment for perceptions of weight-based stigmatization, self-directed weight-bias, negative affect, medication compliance, and quality of life. Levels of weight-based stigmatization and self-bias were compared to levels reported for non-psychiatric overweight/obese samples. Weight measures were unrelated to stigma, self-bias, affect, and quality of life. Weight-based stigmatization was lower than published levels for non-psychiatric samples, whereas levels of weight-based self-bias did not differ. After controlling for negative affect, weight-based self-bias predicted an additional 11% of the variance in the quality of life measure. Individuals with schizophrenia and schizoaffective disorder reported weight-based self-bias to the same extent as non-psychiatric samples despite reporting less weight stigma. Weight-based self-bias was associated with poorer quality of life after controlling for negative affect.

Keywords

Schizophrenia; obesity; stigma; self-bias; quality of life

Obesity is associated with major health problems, such as cardiovascular disease and diabetes, for an increasing number of Americans particularly for those with chronic and severe mental illness (Allison et al., 1999; McElroy, 2009; Mokdad et al., 1999). Obesity is also associated with negative social consequences (Puhl & Heuer, 2009). Weight-related stigma consists of negative attitudes and discriminatory behaviors directed toward obese individuals such as, for example, critical and insulting comments by others, job discrimination, discrimination in healthcare settings, and derogatory media representations (Puhl & Heuer, 2009). Weight-related stigma has been found to be associated with emotional distress including symptoms of anxiety and depression (Puhl & Heuer, 2009; Zhao et al., 2009). In addition to stigma directed toward obese individuals by others, research has also identified the presence of self-directed, internalized anti-obesity attitudes held by obese individuals toward themselves (Durso & Latner, 2008). This self-bias includes beliefs about the implications of obesity on multiple life-domains including (but not limited to) social and romantic relationships, self-esteem, attitudes of competence, attractiveness,

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self-loathing, and self-value (Durso & Latner, 2008). Weight-related self-bias is also associated with emotional distress, psychosocial problems, and decreased quality of life (Puhl & Heuer, 2009). Although these constructs reflecting anti-obesity attitudes have recently received increased research attention in diverse community and clinical settings, there is a lack of research examining these concepts among obese individuals with severe mental illness or with schizophrenia.

Weight gain and obesity have been widely linked to treatment with the second generation antipsychotic (SGA) medications commonly prescribed for the treatment of schizophrenia (Allison et al., 1999; Parsons et al., 2009). Medication side effects, such as the significant weight-gain caused by SGAs, are a cause of significant concern for persons with schizophrenia and their treaters, and have been associated with dissatisfaction with medication regimens and medication non-compliance (Myers & Rosen, 1999; Parsons et al., 2009; Switaj, Wciórka, Smolarska-Switaj, & Grygiel, 2009). Furthermore, interpersonal differences in concern over weight gain are important; not only has weight been found to have a positive relationship to medication non-compliance, but distress due to weight may be more strongly related to medication compliance than objective weight status (Puhl & Brownell, 2006).

Based on the converging findings in the literature regarding the pervasiveness of anti-obesity attitudes and their negative sequelae among the general population, it is logical to hypothesize that weight-related bias may intensify the negative impact of obesity among individuals with schizophrenia, who already experience stigma related to their mental illness (Switaj et al., 2009). Perceptions of being stigmatized due to weight have not yet been studied among schizophrenic populations. Also unstudied are the weight-based self-directed attitudes among obese individuals with schizophrenia. These constructs are of importance for obese individuals with schizophrenia because they may have implications for individuals' psychological well-being, quality of life, and attitudes toward medications. Thus, in this study we examined the weight-related stigma experiences and self-directed weight-bias in a group of individuals with diagnoses of schizophrenia or schizoaffective disorder and comorbid obesity. We compared the levels of stigma and self-directed weight-bias in the current study group with those reported in non-psychiatric samples. We explored gender differences in the experiences of weight-related stigma and self-directed weight-bias. We also examined the relationship between weight-related stigma and self-directed weight-bias and actual weight status, symptoms of affective distress, attitudes toward medication, and quality of life.

METHOD

Recruitment

Participants were a consecutive series of the first 70 individuals recruited as part of a larger on-going randomized controlled trial testing a lifestyle intervention for weight loss in persons with schizophrenia and schizoaffective disorder. Participants were from the greater New Haven, CT area and were recruited from several local community mental health centers and a local Veterans Administration Medical Center. The study was advertised using flyers placed at these agencies and through referrals from clinicians at these agencies. This study was reviewed and approved by the Human Investigation Community at the Yale University School of Medicine and all participants provided written informed consent.

Eligible participants were between the age of 18 and 65, had a body mass index (BMI) of 28 or greater, met *DSM-IV* criteria for schizophrenia or schizoaffective disorder; were on a stable dose of antipsychotic medication for at least one month, and were stable with respect to positive symptoms as judged by the clinical team and investigator. Exclusion criteria

included: history of dementia or mental retardation; inability to give informed consent for participation in this study; ongoing pregnancy; and living in a structured environment where the meals are provided as part of the program (e.g., group homes, nursing homes, etc.).

Comparison Groups

In order to provide a context for interpreting the obesity stigma and bias levels in our study group, we compared our groups' scores to those reported on those measures for community samples of overweight and obese, non-psychiatric individuals. Those comparison data were drawn from Puhl and Brownell (2006) and Durso and Latner (2008). The sample reported in Puhl and Brownell (2006) comprised 2449 females recruited from a national non-commercial, weight-loss program through the organization's web site. The sample reported in Durso and Latner comprised 198 males (n= 34) and females (n=164) who were recruited using online resources.

Demographic and Weight Information

Information was collected on age, diagnosis, gender, ethnicity, and marital status. Weight was measured (in kilograms) using a Health O Meter 500KL Digital Medical Beam Weight Scale that was calibrated using NIST (National Institute of Standards and Technology) and NVLAP (National Voluntary Laboratory Accreditation Program) certified Troemner UltraClass Stainless Steel calibration weights (1000g and 500g). The Health O Meter scale was also used to measure height (in centimeters) and for the calculation of BMI according to the standard formula: BMI=mass (kg)/height^2 (m^2).

Measures

Participants completed a packet of established self-report questionnaires during the baseline assessment. Members of the research team assisted in completing the measures as necessary. The measures included surveys to assess perceptions of stigmatization by others, self-directed weight-bias, attitudes toward medication, and negative affect.

Experiences of Weight-related Stigma—Experience of stigma was measured using the 50-item version of the Stigmatizing Situations Inventory (SSI) (Myers & Rosen, 1999). The SSI consists of 50 items measuring the frequency of a variety of types of stigmatizing encounters, such as barriers (e.g., not being able to find clothes that fit), weight-related comments from family members (e.g., being called names by a spouse or partner), and job discrimination (e.g., losing out on a job opportunity due to weight). This measure originally used a 10-point rating system, which previous work has found to be difficult to use and therefore a modified rating system has been developed (Puhl & Brownell, 2006). Given the cognitive limitations often found in schizophrenic populations, we opted to use the modified rating system, which consists of a 4-point rating scale ranging from *0=never* to *3=multiple times*; higher scores indicate more frequent experiences of stigmatizing situations. The SSI has been found to have good internal consistency (coefficient alpha ranging from .90 to .96) and validity (Puhl & Brownell, 2006; Myers & Rosen, 1999)

Self-Directed Weight-Bias—Self-directed weight-bias was measured using the Weight-Bias Internalization Scale (WBIS) (Durso & Latner, 2008). The WBIS consists of 11 items that assess attitudes of self-directed, weight-biased attitudes in individuals who are obese or overweight using a 7-point response scale ranging from *1=strongly disagree* to *7=strongly agree* (sample item: "As an overweight person, I feel that I am just as competent as anyone."). Higher scores on the WBIS indicate higher levels of internalized weight-bias. The WBIS has been found to have good internal consistency (coefficient alpha =.90) and construct validity (Durso & Latner, 2008).

Attitudes toward Medication—Attitudes toward medications were assessed using the Medication Adherence Rating Scale (MARS), an 11-item self-report scale assessing broad attitudes toward medication (e.g., *"When you feel better, do you sometimes stop taking your medicine?" or "I feel weird, like a zombie on medication."*) (Thompson, Kulkarni, & Sergejew, 2000). Items are scored via a simple yes/no scale. The MARS was found to have reliability on par with other measures of medication attitudes (Chronbach's alphas ranging from .75 to .77) and good internal and construct validity; the MARS was found to have a moderate correlation with actual blood levels of psychotropic medications (r=.60, p<.01) (Thompson et al., 2000).

Negative Affect—Presence of negative affect was measured using the Beck Depression Inventory (BDI), a 21-item, self-report questionnaire that assesses behavioral, cognitive, and physical symptoms of depression (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). The BDI has been used widely for research and clinical purposes and has been found to have good reliability and validity. The BDI has been found to significantly correlate with other measures of general negative affect (Watson & Clark, 1984) and has been used as a measure of negative affect in previous research (Grilo, Masheb, & Wilson, 2001). Higher scores are indicative of more negative affect.

Quality of Life (QOL)—Quality of life was measured using an abbreviated version of the Quality of Life Enjoyment and Satisfaction Scale-18 (Q-LES-Q-18), which was specifically developed for use with schizophrenic populations (Endicott, Nee, Harrison, & Blumenthal, 1993; Ritsner, Kurs, Gibel, Ratner, & Endicott, 2005). The Q-LES-Q-18 assesses domains of QOL including subjective attitudes and satisfaction related to health, leisure time activities, and socialization. Items are scored on a 5-point scale ('not at all or never' to 'frequently or all the time'), with lower scores reflecting less enjoyment and satisfaction and higher scores being reflective of positive attitudes and overall satisfaction with the various life domains.

Statistical Analysis

Descriptive techniques were used to generate summary statistics for demographic, physical measures, and clinical variables. Inter-correlations among variables were examined. Independent samples t tests were used to examine gender differences among our study group. Mean scores on measures of weight-based stigmatization by others and self-bias from our study group were compared with means reported for samples selected by Puhl and Brownell (2006) and Durso and Latner (2008), respectively. These comparisons were made via independent samples t-tests, which consider sample size, mean, and standard deviations to test for statistically significant differences (Dimension Research, Inc.). Multiple linear regression analysis was used to evaluate the relationships between stigma and internalized weight-bias with the measure of quality of life while controlling for demographic factors (age, race) and the presence of negative affect.

RESULTS

Table 1 summarizes the demographic characteristics of the study group as well as mean values for perceptions of stigma, self-directed weight-bias, negative affect, quality of life, and medication attitudes. We compared mean BMI between our sample and the two community comparison samples. There was no difference in BMI between our sample and the Puhl and Brownell (2006) sample (mean BMI=37.6, SD=9.39) but the Durso and Latner (2008) sample (mean BMI=33.21, SD=8.58) was significantly less obese than our sample; $t(266)-3.15$, p<..05.

Comparison of Study Group to Published Levels of Weight-Based Attitudes

Independent samples t-test revealed that levels of weight-based stigmatization reported by our study group (mean=.72, SD=.53) were lower than mean levels reported among a non-psychiatric sample of overweight or obese female weight-loss support group members (Puhl & Brownell, 2006) (mean=.98, SD=.62; $t(2507)=3.22$, $p<.05$, two-tailed). In contrast, independent samples t-test revealed no significant difference on weight-based self-bias scores between our study group (mean=4.1, SD=.1.2) and published levels reported by a non-psychiatric group of overweight or obese internet users (Durso & Latner, 2008) (mean=3.9, SD=1.3); $t(256)=.86$, ns, two-tailed).

Exploration of Gender Differences

An independent samples t test revealed no significant difference in levels of self-directed weight-bias between men and women ($t(58)= -.94$, ns), although women reported higher levels of stigmatization by others ($t(58)= -1.78$, $p<.05$, two-tailed). Separate correlations for men and women revealed that self-directed weight-bias was significantly correlated with negative affect for both males and females ($r=.46$, $p<.05$ and $r=.61$, $p<.01$ respectively) and with quality of life ($r= -.46$, $p<.05$ and $r= -.53$, $p<.01$ respectively); perceptions of stigmatization by others was not significantly correlated with negative affect or quality of life for either men or women. Stigmatization by others was significantly correlated with self-directed weight-bias for women ($r=.50$, $p<.01$) but not for men.

Weight-Based Attitudes and Clinical Measures

Table 2 presents the correlation matrix for the clinical variables. Neither actual weight nor BMI were significantly correlated with the clinical variables. Weight-related stigmatization was significantly correlated with internalized weight-bias ($r=.43$, $p<.01$). Negative affect was significantly correlated with internalized weight-bias ($r=.53$, $p<.01$), but not perceptions of stigmatization by others. Quality of life was significantly and inversely correlated with both internalized weight-bias ($r = -.45$, $p<.01$) and with negative affect ($r= -.42$, $p<.01$), but not with perceptions of stigmatization by others. The measure of medication attitudes and compliance was not significantly correlated with the other variables.

Table 3 summarizes the omnibus stepwise linear regression analysis findings. After controlling for age, race, and scores on the BDI, self-stigmatization significantly predicted an additional 11% of the variance in Q-LES-Q scores.

DISCUSSION

Despite reporting levels of weight-based stigmatization that are lower than published levels for non-psychiatric groups, our study group comprised of persons with severe mental illness (i.e., schizophrenia or schizoaffective disorders) reported negative weight-based self-bias at to the same extent as reported by a non-psychiatric sample. This suggests that there is significant self-reflection on the personal implications of weight among these individuals with levels of highly negative self-attitudes on par with the general population. Furthermore, weight-based self-bias was significantly related to poorer quality of life (and accounted for an additional 11% of the variance) even after controlling for demographic factors and levels of negative affect. Although our sample was significantly more obese than the Durso and Latner community comparison sample, this is not likely to account for our findings here because neither we nor Durso and Latner found a relationship between actual weight status and weight-based self-bias. Similarly, we found that actual weight status was not significantly correlated with perceptions of stigma or negative affect. As has been observed with non-psychiatric groups (Weiden, Mackell, & McDonnell, 2004), subjective perceptions of weight status are more related to distress than actual weight among individuals with

schizophrenia. In fact, this is consistent with research on schizophrenia-related self-stigma, which was found to be more predictive of psychiatric hospitalization among a sample of individuals with schizophrenia than the level of actual discrimination (Franz et al., 2010). These findings highlight the specific and unique negative burden of weight-related self-bias even among persons with severe mental illness such as schizophrenia.

Our patients with serious psychiatric illness reported lower levels of stigmatization by others than reported by non-psychiatric samples (Durso & Latner, 2008; Puhl & Brownell, 2006). The reason for this finding is unclear and should be the focus of future research. We can speculate that perhaps our participants might be unable to differentiate between stigma experiences due to their weight versus stigma experiences due to their mental illness. Gender significantly impacted the relationship between stigmatization by others and negative affect. For women, but not men, more experiences of stigma by others was related to higher levels of negative affect and was related to more self-bias. This may be linked to an increased salience to stigmatization by others or perhaps a higher degree of sensitivity to others' weight-based attitudes for women (versus men) with schizophrenia. Differentially negative social attitudes toward obese women versus obese men may account for the difference observed here (Chen & Brown, 2005; Azarbad & Gonder-Frederick, 2010). It is also possible that for men with schizophrenia, other forms of stigma may be more salient and more related to mood, such as stigma due to mental illness.

In contrast to the findings regarding stigmatization by others, self-directed weight-bias was associated with negative affect and quality of life for both males and females. This finding is consistent with previous research with non-psychiatric populations (Durso & Latner, 2008). Although this study was correlational which precludes any causal conclusions, we can speculate that self-directed weight-bias could contribute to negative affect and poorer quality of life given findings reported for other obese patient groups (Chen et al., 2007). However, negative affect could lead to a negative attitude toward the self, which could foster more negative attitudes toward one's weight and one's perceptions of quality of life. We note, however, that self-directed weight-bias was still significantly related to poorer quality of life even after controlling for negative affect.

We did not observe a relationship between our physical and clinical measures and attitudes toward medication. In contrast to previous studies (Parsons et al., 2009; Switaj et al., 2009), it appears that weight gain likely attributable to antipsychotic medications in this patient group did not impact perceptions of their medication treatment. The reasons for this apparent discrepancy are unknown and warrant further study. It is possible that participants were not comfortable reporting medication non-adherence to study staff or self-presentation bias may have interfered with the validity of the measure in this study (Byerly et al., 2007). Further research will be needed to determine if there is a link between weight-based stigma, self-bias, medication adherence, and quality of life.

Several limitations should be noted. We assessed individuals with schizophrenia and schizoaffective disorder seeking treatment at one university-affiliated community mental health center in the northern eastern United States and our findings may not generalize to other persons with schizophrenia. It is possible, for example, that there may exist regional or geographic differences or that such views may differ across different clinical settings. Although we assessed general self-reported negative affect, we did not assess subjective distress directly attributable to weight, which could be an influencing factor in the relationship between stigma, self-directed weight-bias, mood, and medication compliance. However, given the fact that our study group consisted of individuals seeking treatment for weight-loss, it can be reasonably assumed that they experienced negative affect due to their weight; anecdotally, many participants discussed their distress over their weight with study

staff. The fact that these individuals were self-selected for a weight loss program may in fact be an indication that they are more concerned about their weight than a typical group of individuals with schizophrenia/schizoaffective disorder, potentially further limiting generalizability. Finally, this cross-sectional study was correlational in nature and therefore precludes any causal conclusions. Future studies should examine the nature and significance of such negative weight-based experiences and attitudes longitudinally and in relation to both illness course and treatment experiences.

Despite reporting levels of weight-based stigmatization that are lower than published levels for non-psychiatric groups, individuals with schizophrenia and schizoaffective disorders reported negative weight-based self-bias on par with non-psychiatric community comparison sample. Weight-related self-bias is associated with poorer quality of life even after controlling for negative affect. Therefore it is critically important that clinicians who work with individuals with severe mental illness be sensitive to these issues and recognize that that the negative impact of excess weight is not limited to physical health. These individuals may also suffer from both being the targets of anti-obesity attitudes as well as having internalized such negative attitudes towards themselves and therefore clinicians should work to address these issues to help ensure the most optimal outcomes for their clients.

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Table 1

Demographic and diagnostic characteristics of the study group (N = 70)

Age[a] (years), mean (SD)	45.4 (8.9)
Weight[b] (kg), mean (SD)	104.3 (20.2)
BMI[b], mean (SD)	36.8 (7.0)
SSQ[c], mean (SD)	.92 (.53)
WBIS[c], mean (SD)	4.1 (1.2)
BDI[d], mean (SD)	13.8 (10.6)
MARS[e], mean (SD)	3.6 (1.4)
Gender, n (%)	
Male	29 (41.4)
Female	41 (58.6)
Marital Status, n (%)	
Single	41 (58.6)
Domestic Partnership	1 (1.4)
Married	8 (11.4)
Separated/Divorced	18 (25.7)
Widow(er)	2 (2.9)
Race/Ethnicity, n (%)	
White	24 (34.3)
Black	40 (57.1)
Hispanic	5 (7.1)
Other	1 (0.6)
Diagnosis, n (%)	
Schizophrenia	34 (48.6)
Schizoaffective Disorder	36 (51.4)

BMI=body mass index; SSQ=Stigmatizing Situations Questionnaire; WBIS=Weight Bias Internalization Scale; Q-LES-Q=Quality of Life Enjoyment and Satisfaction Scale-18; and BDI=Beck Depression Inventory

[a] n=70

[b] n=61

[c] n=60

[d] n=69

[e] n=57

Table 2

Correlations among weight-based stigma, self-bias, and physical and clinical measures

	BMI	SSQ	WBIS	Q-LES-Q	BDI	MARS
Age	−.05	−.08	−.10	.27*	−.18	−.10
BMI		−.02	.06	.23	−.01	.11
SSQ			.43**	−.20	.22	.06
WBIS				−.45**	.53**	.20
Q-LES-Q					−.42**	−.03

* significant at the p<.05 level

Note: BMI=body mass index; SSQ=Stigmatizing Situations Questionnaire; WBIS=Weight Bias Internalization Scale; Q-LES-Q=Quality of Life Enjoyment and Satisfaction Scale-18; and BDI=Beck Depression Inventory

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Table 3

Stepwise Linear Regression with Age, Gender, BMI, Affective Distress, and Self-Bias predicting Quality of Life

Quality of Life: R^2= 41%					
Variables entered in the model	**B**	**SE**	**Beta**	**t**	**p**
BMI	.02	.02	.20	1.60	.12
Gender	.34	.16	.26	2.06	.05
Race	.02	.14	.02	.13	.90
Age	.01	.01	.18	1.32	.20
BDI	−.01	.01	−.13	−.83	.41
WBIS	−.23	.08	−.43	−2.82	.01

Note: BMI=body mass index; SSQ=Stigmatizing Situations Questionnaire; WBIS=Weight Bias Internalization Scale; Q-LES-Q=Quality of Life Enjoyment and Satisfaction Scale-18; and BDI=Beck Depression Inventory

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