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## **Stereotypes Can “Get Under the Skin”: Testing a Self-Stereotyping and Psychological Resource Model of Overweight and Obesity**

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*The authors draw upon social, personality, and health psychology to propose and test a self-stereotyping and psychological resource model of overweight and obesity. The model contends that self-stereotyping depletes psychological resources, namely self-esteem, that help to prevent overweight and obesity. In support of the model, mediation analysis demonstrates that adult Hispanics who highly self-stereotype had lower levels of self-esteem than those who self-stereotype less, which in turn predicted higher levels of body mass index (overweight and obesity levels). Furthermore, the model did not hold for the referent sample, White participants, and an alternative mediation model was not supported. These data are the first to theoretically and empirically link self-stereotyping and self-esteem (a psychological resource) with a strong physiological risk factor for morbidity and short life expectancy in stigmatized individuals. Thus, this research contributes to understanding ethnic-racial health disparities in the United States and beyond.*

Ethnic-racial stigmatized individuals in the United States suffer disproportionately from high rates of overweight and obesity (American Obesity Association, 2010; Flegal, Carroll, Kit, & Ogden, 2012). For example, Hispanic and Black non-Hispanic individuals are more likely to be overweight or obese than their White

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non-Hispanic counterparts. Overweight and obesity are risk factors for a variety of chronic conditions including heart disease, diabetes, hypertension, and some cancers (Malnick & Knobler, 2006; National Institutes of Health, 1998). Since such chronic conditions are determinants of life expectancy, it is no surprise that obesity and its complications are second to cigarette smoking as a cause of death (Beers, 2006). Although the ethnic-racial overweight and obesity disparity is well documented, less is known about the psychological processes that explain this phenomenon. The current research tests one social cognitive pathway that might lead to overweight and obesity among ethnic-racial stigmatized individuals.

Our approach highlights the self-concept of stigmatized ethnic-racial individuals as a determinant of overweight and obesity. The thesis that the self influences health has a long history in psychological theories that are documented even today (James, 1950/1890; Markus & Wurf, 1987; Stinson et al., 2008; Stryker & Burke, 2000; Taylor, Lerner, Sherman, Sage, & McDowell, 2003), but such theories do not delineate the self-related processes unique to ethnic-racial stigmatized individuals' physical health. We focus on self-stereotyping and self-esteem because they are two major forms of people's mental self-representations (Lun, Sinclair, & Cogburn, 2009; Sinclair, Hardin, & Lowery, 2006; Swann & Bosson, 2010; Swann, Chang-Schneider, & McClarty, 2007). As a preview of the proposed arguments, our model integrates social, personality, and health psychology to posit that stigmatized individuals who have absorbed negative in-group stereotypes into their self-concept (i.e., negatively self-stereotype) possess reduced psychological resources—namely lower self-esteem. This reduction in self-esteem is a psychological risk factor that leaves stigmatized individuals vulnerable to overweight and obesity.

### **The Relation between Self-Stereotyping and Overweight-Obesity**

Social identity and self-categorization theories posit that individuals attach psychological value to their in-groups and the attributes possessed by these groups (Abrams & Hogg, 1988; Tajfel & Turner, 1986; Turner et al., 1987). Indeed, people's mental representations of their self-concept and that of their in-groups are overlapping and interconnected constructs (Smith & Henry, 1996), and individuals' overall self-image and self-concept is strongly tied to their group identity (e.g., Greenwald et al., 2002; Jelic, 2009; Sellers, Smith, Shelton, Rowley, & Chavous, 1998; Swann & Bosson, 2010). As a result, individuals represent their self-concept in terms of their group's characteristics and behaviors, even if such qualities reflect cultural stereotypes—that is, group members self-stereotype (Allport, 1954; Hogg & Abrams, 1988; Hogg & Turner, 1987; Turner et al., 1987). In support of this hypothesis, empirical evidence demonstrates that group members exhibit biased self-representations that are consistent with their group's cultural stereotypes (Lun

et al., 2009; Nosek, Banaji, & Greenwald, 2002; Rudman, Greenwald, & McGhee, 2001; Sinclair et al., 2006). Moreover, individual differences in self-stereotyping predict important behavioral actions and psychological well-being (for a review, see Rivera, Laws, & Margevich, 2014).

We posit that negative self-stereotyping is a determinant of overweight and obesity. A fairly robust line of research demonstrates that negative stereotypes are inherently threatening to stigmatized individuals (for reviews, see Schmader, Johns, & Forbes, 2008; Wheeler & Petty, 2001). As a result, cognitively activated stereotypes can have a detrimental effect on a range of emotions (e.g., greater anxiety) and goals and motivation (e.g., desire to act stereotypically). If these threatening stereotypes are cognitively associated with a stigmatized individual's self-concept, this process might be threatening to one's self-image and negatively affect the psychological resources that facilitate a healthy life. This hypothesis is squarely in line with the idea that the self-concept guides a host of emotions, thoughts, and behaviors that can have wide implications for health (Markus & Nurius, 1986; Markus & Wurf, 1987; Wheeler, DeMarree, & Petty, 2007). Taken together, the above research suggests that the harmful long-term effects of negative stereotypes on the self-concept can lead to overweight and obesity.

Indirect support for this hypothesis comes from studies demonstrating that stigmatized individuals who endorse relatively high levels of internalized racism exhibit overweight and obesity indicators (Butler, Tull, Chambers, & Taylor, 2002; Chambers et al., 2004; Tull et al., 1999). Internalized racism is the endorsement of prejudiced feelings toward one's group (Jones, 2000; Taylor & Grundy, 1996). In line with this definition, the Nadanolitization Scale (Taylor & Grundy, 1996), a widely used measure of internalized racism, includes items such as "Whites are superior to African Americans" and "African Americans can be accepted as intimate friends." Black adult and adolescent females who score high on the Nadanolitization Scale exhibit higher levels of abdominal obesity relative to those females who score low on the same measure (Butler et al., 2002; Chambers et al., 2004; Tull et al., 1999). To the extent that stigmatized individuals internalize such stereotyped attitudes, we would expect for self-stereotyping to predict overweight and obesity.

A second line of research that supports our hypothesis demonstrates that stigmatized individuals endorse health behavioral beliefs and behaviors that are consistent with their group's cultural stereotypes (Oyserman, Fryberg, & Yoder, 2007; Oyserman, Smith, & Elmore, 2014). Mexican-American and African-American individuals who strongly believe that unhealthy behaviors as congruent with their in-group identities are less likely to engage in exercise and healthy-eating than European-Americans individuals (Oyserman et al., 2007). Because such unhealthy behaviors can, over time, determine overweight and obesity, this evidence suggests that ethnic-racial stigmatized individuals may disproportionately suffer from

overweight and obesity to the extent that they endorse the health-based cultural stereotypes associated with their in-groups. Interestingly, the above two lines of research also suggest that not all stigmatized individuals perceive their group's stereotypes to be consistent with their self-concept—that is, sources of individual differences uniquely associated with ethnic-racial minority individuals determine who might be more versus less likely to be a target of overweight and obesity. Taken together, the research on internalized racism and health identity behavior suggest that stigmatized individuals who strongly self-stereotype should be disproportionately overweight and obese.

### **Self-Esteem Mediates the Relation between Self-Stereotyping and Overweight-Obesity**

We posit that self-esteem is an explanatory factor of the relation between self-stereotyping and overweight-obesity. Thus, we would expect for self-stereotyping to predict self-esteem, and for self-esteem to predict overweight and obesity. These relations are explained next.

#### *Self-Stereotyping Predicts Self-Esteem*

Theorists have long argued that negatively stereotyped individuals who perceive themselves through the lens of their stigmatized status can, under some conditions, possess lower self-esteem (Allport, 1954; Crandall, Nierman, & Hebl, 2009; Crocker, 1999; Crocker, Major, & Steele, 1998; Major & Sawyer, 2009). According to symbolic interactionism, others are “the looking glass” in which individuals see themselves reflected and such perceptions are in turn absorbed into the self-concept (Cooley, 1902; Mead, 1934; Shrauger & Schoeneman, 1979). If such reflections carry a stigmatization tone because of the group to which a person belongs, then individuals who frequently interact with others who express stigmatized attitudes should be more likely to have lower self-esteem (Allport, 1954; Clark & Clark, 1947; Erikson, 1956). Similarly, the self-esteem maintenance argument posits that negative self-stereotyping may be problematic for maintaining a positive self-image (Katz, Joiner, & Kwon, 2002; Oswald & Chapleau, 2010; Yu & Xie, 2008). Various sources of threats can harm the self-image if they are relevant to the self, and one such source can be the negative stereotypes of one's group. Given that the self is mentally represented with one's group's characteristics and behaviors (i.e., self-categorization), even when such qualities reflect cultural stereotypes, this suggests that negative self-stereotyping can harm self-esteem. A handful of studies support this hypothesis (Hirschy & Morris, 2002; Major, Barr, Zubek, & Babey, 1999; Orlofsky & O'Heron, 1987; Spence, Helmreich, & Stapp, 1975; Yu and Xie, 2008). For example, Yu and Xie (2008) asked a large sample of male and female Chinese students to complete measures of gender

self-stereotyping and self-esteem. They found that strong gender self-stereotyping was associated with lower self-esteem.

### *Self-Esteem Predicts Overweight-Obesity*

If stigmatized individuals who self-stereotype have lower self-esteem, why are they at greater risk for being overweight or obese? Low self-esteem is a depleted psychological resource upon which a person is unable to draw from to help avoid the types of risky health behaviors that lead to (or maintain) overweight and obesity (Heatherton & Baumeister, 1991; Martens, Greenberg, & Allen, 2008; Miller & Downey, 1999; Polivy, Heatherton, & Herman, 1988). Relative to high self-esteem individuals, low self-esteem individuals are less able to effectively deal with stress, more likely to perceive negative events as harmful, less able to self-regulate, less optimistic about their coping abilities, and more likely to experience self-awareness as painful (Baumesiter, Campbell, Krueger, & Vohs, 2003; Miller, Chen, & Cole, 2009; Pruessner, Hellhammer, & Kirschbaum, 1999; Schieman, 2002; Seeman, Berkman, Gulanski, & Robbins, 1995). Since these affective, cognitive, and behavioral factors have a detrimental effect on a variety of eating behaviors (Heatherton & Baumeister, 1991; Hofmann, Rauch, & Gawronski, 2007; Vohs & Heatherton, 2000; also see Lazarus & Folkman, 1984; Martyn-Nemeth, Penckofer, Gulanick, Velsor-Friedrich, & Bryant, 2009; Taylor, 2010), this suggests that low self-esteem individuals possess a health-prone personality that leaves them vulnerable to overweight and obesity. Indeed, correlational data show that low self-esteem is associated with overweight and obesity (Miller & Downey, 1999); more convincingly, longitudinal studies demonstrate that self-esteem is a risk factor for the onset of binge eating (Stice, Presnell, & Spangler, 2002; also see French et al., 2001) and for changes in functional health behaviors that can prevent overweight and obesity (e.g., walking, climbing stairs; Reitzes & Mutran, 2006).

### **Overview of the Present Study**

The present study provides an initial test of the proposed self-stereotyping and psychological resource model of overweight and obesity with a sample of Hispanic adult participants. First, we expected for Hispanics who highly self-stereotype to have higher levels of body mass index (overweight and obese) than Hispanics who self-stereotype less. Second, we expected high levels of self-stereotyping among Hispanics to be associated with low levels of self-esteem. In turn, we expected Hispanics with low self-esteem to have higher levels of body mass index (overweight and obese) than those with high self-esteem. Most importantly, we expected self-esteem to explain (mediate) the main relation between self-stereotyping and body mass index. Since our model proposes a pathway unique to

stigmatized individuals, we also tested our model with a nonstigmatized referent group, White adult participants. We did not expect for White participants to fit the proposed model. Finally, unlike a vast majority of psychological studies that examine the factors that influence body mass index, a particular strength of our study is that we measure body mass index objectively, as opposed to relying on self-report which can be greatly influenced by response bias (Baumeister et al., 2003).

## Method

### *Participants and Procedure*

One hundred eight Hispanic ( $n = 62$ ) and White ( $n = 46$ ) students (81% women,  $M_{\text{age}} = 24.46$ , age range: 18–57 years) participated in exchange for extra course credit. Five participants were dropped and not reported in this research for the following reasons: two female participants were pregnant, two participants were data outliers (more than 3  $SDs$  above or below the mean), and one female participant did not wish to complete the height and weight measure. Procedurally, a female researcher informed participants that they would be completing “two separate studies,” one on “self-evaluations” and another on “health.” To enhance this cover story, participants completed two different consent forms. Across the two studies, participants completed the measures listed next.

### *Measures*

*Stereotype-based self-evaluations.* A review of the literature yielded five Hispanic stereotype domains—laziness, criminality, violence, poorness, and unintelligence (Gonzales, Blanton, & Williams, 2002; Szalacha, Erkut, & Coll, 2003; Weaver, 2005; Weyant, 2005). The self-evaluations questionnaire included 14 characteristics related to these domains. To minimize response set, half of the qualities were negatively worded (lazy, freeloading, criminal, violent, poor, lower class, stupid) and the other half were positively worded (ambitious, hard working, law abiding, peaceful, rich, upper class, smart). Participants were asked to indicate the extent to which they possessed each quality on a 6-point scale ranging from (1) *not at all characteristic of me* to (6) *extremely characteristic of me*.

*Self-esteem.* We administered the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965), which is the most widely used adult measure of global self-esteem. It is psychometrically sound and empirically validated (Byrne, 1996; Gray-Little, Williams, & Hancock, 1997).

**Table 1.** Summary Statistics for Self-Stereotyping, Self-Esteem, and Body Mass Index

Measure	Hispanics ( $n = 62$ )			Whites ( $n = 46$ )			Group difference			
	M	SD	%	M	SD	%	F	d	z	p
Self-stereotyping	2.26	.53	–	2.05	.46	–	4.97	.42	–	.02
Self-esteem	4.21	.64	–	4.21	.63	–	.00	.00	–	.98
BMI category										
Normal	–	–	47	–	–	64	–	–	–	–
Overweight or obese	–	–	53	–	–	36	–	–	1.67	.04

Note. M = mean, SD = standard deviation, BMI = body mass index.

*Height and weight.* Participants were first asked to remove their shoes, then weight was measured with the *Tanita UMO26 Body Fat Scale/Body Water Scale*, and height was measured with the *Seca 214 Portable Stadiometer*. These measures were used to calculate body mass index (see Results section).

*Demographics and background variables.* Participants completed an extensive demographics and background questionnaire that included variables such as gender, age, education, acculturation, and history of family health.

## Results

### *Data Preparation and Preliminary Analyses*

Table 1 presents a summary of the descriptive data and inferential statistics reported in this section.

*Stereotype-based self-evaluations.* After reverse-scoring the positively worded items, the responses to the 14 items were averaged into a single score ( $\alpha = .76$ ). Table 1 shows that Hispanic participants strongly characterized themselves with Hispanic stereotypes relative to White participants ( $M_{\text{Hispanics}} = 2.26$  vs.  $M_{\text{Whites}} = 2.05$ ). These results conceptually replicate research on group-level self-stereotyping—on average, stereotypic self-ratings (e.g., feminine traits) of stereotyped-relevant groups (e.g., women) are higher than those of stereotyped-irrelevant groups (e.g., men; Greenwald & Farnham, 2000; Guimond et al., 2007).

*Self-esteem.* The RSES was scored such that higher numbers indicate higher self-esteem. Table 1 shows that, on average, Hispanic and White participants' self-esteem were equal ( $M_{\text{Hispanic}} = 4.21$  vs.  $M_{\text{Whites}} = 4.21$ ). These results are in line with a recent meta-analysis demonstrating that the Hispanic–White

difference in self-esteem across 10 adult samples (similar to the current sample's age group) was practically zero ( $d = -.04$ ; Twenge & Crocker, 2002).

*Body mass index (BMI).* In accordance with the Centers for Disease Control (CDC, 2014), BMI scores were calculated by dividing weight in pounds (lb) by height in inches (in) squared and multiplying by a conversion factor of 703 (formula:  $\text{weight (lb)}/[\text{height (in)}]^2 \times 703$ ). As per the CDC, adult BMIs are divided into four groups: underweight (below 18.5 BMI), normal (18.5–24.9 BMI), overweight (25.0–29.9 BMI), and obese (30.0 and above BMI). We dichotomized BMI scores into normal weight versus overweight or obese categories (no participants fell under the underweight category). The latter two levels were collapsed into one group because individuals who are overweight are at greater risk to advance to obesity (CDC, 2014). Furthermore, both overweight and obesity are risk factors for coronary heart disease, Type 2 diabetes, certain cancers, hypertension, and other life-threatening chronic conditions (National Institutes of Health, 1998). As expected, and in line with past results on ethnic-racial differences in BMI (e.g., Flegal et al., 2012), Table 1 shows that Hispanic participants (53%) had a higher proportion of overweight and obesity than White participants (36%).

#### *Testing the Self-Stereotyping and Self-Esteem Model of Overweight and Obesity*

To test the proposed model that self-esteem mediates the effect of self-stereotyping on overweight and obesity among Hispanics, we followed Preacher and Hayes' (2004) mediation bootstrap analysis (with 5,000 iterations).<sup>1</sup> For the below analyses, stereotyped-based self-evaluations was the predictor, self-esteem was the mediator, and BMI category (coded 0 = normal weight, 1 = overweight or obese) was the dependent variable. Furthermore, we entered participants' gender, age, and past family health history as statistical controls because these factors tend to be associated with BMI (Wang & Beydoun, 2007).

*Hispanic participants.* Results showed a significant direct effect of self-stereotyping on BMI categories,  $b = 1.33$ ,  $SE = .64$ ,  $p = .03$ , such that Hispanic participants who highly self-stereotyped were 3.78 times (odds ratio [OR]; 95% confidence interval [CI]: 1.09, 13.09) more likely to be overweight or obese than those who self-stereotyped less. The effect of self-stereotyping was no longer

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<sup>1</sup>The significant relation between stereotype-based self-evaluations and self-esteem did not vary between Hispanic and White participants. This is not surprising given that the Hispanic stereotypes included characteristics such as criminal and stupid, which may be associated with self-esteem for individuals in general. However, for this reason, we were unable to test for moderated mediation and proceeded to test our mediation model by group.



significant,  $b = .72$ ,  $SE = .69$ ,  $p = .29$ , when controlling for the mediator self-esteem, which still had a significant relation to BMI,  $b = -1.26$ ,  $SE = .62$ ,  $p = .04$ . The 95% bias-corrected confidence interval ( $-2.48$ ,  $-.04$ ) for the indirect effect size did not include zero, suggesting a significant indirect effect. Altogether, these analyses suggest that Hispanic self-stereotyping is a determinant of overweight and obesity because of its effect on self-esteem, a psychological resource.

*White participants.* As predicted, White participants' stereotyped-based self-evaluations did not predict BMI categories,  $b = -.96$ ,  $p > .21$ , so we could not continue with mediation analysis.

### *Testing an Alternative to the Proposed Model*

Because the variables were measured concurrently, we examined an alternative model of the associations among the variables. One might argue that a stereotype of Hispanics is that they are overweight or obese. To the extent that this stereotype reflects a greater overall stigma that Hispanics face, it may be absorbed into Hispanics' self-concept and become a determinant of actual overweight and obesity. In turn, overweight or obese individuals may develop low self-esteem (cf., Strauss, 2000). We tested this alternative pathway that self-stereotyping predicts self-esteem, and this is mediated by BMI. This alternative model did not demonstrate evidence of mediation—when BMI was tested as the mediator, self-stereotyping remained a significant predictor of self-esteem,  $b = -.48$ ,  $p = .001$ .

## **General Discussion**

This study tested a self-stereotyping and self-esteem model of overweight-obesity for Hispanics, a stigmatized group. Consistent with our model, results indicate that individual differences in self-stereotyping among Hispanic adults predicted objectively measured BMI categories (normal vs. overweight-obesity) and individual BMI scores, and that the association between self-stereotyping and BMI was explained by self-esteem (after controlling for several demographic variables). In further support of the idea that our model is unique to stigmatized individuals, the proposed relations did not fit a nonstigmatized referent group, White adults. This study is the first to suggest that stigmatized individuals' self-evaluations based on negative cultural stereotypes can be a determinant of overweight and obesity because of its effect on individuals' self-esteem, which is a psychological resource that helps regulate health behaviors that can determine overweight-obesity.

Although the directions of our tested relations were consistent with past theory and evidence, a limitation of this study is that its design was correlational and, thus, evidence for causal pathways is not definitive. However, our test of an

alternative model did not fit the data—that is, it appears that among stigmatized individuals self-stereotyping fosters overweight-obesity via its effect on self-esteem as opposed to the alternative that low self-esteem fosters overweight-obesity via its effect on self-stereotyping.

The model and its empirical support extend past research on stigmatized individuals' health disparities in two important ways. First, unlike past models of health disparities, we focus on the self of stigmatized individuals as a main determinant of their health. The idea that the self is a major source of an individual's health status is at the core of past and present research (James, 1950/1890; Stryker & Burke, 2000; Taylor et al., 2003), but they do not explicate the psychological self-processes unique to ethnic-racial minorities. The current model proposes a link between self-stereotyping and self-esteem as a pathway for understanding obesity and overweight in stigmatized individuals. Second, current models either assume that the same processes similarly impact health outcomes in general or are virtually silent about the specific processes that can impact overweight and obesity in stigmatized individuals. Given that there are unique pathways to multiple health outcomes (cf., Adler, 2009) and that obesity is a dangerous risk factor for life-threatening diseases, we propose a model that specifically highlights how the self and its processes can impact the physical health of stigmatized individuals.

#### *Health Disparities and Implications for Public Policy and Practice*

Ethnic-racial physical health disparities are pervasive in the United States, and identifying the factors that determine health disparities among ethnic-racial groups is a top and critical public health issue (Woolf, Johnson, Fryer, Rust, & Satcher, 2004). One way of reducing health disparities is by addressing the obesity epidemic (Adler, 2009). To this end, interventions have focused on motivating individuals to engage in healthier behavior (e.g., exercise more) and changing the environment to facilitate healthier behavior (e.g., access to recreational facilities). Our research suggests that another way to address the obesity epidemic is by minimizing the impact of cultural negative stereotypes on the self-concept of stigmatized individuals. One way to do so might be to change the local contexts to enhance positive exemplars from one's group; perhaps such an environmental intervention can attenuate the mental associations between the self-concept and stereotypes, thereby producing less self-stereotyping (Rivera, Benitez, & Dasgupta, 2014). Another intervention might be to remind individuals of their valued personal attributes (but unrelated to stereotyped attributes); if such a self-affirmation can protect one's self-image from threats and even promote good health (e.g., Creswell et al., 2005; Sherman, Nelson, & Steele, 2000), perhaps it can neutralize the detrimental role of negative stereotypes in the self-concept and, ultimately, physical health. These interventions can have the maximum benefit on stigmatized individuals if they are supported by public policies.

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