

# Concordance Between Measured and Self-Perceived Weight Status of Persons With Serious Mental Illness

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**Objective:** This study investigated concordance between self-perceived and measured weight status for persons with serious mental illness.

**Methods:** A total of 586 mental health clients assessed their weight as underweight, normal, overweight, or obese. The agreement between these self-assessments and the same categories based on measured body mass index was related to gender, ethnicity, education, age, and psychiatric diagnosis. **Results:** Three hundred consumers (51%) underestimated their weight (they thought they weighed less than they did); only 35 (6%) overestimated it. In logistic regression analyses, gender, education, and psychiatric diagnosis showed significant effects on accuracy of self-perception, but ethnicity and age did not. **Conclusions:** People with serious mental illness are more likely than others to have weight problems, which contribute to higher rates of morbidity and mortality. However, they also tend to underestimate their weight. This gap between reality and self-perception must be addressed. (*Psychiatric Services* 64:91–93, 2013; doi: 10.1176/appi.ps.201100515)

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In 2001, the U.S. Surgeon General issued a “call to action” to decrease the rate of overweight and obesity in this country to 15%, from the current rate of 60%. To date, no U.S. state has come even close to achieving this goal (1). Prior research on obesity has shown that a precondition to the effectiveness of interventions for overweight and obese individuals is for individuals to be able to accurately assess their true weight status (2–4), as measured by their body mass index (BMI). In fact, these prior studies have found that self-perception of weight often differs from the medical standard based on the BMI. For example, an individual classified as obese based on a BMI of 35 may nonetheless view him- or herself as merely somewhat overweight. In addition, some studies revealed a strong association between self-perceived weight status and weight control behaviors (3,5,6). In other words, a hypothetical individual with a BMI of 35 is more likely to attempt weight loss when viewing him- or herself as obese as opposed to somewhat overweight. Still other studies reviewed the effects of actual weight, age, gender, ethnicity, and education level on an individual’s awareness of his or her weight status and motivation to engage in weight control behaviors and persist in them (1,4,7).

As far as we know, research on the difference between perceived and actual weight status has not been pursued with persons living with serious and

persistent mental illness. The absence of such studies in this population is regrettable given the report issued in 2006 by the National Association of State Mental Health Program Directors (NASMHPD), which indicates that people living with serious mental illness die 25 years earlier than people in the general population mainly as a result of preventable causes, such as heart disease, diabetes, and hypertension, all of which are closely related to obesity and overweight (8).

Factors that contribute to the obesity epidemic among people with serious mental illness include use of antipsychotic medications (9); unhealthy lifestyle habits, such as smoking and little motivation to exercise or lack of opportunities to do so; and poor access to the ingredients of an adequate, healthy diet or lack of motivation to acquire them (8).

The purpose of this study was to investigate concordance between a category of self-perceived weight status (overweight, for example) and actual weight status based on the BMI of individuals receiving mental health services in a community mental health center. In addition, we investigated the association of BMI, age, gender, education, ethnicity, and psychiatric diagnosis with the accuracy of self-perception of weight. Finally, we discuss recommendations for increasing self-awareness of actual weight status in order to address the obesity epidemic that contributes to the shorter life span in this population.

**Table 1**

Relationship between congruence of measured and perceived weight status and demographic and clinical characteristics of 586 persons with serious mental illness

Characteristic	Congruence						Total
	Congruent		Underestimating		Overestimating		
	N	%	N	%	N	%	
Gender							
Male	108	35	182	60	15	5	305
Female	143	51	118	42	20	7	281
Ethnicity							
African American	82	39	112	54	15	7	209
Latino	64	45	71	50	8	6	143
European American	105	45	117	50	12	5	234
Age group							
Young adult (18–34)	104	49	93	43	17	8	214
Adult (35–64)	136	39	201	57	14	4	351
Elderly (≥65)	11	52	6	29	4	19	21
Education							
High school and below	171	40	230	54	23	5	424
Some college	80	49	70	43	12	7	162
Diagnosis							
Major depression	126	47	124	46	18	7	268
Schizophrenia or psychosis	55	37	88	60	4	3	147
Bipolar disorder	33	36	52	57	6	7	91
Other	37	46	36	45	7	9	80

## Methods

The study was conducted at University Behavioral HealthCare (UBHC), a subdivision of the University of Medicine and Dentistry of New Jersey, which gave institutional review and approval. UBHC provides mental health services (inpatient, outpatient, partial hospitalization, and emergency) to about 15,000 consumers per year. All data used in this study were extracted from UBHC electronic medical charts. Specific informed consent was waived by the review board because the data were part of ongoing clinical documentation for which all clients sign their consent at intake.

In mid-2009, UBHC began to collect clients' self-perception of their weight status in several programs. Clients were asked to choose from among underweight, normal weight, overweight, and obese as the response that best described their current weight.

The sample included 586 individuals with serious mental illness for whom data were available in the electronic medical record for all the items of interest (self-perceived weight, BMI,

age, ethnicity, education level, and psychiatric diagnosis).

## Results

The sample composition was 52% male, 36% African American, and 24% Latino. Forty-three percent of the consumers demonstrated congruence between their measured and perceived weight status, whereas 57% did not. Only six percent ( $N=35$ ) of the consumers overestimated their weight; that is, they saw themselves as heavier than they actually were, and 51% ( $N=300$ ) underestimated their weight (Table 1).

People with normal weight according to their BMI tended to see themselves realistically, whereas most overweight or obese persons underestimated their weight. Of 181 overweight persons, 100 (55%) saw themselves as normal or underweight; of 238 obese persons, 172 (72%) saw themselves not as obese but as overweight, of normal weight, or even underweight. Only 22 clients were actually underweight, and they were excluded from further analysis.

Two logistic regressions (cumulative logit model with Fisher's scoring;

$N=547$ ) were performed for a single, ordered, three-level dependent variable, with levels designated as accurate; moderately inaccurate, whereby the patient underestimates actual weight by one step in this ordinal weight categorization scheme (for example, an obese person views self as overweight [one step down], but not as normal [two steps down]); and grossly inaccurate, whereby the patient underestimates actual weight by two steps in these weight categories (for example, an obese person views self as being of normal weight).

In the first regression the independent variable was psychiatric diagnosis, and in the second the variables included the former as well as gender, age, ethnicity, and education. The proportional odds assumption was clearly met in the first model (that is, not rejected:  $\chi^2=.08$ ,  $df=1$ ,  $p=.77$ ) and was equivocally met in the second ( $\chi^2=8.42$ ,  $df=6$ ,  $p=.21$ ). In the first model, diagnosis significantly predicted accuracy ( $\chi^2=6.92$ ,  $df=1$ ,  $p<.01$ ); persons with schizophrenia or bipolar disorder were less accurate than persons with other diagnoses, such as depression (odds ratio [OR]=.64; 95% confidence interval [CI]=.46–.89). In the second model, main effects were significant for gender ( $\chi^2=18.0$ ,  $df=1$ ,  $p<.001$ ), education ( $\chi^2=7.4$ ,  $df=1$ ,  $p<.006$ ), and diagnosis ( $\chi^2=5.2$ ,  $df=1$ ,  $p<.022$ ) but were not significant for age and ethnicity. [A table showing demographic predictors of accurate perception of weight is available online as a data supplement to this report.]

Likelihood tests for significant effects showed that females were more accurate than males (OR=2.1, CI=1.5–2.9). Persons with a high school education or less were less accurate than those with some college (OR=.59, CI=.40–.86), and persons with schizophrenia or bipolar disorder were less accurate than persons with other diagnoses, such as depression (OR=.67, CI=.48–.94). Note that inaccuracy in this study indicated for the most part individuals' underestimation of their actual weight.

## Discussion and conclusions

To our knowledge, this study is the first to examine concordance between

self-perceived and measured weight of people with serious mental illness. Most clients in this study underestimated their actual weight. This finding contrasts with findings of Chang and Christakis (3), who reported for the general population misclassification of weight of only 28% of women and 30% of men. Our data show that the percentage of clients who misclassified weight status was much higher (49% for women; 65% for men). In addition, Chang and Christakis reported that overweight or obese men tended to underestimate their weight, whereas women of normal weight tended to overestimate their weight. In contrast, a majority of the consumers in our study underestimated their weight, and only a small percentage of individuals overestimated it (5% of men and 7% of women).

One of the reasons for underestimating weight may be that the social milieu has become increasingly overweight. Most people in the general population in the United States are overweight or obese (over 60%), and rates are higher still in mental health treatment settings. What was viewed as obese in a previous time, say the 1970s, may seem virtually normal now.

Achieving and maintaining weight loss is very challenging and requires strong motivation. It is well established that overweight and obesity have dire health consequences. Because people with serious mental illness are more

likely to have weight problems, it is crucial to increase their awareness of their weight status and thus help motivate them for change even in an environment where overweight has become the norm. A limitation of this study was that information was not available regarding the possible confounds of smoking status or ongoing treatment for hypertension, diabetes, or dislipidemia.

Combining educational interventions with motivational techniques may be necessary to increase awareness and motivation to address weight problems in this population. These techniques might be especially effective if they link with personal goals, such as dating, and with issues that emphasize the social consequences of obesity, for example, stigma and discrimination in hiring and work. However, without accurate self-perception of weight, there is little chance that providers of mental health services will succeed in engaging their clients in weight control behaviors that could benefit their health and ability to achieve a normal life span.

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