Weight Bias Internalization, Core Self-Evaluation, and Health in Overweight and Obese Persons

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What is already known about this subject

- Weight bias has strong associations with psychopathology in overweight and obese individuals.
- Underlying self-evaluative processes and implications for other health-related outcomes, including physical health and health care utilization, remain to be clarified.
- Implications of self-stigma including self-evaluative processes have been conceptualized in the process model of self-stigma, with unclear validity for overweight and obesity.

What this study adds

- This study provides the first test of the process model of self-stigma in the area of weight bias, conducted in a representative general population sample of overweight and obese individuals.
- Overweight and obese individuals with internalized weight bias are, especially if they experience low core self-evaluation, at risk for impaired mental and physical health and increased health care utilization.
- This makes them a group with which to target for interventions to reduce self-stigma.

Abstract

Objective: Weight bias has strong associations with psychopathology in overweight and obese individuals. However, self-evaluative processes, as conceptualized in the process model of self-stigma, and implications for other health-related outcomes, remain to be clarified.

Design and Methods: In a representative general population sample of N = 1158 overweight and obese individuals, the impact of core self-evaluation as a mediator between weight bias internalization and mental and global health outcomes as well as between weight bias internalization and health care utilization, was examined using structural equation modeling.

Results: In overweight and obese individuals, greater weight bias internalization predicted lower core self-evaluation, which in turn predicted greater depression and anxiety, lower global health, and greater health care utilization. These mediational associations were largely stable in subsample analyses and after controlling for sociodemographic variables.

Conclusions: The results show that overweight and obese individuals with internalized weight bias are at risk for impaired health, especially if they experience low core self-evaluation, making them a group with which to target for interventions to reduce self-stigma. Weight bias internalization did not represent a barrier to health care utilization, but predicted greater health care utilization in association with greater health impairments.

Introduction

Weight bias has strong associations with psychopathology in overweight and obese individuals, but further health implications remain unclear. In addition, self-evaluative processes explaining why negative consequences of weight bias apply to only some overweight and obese individuals deserve further clarification. Based on the process model of self-stigma (1,2), this study sought to analyze the impact of core self-evaluation as a mediator among weight bias internalization, health outcomes, and health care utilization. Core self-evaluation, an essential evaluation "of one's worthiness, effectiveness, and capability as a person" (3, p. 304), is considered central for self-regulation and motivation, and as a higher-order latent trait, comprises aspects of self-esteem and self-efficacy (4).

Weight bias includes pervasive negative stereotypes and prejudice, for example, attributions of responsibility or incompetence, and can extend to actual discrimination in multiple domains of life, including health care (5,6). Stigmatized obese individuals often have the tendency to adopt the weight bias, and thus feel incompetent, self-hatred, and denigration towards themselves. Such an internalization of weight bias or self-stigma has been found to be strongly associated with depression, anxiety, lower self-esteem, eating disorder psychopathology, social and behavioral problems, and lower quality of life (7-13). Weight bias internalization has been shown to have greater explanatory power of psychopathology over and above stigmatizing attitudes, experiences of discrimination, and body mass index (BMI, kg/m^2) (9-11). However, associations between weight bias internalization and BMI have been inconsistent, and one study failed to show prognostic significance for weight loss (7).

Weight bias has also been assumed to exacerbate the physical obesity-related sequelae (14), but this has not been definitively empirically supported. Furthermore, there is indication that weight bias presents a major barrier to health care utilization in the obese. Obesity is associated with greater use of conventional medical care and increased health care costs

overall (15,16), and this is disproportionally attributable to higher degrees of BMI and associated medical comorbidities; however, obese individuals also underutilize preventive care (e.g., cancer screenings) (17,18), and patients reported perceived weight-related discrimination to be among the causes (19,20). Health-care providers in a range of specialty areas endorsed negative stereotypes about obese patients, e.g., that they lack self-discipline (6), were less motivated to treat obese versus normal-weight patients, and devoted less treatment time to them (18,21-23). More research is needed in order to clarify the association among weight bias, especially its psychological form – weight bias internalization, mental and physical health, and actual health care use.

Implications of self-stigma were conceptualized in the process model of self-stigma (1,2), originally developed to elucidate the self-stigma process in mental illness, based on modified labeling theory (24). The process model of self-stigma distinguishes three components: (i) cognitive processes related to self-stigma, (ii) subsequent mediating processes involving low self-esteem and self-efficacy, and (iii) effects on goal-related behavior and life goal achievement. One major prediction is that if a stigma becomes relevant to the self (i.e., if a person is aware of a stereotype, agrees with it, and applies it to him- or herself), this self-stigma is likely to reduce self-esteem and self-efficacy, which can then lead to a lack of goal-related behavior and decreased life goal achievement, for example, less health care use and impaired health. As not everyone from a stigmatized group who internalizes bias experiences diminished self-esteem or self-efficacy (i.e., core self-evaluation) (4), this latter aspect was conceptualized as a mediator in the self-stigma process. The process model of self-stigma has partial empirical support in elucidating the detriments of internalizing mental health stigma (2,25).

In order to examine the process model of self-stigma in the area of weight bias for the first time, the goal of this study was to examine the impact of core self-evaluation as a

mediator between weight bias internalization and health outcomes, and between weight bias internalization and health care utilization.

Materials and Methods

Participants

This study is based on a representative survey of the German population in 2012. The sample was selected with the assistance of the Independent Service for Surveys, Methods and Analyses (USUMA Berlin). Germany was split into 320 sampling areas, representing different regions of the country, in which data collection took place using random-route technique. Inclusion criteria were a minimum age of 14 years and the ability to read and understand German. In the first recruiting attempt, 4480 individuals were contacted, of which 4436 had valid addresses. Of these, 652 individuals could not be reached after four attempts, 1198 individuals refused participation, and 76 individuals were unable to participate (i.e., on vacation or sick). The final survey sample consisted of 2510 participants (response rate: 56.6% of valid addresses). From this sample, overweight and obese participants with a BMI ≥ 25.0 kg/m^2, calculated based on self-reported weight and height, were selected for the purpose of this study. Thus, this study's final sample consisted of 1158 overweight and obese men and women. This corresponded to rates of overweight (BMI 25.0-29.9 kg/m^2) in 45.3% of men (N = 524 out of 1157) and 30.8% of women (N = 407 out of 1321), and to rates of obesity (BMI ≥ 30.0 kg/m^2) in 9.1% of men (N = 105) and 9.2% of women (N = 122). Sociodemographic characteristics of this study's sample are presented in Table 1.

Measures

Predictor variable. We used the Weight Bias Internalization Scale (WBIS) by Durso and Latner (9) to assess self-directed internalized weight bias, defined as "the degree to which a respondent believes that negative stereotypes and negative self-statements about overweight

and obese persons apply to him or her" (p. S81). Participants were asked for their agreement with 11 statements such as, "I feel anxious about being overweight because of what people might think of me" on a Likert scale ranging from 1 = *strongly disagree* to 7 = *strongly agree* (higher mean scores represent greater internalization of weight bias). The WBIS has been shown to have good reliability (α = .90) and validity. For this study, the authorized German translation of the WBIS, controlled by a backtranslation procedure by a licensed translator, was used (Hilbert, Baldofski, & Braehler – unpublished data). Cronbach α in this study was .81.

Mediator variable. The German version (26) of the Core Self-Evaluation Scale (CSES) was used to measure the trait of core self-evaluation. The CSES assesses central aspects of core self-evaluation such as self-esteem, self-efficacy, locus of control, and neuroticism. Participants were asked for their agreement with 12 statements such as, "I am capable of coping with most problems" on a five-point Likert scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. In several studies, the CSES (higher mean scores representing better self-evaluation) has shown adequate reliability (.81 ≤ α ≤ .87) and validity. In this study, reliability was in this range (α = .86).

Outcome variables. The Patient Health Questionnaire-2 (PHQ-2) (27), the short form of the PHQ-9, is a brief screening questionnaire for depression. The PHQ-2 covers two core symptoms of major depression: depressed mood and loss of interest. Response options ranged from 0 = *not at all* to 3 = *nearly every day* (calculation of sum score). The PHQ-2 has shown adequate reliability (α = .81) and good diagnostic validity. In this study's sample of overweight and obese individuals, Cronbach α was somewhat lower, but sufficient (α = .71).

The Generalized Anxiety Disorder-2 (GAD-2) is the short form of the GAD-7 and a brief screening tool for anxiety disorders (28). The GAD-2 asks how often respondents have been affected by two core symptoms of generalized anxiety disorder – excessive anxiety and worry, and difficulty in controlling them – during the last two weeks. Answers ranged from 0

= *not at all* to 3 = *almost every day* and a sum score was calculated. The GAD-2 has been shown to have appropriate reliability (α = .82) and diagnostic validity. Reliability in this study's sample was acceptable (α = .75).

To assess self-reported health status, the Visual Analogue Scale (VAS) of the EuroQol 5-Dimension was used (EQ5-D) (29). Participants were asked to rate their current general health status on a VAS ranging from 0 = *worst imaginable health status* to 100 = *best imaginable health status.*

To assess health care utilization, a shortened version of the Health Care Utilization Questionnaire by Striegel-Moore et al. (30) was used. Five items assessed how many times a person received treatment over the last 12 months in different health care settings (i.e., emergency care, inpatient treatment, partial hospitalization or day clinic treatment, outpatient medical treatment, and outpatient psychotherapy). A sum score was calculated with higher scores indicating greater health care utilization. The Health Care Utilization Questionnaire has discriminant validity.

Classificatory variable. Durso and Latner (9) developed the WBIS in a sample of overweight and obese participants whose BMI status was determined based on self-reported height and weight and who also identified themselves as being overweight. Accordingly, self-identifying as overweight was assessed in a dichotomous format (0 = *no*, 1 = *yes*). This classificatory variable was used for a subsample analysis as described below.

Data Analytic Plan

The process model of self-stigma (1,2) was tested using the structural equation modeling approach within three subsamples of overweight and/or obese individuals: First, according to Durso and Latner (9), it was examined whether the model applied to overweight and obese individuals (BMI $\geq$ 25.0 kg/m^2) who self-identified as being overweight (Model 1, N = 453). Second, it was tested whether the model applied to overweight and obese

individuals (BMI ≥ 25.0 kg/m^2; Model 2; N = 1158), and third, whether it applied to obese individuals only (BMI ≥ 30.0 kg/m^2; Model 3; N = 227), regardless of whether they self-identified as overweight.

Using IBM® SPSS AMOS® version 18.0, the following model fit indices were determined: the minimum discrepancy, divided by degrees of freedom (CMIN/DF); the root mean square error of approximation (RMSEA); the goodness-of-fit index (GFI); the comparative-fit index (CFI); the normed-fit index (NFI), and the Tucker-Lewis index (TLI). A model was considered as a "good fit" if the ratio CMIN/DF was close to 2; if GFI, CFI, NFI and TLI were higher than 0.95; and if RMSEA was smaller than 0.06 (31). The model was tested using covariance matrices and was estimated with the maximum likelihood method approach.

Additional analyses were conducted to test the influence of the sociodemographic variables age, gender, and education (Model 1a). In a first step, these variables were allowed to predict every other manifest variable in the model. In a second step, all non-significant associations ($p \geq .05$) were deleted and significant associations remained in the model. The resulting model was then tested for overweight and obese individuals (BMI ≥ 25.0 kg/m^2; Model 2a; N = 1158) and for obese individuals only (BMI ≥ 30.0 kg/m^2; Model 3a; N = 227), regardless of whether they self-identified as overweight.

Standardized regression weights were interpreted according to Cohen (small: < .30; medium: .30 to < .50; large: ≥ .50). An overall two-tailed α of .05 was applied to statistical testing.

Results

A correlation matrix is presented in Table 2, and the structural equation model fit indices are presented in Table 3. In overweight and obese individuals who self-identified as being overweight (Model 1), all fit measures indicated a good model fit. As Figure 1 depicts,

all paths shown in the model were significant. Core self-evaluation fully mediated the relationships between weight bias internalization (large effect) and the outcome variables depression, anxiety (large effects), health status (medium effect), and health care utilization (small effect). Depression and anxiety, as well as health status and health care utilization, were significantly associated (medium effects). BMI predicted greater weight bias internalization, lower health status, and greater health care utilization (small effects).

When the sociodemographic variables of gender, age, and education were included in the model (Model 1a), all fit indices indicated a good model fit (Table 3). As Figure 2 illustrates, the inclusion of sociodemographic variables in Model 1 did not change the associations among all other variables in a meaningful way. Gender was significantly associated with weight bias internalization and anxiety, with higher scores in women than in men (small effects). Higher age was associated with lower weight bias internalization, lower health status, and greater health care utilization (small to medium effects). Lower education co-occurred with lower core self-evaluation (small effect).

In overweight and obese individuals (Model 2, see Figure 1), the model fit was acceptable, although somewhat poorer than for Model 1. Path coefficients differed only slightly from those in Model 1. Again, with the inclusion of sociodemographic variables (Model 2a), the model fit remained acceptable, and the path coefficients varied only slightly (Figure 2).

In obese individuals only (Model 3, see Figure 1), the model fit was good, with some notable differences compared to Models 1 and 2. While core self-evaluation still mediated the association between weight bias internalization and depression, anxiety, and health status, the predictive effect of core self-evaluation on health care utilization was no longer significant. In addition, the predictive effect of BMI on health status and health care utilization became non-significant. All other path coefficients were only slightly different from those described for Models 1 and 2. With the inclusion of sociodemographic variables (Model 3a), three paths

became non-significant (Figure 2): No significant associations existed between BMI and WBIS, BMI and health care utilization, or CSES and health care utilization. Nevertheless, fit indices for Model 3a indicated a good model fit (Table 3).

Discussion

Core self-evaluation fully mediated the relationship between weight bias internalization and diverse health-related outcomes in overweight and obese individuals. Greater weight bias internalization predicted lower core self-evaluation, which in turn predicted greater anxiety and depression and lower global health status, with medium-to-large effects. Thus, as previous evidence of mental health stigma suggested (2,25,32), this first test of the process model of self-stigma (1,2) in the area of weight bias confirms that core self-evaluation, considered to be crucial for self-regulation and motivation (4), is indeed a central variable in the self-stigma process. In addition to lowered self-esteem and self-efficacy, low core self-evaluation makes some overweight and obese individuals more vulnerable to the detriments of weight bias internalization, including greater perceived health consequences. As previously noted, internalized weight bias co-occurs with impaired health outcomes if self-regulation is decreased. This permits speculation that weight management behavior may be compromised as well, an assumption that requires further examination in both cross-sectional and longitudinal studies. Previous studies found inconsistent associations of weight bias internalization with BMI (7,9,11) and no association with weight loss (7), but associations with weight management behavior remain unclear (e.g., self-monitoring of food intake).

Interestingly, core self-evaluation mediated the association between weight bias internalization and health care utilization, but unlike the prediction derived from the process model of self-stigma (1,2), lower core self-evaluation predicted greater – not lower – health care utilization in overweight and obese individuals (regardless of self-identifying as overweight). Greater health care utilization had stronger associations with lower global health

than with lower core self-evaluation (medium versus small effects). In the subsample of obese individuals only, core self-evaluation was unrelated to health care utilization, presumably related to lower n and lower variance in health care utilization. The fact that weight bias internalization did not represent a barrier for health care utilization but predicted greater health care utilization (mediated by core self-evaluation) in association with lower global health in overweight and obese individuals, is somewhat consistent with literature that has documented increased health care use in obese individuals with greater medical comorbidities (15,16). In addition, lower self-efficacy and self-esteem could also represent signs of learned helplessness that leads to greater help-seeking behavior, such as in health care. Learned helplessness is a prominent concept implicated in the etiology and maintenance of depression, but its validity is unclear with respect to weight management and obesity (33).

In interpreting the effect of weight bias internalization on health care utilization, it is important to note that the use of preventive services was not operationalized in the validated, shortened questionnaire that assessed treatment utilization in diverse health care settings (30). However, preventive services have been found to be underutilized in obese individuals for weight bias reasons (19,20,33). Because the avoidance of preventive care might exacerbate the obesity-related medical sequelae in the long-term, the impact of weight bias internalization on the use of preventive care deserves further clarification. Based on this study's results, it appears further necessary to more clearly specify potential outcomes in the process model of self-stigma. This study's results suggest an overuse rather than an underuse of health care because of internalized weight bias and lowered core self-evaluation, in which anticipated discrimination by health care providers may not be decisive. Whether it actually represents a barrier to treatment-seeking as postulated, requires further empirical investigation with explicit consideration of anticipated discrimination. When specifying outcomes in the process model of self-stigma, it may be helpful to distinguish proximal outcomes (e.g.,

depression, anxiety) from more distal outcomes (e.g., health care use) in order to validly represent cognitive and behavioral aspects in the self-stigma process.

Strengths of this study include the large study sample, drawn from a survey representative of the German population regarding age and sex (34). The response rate was comparable to other surveys using the same methodology (35), and validated self-report measures were used. The associations within the mediational model tested were largely stable when examining diverse subsamples (e.g., overweight and obese individuals regardless of whether they considered themselves to be overweight, and obese individuals only) and when including sociodemographic variables. A limitation of this study is that health-related outcomes were measured through validated self-report questionnaires where interview assessment and/or physical examination would have been preferable to objectively ensure health status. Nevertheless, the results extend prior research (9,10,13) in elucidating self-evaluative processes involved in weight bias internalization, psychopathology, and global health.

As a further limitation, the definition of overweight and obesity was based on self-reported height and weight. Self-report commonly leads to an underestimation of height and weight and thus an underestimation of prevalence rates of obesity (36), comorbidities, and mortality. In this study, because body weight was likely underreported, fewer obese persons were identified as compared to current epidemiological data (overweight, BMI 25.0-29.9 kg/m^2: men, 45.3% vs. 43.8%; women: 30.8% vs. 29.1%; obesity, BMI ≥ 30.0 kg/m^2: men, 9.1% vs. 23.3%; women: 9.2% vs. 23.9%) (37). Notably, our operationalization of self-identifying as overweight or obese differed from that used by Durso and Latner (9), who asked for a mere description of participants' weight status. We focused instead on the more psychologically relevant aspect of the "feeling to be an overweight or obese person," leading to a substantial exclusion of individuals in the analyses to Model 1. Path analyses were repeated in overweight and obese individuals regardless of their self-identification,

confirming the mediational model. Of further note, because the WBIS addresses weight bias in the overweight spectrum, normal weight and underweight persons cannot answer most WBIS items and were therefore not included in the current report. Future research should consider reformulating the WBIS items so that they apply to all weight groups, enabling comparisons between weight groups. Finally, because of the crosssectional nature of the data, no causal inferences could be made regarding the impact of weight bias internalization and core self-evaluation on health outcomes. Ideally, the causal nature of the mediational, path analytic results should be examined prospectively.

This study confirmed major predictions from the process model of self-stigma in overweight and obese individuals. In order to further understand the psychological processes involved, future research should examine additional assumptions from this model; for example, whether life goal achievement depends on the extent to which an obese person is aware of and agrees with negative stereotypes, and applies them to him- or herself; or whether obese individuals show a “why try” effect regarding health-promoting behavior, anticipating discrimination in many domains of life (1).

Clinically, attention should be paid not only to a reduction of weight bias (38), but also to overweight and obese persons’ self-stigma and low core self-evaluation, because of the documented negative associations with mental and global health. For example, promising cognitive-behavioral interventions targeting self-stigma and low core self-evaluation (39), and interventions for coping with stigma (40) could be further evaluated and refined. Sociodemographically, weight bias internalization was higher in women, in individuals with higher BMI, and in younger individuals, and lower core self-evaluation was higher in those with lower education. For interventions to reduce self-stigma, these sociodemographic variations should be heeded, and low core self-evaluation could be utilized as a key in identifying individuals at a higher risk of the negative health consequences of internalized weight bias.

Conflict of Interest

Anja Hilbert, Elmar Braehler, and Markus Zenger declare no conflict of interest. Winfried Haeuser received a consulting honorarium by Daiichi Sankyo and honoraria for educational lectures by Abbott and Pfizer within the last 3 years.

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The authors' responsibilities were as follows – AH, MZ, EB, and SH developed the original idea; AH developed the hypotheses; AH and MZ developed the protocol and wrote the manuscript; MZ analyzed the data; EB, MZ, and SH contributed to data collection. All authors approved the final version of the manuscript.

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Table 1. Sociodemographic characteristics.

	Total	Men	Women
	N = 1158	N = 629	N = 529
	M (SD)	M (SD)	M (SD)
Age, years	53.56 (16.22)	53.19 (16.04)	54.01 (16.43)
Age range	14-89	14-85	14-89
	N (%)	N (%)	N (%)
Education			
≤ 8 years	499 (43.1%)	255 (40.6%)	244 (46.1%)
9 – 11 years	491 (42.4%)	258 (41.0%)	233 (44.1%)
≥ 12 years	168 (14.5%)	116 (18.4%)	52 (9.8%)
Weight status			
Overweight (25.0 - < 30.0 kg/m^2)	931 (80.4%)	524 (83.3%)	407 (76.9%)
Obese (≥ 30.0 kg/m^2)	227 (19.6%)	105 (16.7%)	122 (23.1%)

Table 2. Correlation matrix of the study variables (N = 1158).

	1	2	3	4	5	6	7
Weight bias internalization (WBIS)		-.44	.31	.28	-.18	.06	.17
Core self-evaluation (CSES)			-.59	-.50	.38	-.18	-.13
Depression (PHQ-2)				.59	-.36	.21	.16
Anxiety (GAD-2)					-.31	.23	.14
Health status (EQ5-D VAS)						-.36	.-21
Health care utilization							.14
Body mass index (kg/m^2)							

Notes. WBIS indicates Weight Bias Internalization Scale (1-7*, scores indicating less favorable conditions are asterisked); CSES, Core Self-Evaluation Scale (1*-5); PHQ-2, Patient Health Questionnaire-2 (0-6*); GAD-2, Generalized Anxiety Disorder-2 (0-6*); EQ5-D VAS, EuroQol 5-Dimension Visual Analog Scale (0*-100); Health Care Utilization (frequency).

Table 3. The process model of self-stigma: fit indices of the structural equation model within three subsamples, with and without inclusion of sociodemographic variables.

	N	χ^2 (df)	CMIN/DF	CFI	GFI	RMSEA	TLI	NFI
Model 1	453	19.360 (11)	1.760	.988	.988	.041	.978	.974
Model 1a	453	35.751 (28)	1.277	.991	.985	.025	.986	.962
Model 2	1158	83.469 (11)	7.588	.959	.981	.076	.922	.953
Model 2a	1158	133.692 (28)	4.775	.954	.978	.057	.926	.943
Model 3	227	14.750 (14)	1.054	.998	.982	.015	.997	.966
Model 3a	227	43.803 (31)	1.413	.974	.962	.043	.963	.920

Notes. N, sample size; df, degrees of freedom; CMIN/DF, minimum discrepancy, divided by degrees of freedom; CFI, comparative-fit index; GFI, goodness-of-fit index; RMSEA, root mean square error of approximation; TLI, Tucker-Lewis index; NFI= normed fit index. Model 1 (N = 453, overweight and obese individuals who self-identified as overweight); Model 2 (N = 1158, overweight and obese individuals); Model 3 (N = 227, obese individuals). Models 1a, 2a, and 3a: inclusion of the sociodemographic variables gender, age, and education.

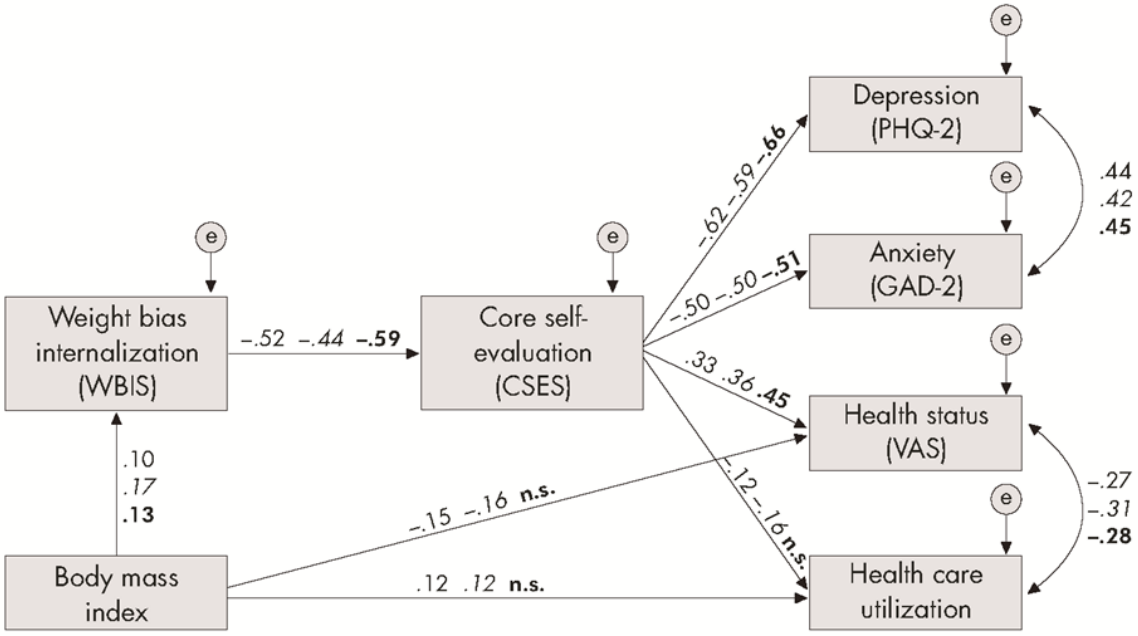

Figure 1. The process model of self-stigma.

Notes. The three coefficients per path indicate three subsample analyses: regular font, Model 1 (N = 453, overweight and obese individuals who self-identified as overweight); *italic*, Model 2 (N = 1158, overweight and obese individuals); **bold**, Model 3 (N = 227, obese individuals). WBIS indicates Weight Bias Internalization Scale (1-7*, scores indicating less favorable conditions are asterisked); CSES, Core Self-Evaluation Scale (1*-5); PHQ-2, Patient Health Questionnaire-2 (0-6*); GAD-2, Generalized Anxiety Disorder-2 (0-6*); EQ5-D VAS, EuroQol 5-Dimension Visual Analog Scale (0*-100); Health Care Utilization (frequency).

$p < .05$

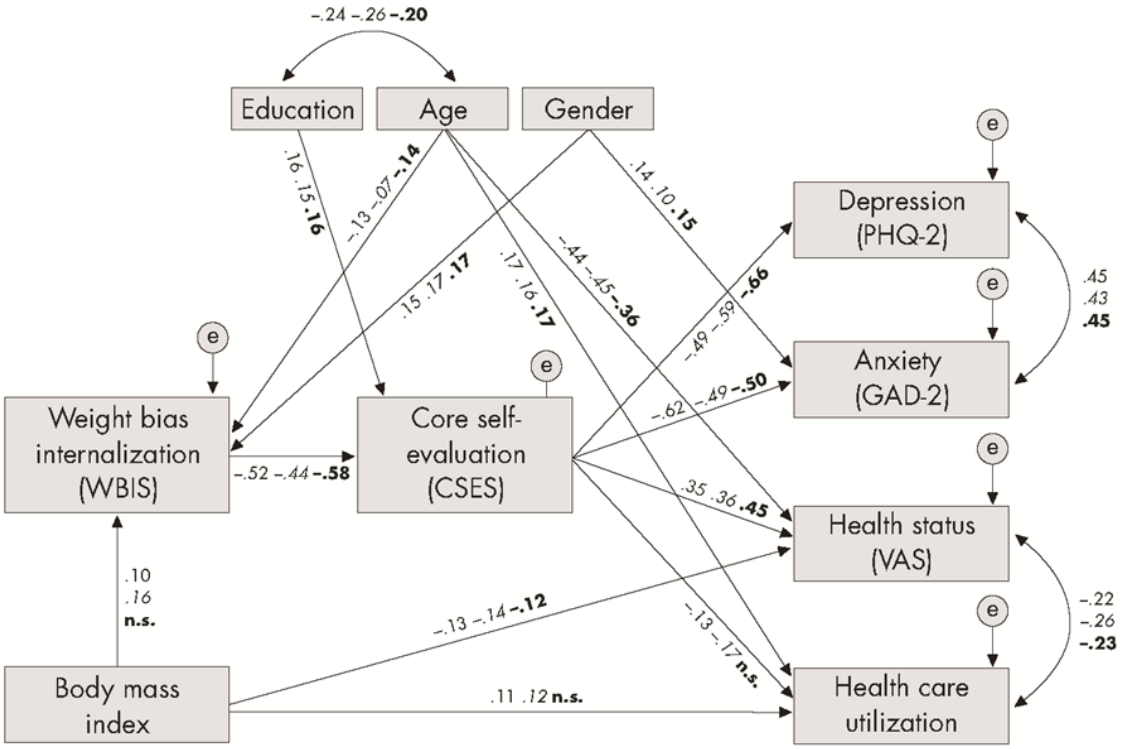

Figure 2. The process model of self-stigma including sociodemographic variables.

Notes. The three coefficients per path indicate three subsample analyses: regular font, Model 1 (N = 453, overweight and obese individuals who self-identified as overweight); *italic*, Model 2 (N = 1158, overweight and obese individuals); **bold**, Model 3 (N = 227, obese individuals). WBIS indicates Weight Bias Internalization Scale (1-7*, scores indicating less favorable conditions are asterisked); CSES, Core Self-Evaluation Scale (1*-5); PHQ-2, Patient Health Questionnaire-2 (0-6*); GAD-2, Generalized Anxiety Disorder-2 (0-6*); EQ5-D VAS, EuroQol 5-Dimension Visual Analog Scale (0*-100); Health Care Utilization (frequency).

$p < .05$