

October 2016

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Malterud, Andie and Anderson, Jenn (2016) "Weight-Based Stigma and Self-Esteem: A Test and Extension of the Stigma Communication Model," *Discourse: The Journal of the SCASD*: Vol. 3 , Article 4.
Available at: <https://openprairie.sdstate.edu/discoursejournal/vol3/iss1/4>

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RESEARCH ARTICLES

**Weight-Based Stigma and Self-Esteem:
A Test and Extension of the Stigma Communication Model****Andie Malterud, BS**Graduate Teaching Assistant
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Andrea.Malterud@sdstate.edu**Jenn Anderson, PhD**Assistant Professor
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Jennifer.Anderson@sdstate.edu**Abstract**

Personal experience with weight-based stigma is negatively associated with self-esteem (Myers & Rosen, 1999). Our study examines how self-esteem is affected by exposure to weight-based stigma communication that is directed at another person. Using Smith's (2007) stigma communication framework, we created a 2 (Stigma level: high, low) x 2 (Gender of stigmatized person: male, female) x 2 (Body of stigmatized person: large, small) posttest-only experiment. Participants' self-esteem was highest after seeing a small body subjected to intense stigma and lowest after seeing a large body subjected to intense stigma. Additionally, we observed three-way interactions affecting the perceptions of two stigma-communication message features: marking and linking to social peril. Our results suggest that perceptions about stigma communication vary by the stigma level and the stigma target's attributes. Implications are discussed.

Introduction

In 2008, 33.8% of adults were considered obese (Flegal, Carroll, Ogden, & Curtin, 2010). Even with growing efforts to combat obesity (Bowen, Bryant, Hess, McCarty, & Ivey, 2014), the rates have remained consistent, around 34.9%, for several years (Ogden, Carroll, Kit, & Flegal, 2014). Alongside the efforts to combat obesity are social norms and media portrayals that promote a thin ideal (Balcetis, Cole, Chelberg, & Alicke, 2013). These two extremes make for an unhealthy society and contribute to stigmatizing messages toward individuals who do not have an "ideal" body type (Balcetis et al., 2013; Pearl, Dovidio, Puhl, & Brownell, 2015). Stigma refers to being "marked" with a "spoiled identity" (Goffman, 1963, p. 62). Victims of weight-based stigma often experience negative physical and psychological outcomes, such as lowered self-esteem (Brockmeyer et al., 2013; Schvey, Puhl, & Brownell, 2011; Shentow-Bewsh,

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Keatine & Mills, 2015). Previous research has established that being a victim of stigma is associated with lowered self-esteem (Crocker, 1999; Crocker & Major, 1989). However, less is known about the stigmatization's effects on an observer, i.e., not the victim or perpetrator. For example, how might observing the stigmatization of another person affect the *observer's* self-esteem?

Smith's (2007) work on stigma communication provides a framework to better understand stigmatizing messages and their effects. Smith (2007) suggests that messages must meet four criteria to be considered stigmatizing and must evoke a reaction directed toward the stigmatized group. Smith's model explores how the stigmatizing message affects the audience's perception of the stigmatized person, but not how exposure to such messaging affects the non-stigmatized audience member. In the current study, we explore the effects of weight-based stigma messages on non-stigmatized audience members in terms of the audience's perceptions of the stigmatizing message's components and how exposure to the message affects the audience's self-esteem.

Stigma Communication

Goffman (1963) defined stigma as "an attribute that is deeply discrediting" (p. 3). When an individual is stigmatized, he or she "becomes discredited in the eyes of others due to a particular condition or state" (Goffman, 1963, p. 3). Stigma may be both seen and unseen (Goffman, 1963), meaning that others may be able to observe the condition that marks the person with a spoiled identity (seen stigma) or that the condition may be hidden (unseen stigma). Mental illness and HIV/AIDS are common examples of unseen stigmatized conditions. In contrast, body size is difficult to conceal. Therefore, non-ideal weight is a visible mark of spoiled identity that leads to seen stigma. This visible mark of weight may partially explain the prevalence of weight-based stigma, and research findings that indicate that weight-based stigma increases as a person's weight increases (Friedman et al., 2005; Myers & Rosen, 1999).

Stigma arises from social interactions and is constituted through communication (Smith, 2007). Smith (2007) offers the concept of "stigma communication" as a way of understanding how stigmatizing ideas are created and shared. Smith (2007) defines stigma communication as "messages spread through communities to teach their members to recognize the disgraced and to react accordingly" (p. 464). Such stigmatizing messages (a) distinguish, or mark, people; (b) label people; (c) assign personal responsibility to people; and (d) link people to social peril (Smith, 2007). In addition to specifying the content of stigmatizing messages, Smith (2007) predicts that exposure to these messages generates cognitive and emotional reactions that are directed toward the stigmatized group of people. However, this framework does not suggest how an observer's psychological state may be affected by exposure to stigmatization directed toward another person.

Stigmatizing messages circulate through interpersonal and mass-mediated communication. Media messages can profoundly influence social norms and attitudes toward stigmatized groups, essentially teaching members of society what groups should be stigmatized and how to react to those groups (Brochu, Pearl, Puhl, & Brownell, 2014; Greenleaf, Petrie, & Martin, 2014). Smith (2007) explains, "one reason why stigma messages are so powerful is that the features of stigma messages make attitudes accessible, encourage attitude formation, and automatically predispose certain behavioral reactions" (p. 468). Exposure to media messages encourages audiences to see these stigmatizing messages as normal and acceptable. However,

these effects can lead to long-term, negative implications for the stigmatized group (Brochu et al., 2014; Brockmeyer et al., 2013).

In addition to considering the source of the stigmatizing messages, previous research about stigma focuses on the effects of these messages. Much of the recent research on this aspect of stigma has focused on the experiences of people living with HIV/AIDS. That body of research consistently demonstrates the key elements of stigma communication and the experience of being a victim of stigma. For example, people living with HIV/AIDS (PLHA) are often blamed for their condition and then experience social isolation as others avoid them (Beaulieu, Adrien, Potvin, & Dassa, 2014; Phillips, Moneyham, & Tavakoli, 2011). This experience of stigma and social isolation then negatively impacts PLHAs' mental, social, and spiritual health, as well as their quality of life and life satisfaction (Phillips et al., 2011).

Weight-Based Stigma and Self-Esteem

A major aspect of weight-based stigma is the idea that an individual's weight is controllable through responsibility and willpower (Maddox, Back, & Liederman, 1968; Myers & Rosen, 1999). Children think negatively about overweight persons and believe that obesity is controllable; these negative beliefs strengthen as they age (Cramer & Steinwart, 1998; Puhl & Brownell, 2006; Tiggemann & Anesbury, 2000). These findings are consistent with Smith's (2007) argument that stigmatizing communication assigns personal responsibility for the stigmatized condition to the stigmatized person. "Blaming the victim" is one of many negative stigmas surrounding people who are overweight and obese. Overweight and obese individuals are described as weak-willed, emotionally impaired, unlikable, lacking in self-discipline, and less attractive than persons of average weight (Crandall, 1994; Lewis, Cash, Jacobi, & Bubb-Lewis, 1997).

People with non-ideal weight, typically individuals who would be considered overweight, often report stigmatizing experiences based on their weight. Previous research indicates that overweight people report feeling stigmatized for their weight in situations where people (a) have low expectations of them because of their weight, (b) make negative assumptions about them due to weight, or (c) socially reject them because of their weight (Friedman et al., 2005; Puhl & Brownell, 2006). Overweight individuals are disparaged by employers, parents, health-care workers, peers, romantic partners, children, and even themselves (Crandall, 1994; Puhl & Brownell, 2006). For overweight and obese individuals, the experience of weight-based stigma is common (Freidman et al., 2005; Myers & Rosen, 1999; Puhl & Brownell, 2006). However, weight-based stigma is also directed toward thin-bodied or extremely muscular-bodied men and women (Anderson & Bresnahan, 2013).

In addition to interpersonal weight-based stigma communication, media messages also contribute to this stigma by consistently portraying thin bodies as ideal and equating thinness with success in many aspects of life (Dohnt & Tiggemann, 2006; Franzoi & Shields, 1984). When audiences view these images and feel social pressure to be thin, they may have a heightened awareness about how their body does not conform to the ideal (Shentow-Bewsh et al., 2015) and subsequently experience body dissatisfaction (Puhl & Brownell, 2006; Shentow-Bewsh et al., 2015). This research suggests that observing weight-based stigma via the media's promotion of the thin ideal can affect the audience's psychological health. However, these studies do not directly manipulate the messages to portray weight-based stigma toward a person

so it is still not clear how exposure to that type of message might affect the observer's self-esteem.

Self-esteem refers to global feelings of self-worth, self-regard, or self-acceptance (Rosenberg, 1979). Self-esteem is influenced by many factors (Greenleaf et al., 2014). One factor that affects self-esteem is the experience of being stigmatized (Molina & Ramirez-Valles, 2013; Puhl & Brownell, 2006; Shentow-Bewsh et al., 2015; Wright, Gronfein, & Owens, 2000). Weight-based stigmatization is often associated with negative psychological health indicators, such as lowered self-esteem (Brockmeyer et al., 2013; Friedman et al., 2005; Myers & Rosen, 1999; Pearl et al., 2015; Puhl & Brownell, 2006; Shentow-Bewsh et al., 2015). It is unclear, however, whether weight-based stigma leads to psychological distress or if individuals who experience psychological distress report greater levels of stigma (Friedman et al., 2005; Myers & Rosen, 1999). Often, the personal experience of stigma is negatively associated with self-esteem. The lowered self-esteem that results from weight-based stigmatization is associated with additional negative outcomes, such as depression and body-image disturbance (Friedman et al., 2005). Other research suggests that psychological distress, including lowered self-esteem, caused by weight-based stigmatization is associated with binge-eating behavior (Ashmore, Friedman, Reichmann, & Musante, 2008). However, it is unknown how exposure to stigmatization of another person might affect one's self-esteem.

Study Rationale

Previous research (Anderson & Bresnahan, 2013; Smith, 2007, 2012a) indicates that stigmatizing messages contain four crucial elements: marking, labeling, linking to social peril, and assigning personal responsibility. Additionally, research indicates that exposure to stigma directed toward a person someone is negatively related to that person's self-esteem (Brockmeyer et al., 2013; Friedman et al., 2005; Molina & Ramirez-Valles, 2013; Myers & Rosen, 1999) and that viewing media messages promoting a thin ideal is negatively associated with body satisfaction (Puhl & Brownell, 2006; Shentow-Bewsh et al., 2015). However, it remains unclear how an observer's self-esteem is affected by exposure to weight-based stigmatization messages containing with all four elements of stigma communication identified by Smith (2007), that is directed toward another person. Furthermore, it is unclear the extent to which a lay audience will recognize the four characteristics of stigma messages and perceive these messages as stigmatizing.

In addition to testing the psychological effects of observing stigma toward another person, this study also examines how variations in those messages might affect perceptions of the message elements. The messages are told from the point of view of a patient who has an interaction with a physician which focuses on the patient's weight. Three variables are manipulated in these messages: (a) the intensity of the language used to stigmatize the patient (high v. low stigma), (b) the patient's gender (male v. female), and (c) the patient's body size (large v. small). Gender and body size were manipulated, because men and women with very large and very small body sizes experience weight-based stigma (Anderson & Bresnahan, 2013; Puhl & Brownell, 2006). These manipulations create 12 message conditions, which can produce main effects (for stigma intensity, patient gender, and patient body size), as well as 2- and 3-way interaction effects, on the five dependent variables. The dependent variables include the participant's self-esteem and the participant's perceptions of the four stigma communication message characteristics (marking, labeling, personal responsibility, and social peril).

Research Questions

The research questions are organized by dependent variable: (a) self-esteem, (b) perception of marking, (c) perception of labeling, (d) perception of personal responsibility, and (e) perception of social peril; the questions ask how these variables are affected by the manipulated features of the messages (*stigma intensity*, *patient gender*, and *patient body size*). Main effects are considered first, followed by interaction effects.

RQ1a: Will there be main effects for *stigma intensity*, *patient gender*, and/or *patient body size* on participants' self-esteem?

RQ1b: Will there be two-way interaction effects (*stigma intensity* x *patient gender*, *stigma intensity* x *patient body size*, *patient gender* x *patient body size*) on participants' self-esteem?

RQ1c: Will there be a three-way interaction effect (*stigma intensity* x *patient gender* x *patient body size*) on participants' self-esteem?

RQ2a: Will there be main effects for *stigma intensity*, *patient gender*, and/or *patient body size* on participants' perceptions of marking?

RQ2b: Will there be two-way interaction effects (*stigma intensity* x *patient gender*, *stigma intensity* x *patient body size*, *patient gender* x *patient body size*) on participants' perceptions of marking?

RQ2c: Will there be a three-way interaction effect (*stigma intensity* x *patient gender* x *patient body size*) on participants' perceptions of marking?

RQ3a: Will there be main effects for *stigma intensity*, *patient gender*, and/or *patient body size* on participants' perceptions of labeling?

RQ3b: Will there be two-way interaction effects (*stigma intensity* x *patient gender*, *stigma intensity* x *patient body size*, *patient gender* x *patient body size*) on participants' perceptions of labeling?

RQ3c: Will there be a three-way interaction effect (*stigma intensity* x *patient gender* x *patient body size*) on participants' perceptions of labeling?

RQ4a: Will there be main effects for *stigma intensity*, *patient gender*, and/or *patient body size* on participants' perceptions of personal responsibility?

RQ4b: Will there be two-way interaction effects (*stigma intensity* x *patient gender*, *stigma intensity* x *patient body size*, *patient gender* x *patient body size*) on participants' perceptions of personal responsibility?

RQ4c: Will there be a three-way interaction effect (*stigma intensity* x *patient gender* x *patient body size*) on participants' perceptions of personal responsibility?

RQ5a: Will there be main effects for *stigma intensity*, *patient gender*, and/or *patient body size* on participants' perceptions of social peril?

RQ5b: Will there be two-way interaction effects (*stigma intensity* x *patient gender*, *stigma intensity* x *patient body size*, *patient gender* x *patient body size*) on participants' perceptions of social peril?

RQ5c: Will there be a three-way interaction effect (*stigma intensity* x *patient gender* x *patient body size*) on participants' perceptions of social peril?

Method

Sample

Participants were $N = 354$ undergraduate students at a medium-sized, Midwestern public university. Participants were recruited through an online pool used by multiple university departments and received course credit for their participation. The sample was predominantly female (66.3%). The participants' average age was 19.13 years ($SD = 1.19$ years). The average Body Mass Index (BMI) was 23.85 ($SD = 4.38$), which is in the "normal" (Centers for Disease Control & Prevention, 2015) weight range; 61.2% of the participants were in the "normal" weight category. The second-most common category was "overweight" (23.1%), then "underweight" (7.4%), "obese class I" (5.8%), and "obese class II" (2.6%).

Design

All study materials and procedures were approved by the institutional review board. All participants provided their consent for completing the study prior to their exposure to study materials. The study followed a posttest-only, 2 (Stigma level: high, low) x 2 (Gender: male, female) x 2 (Body size: large, small) between-subjects experimental design. Participants were randomly assigned to conditions. In each condition, participants viewed one page that contained a picture of a person; a brief, fictitious message that was attributed to the person in the picture; and a series of measures related to stigma and self-esteem. Four different pictures were used in order to cross the gender and body size variables, e.g., large male, large female, small male, and small female. Pictures were obtained from general, internet image searches; then, the pictures were edited to black and white, and cropped to show from the neck to just below the hips. The people in the pictures were not wearing shirts; the women were wearing bras. See Figure 1 for a copy of all four images.

The messages were written from the point of view of a fictitious patient (i.e., the person pictured) who anonymously posted the story online. See Table 1 for the full message content. The messages began with the patient recalling how the physician began their interaction with a remark about the patient's weight status (mark), placed the person in a specific BMI category (label), explained that the patient was responsible for his/her weight status (personal responsibility), and then mentioned to another care provider—when the patient was believed to

be out of earshot—that health care costs are rising due to weight-related health issues (social peril).

The messages described an interaction with a physician that focused on the patient's weight. We included a physician because doctors are often the source of stigmatizing messages about weight (Friedman et al., 2005; Puhl & Brownell, 2006), despite the fact that stigmatization has routinely been denounced as an ineffective and unethical approach to motivate weight loss or any other health-behavior change. (See Puhl and Heuer [2010] for an extensive review.) The physician in the fictional encounter addressed the fictional patient with a message that contained language corresponding to the four elements of a stigmatizing message (Smith, 2007): mark, label, personal responsibility, and social peril. The intensity of each of these elements was either high or low, which created messages that were either high stigma (all four elements were high in stigma intensity) or low stigma (all four elements were low in stigma intensity). Following other studies that manipulated the intensity of stigma across stigma message features (Smith, 2012a, 2012b), we developed the language for these messages based on definitions of the message features (Smith, 2007), rather than drawing from a pre-established source for the exact language.

In addition to stigma intensity, the language of the messages varied based on the patient's body size, such that different terminology was used for the large body (e.g., obese) than the small body (e.g., underweight). The physician's message was gender neutral and did not vary based on the patient's gender. Thus, there were four messages: high stigma for a large body, low stigma for a large body, high stigma for a small body, and low stigma for a small body.

Instrumentation

After viewing the message, participants rated the interaction in terms of its rudeness, truthfulness, and helpfulness. Then, they rated the attractiveness of the person in the picture. Next, they completed scales measuring their perception of the presence of each element of stigma (mark, label, personal responsibility, and social peril). Finally, participants completed the Rosenberg (1965) measure of self-esteem.

Covariates. In addition to participant demographic covariates (age, participant gender, and participant BMI), we also measured the participants' perceptions of the fictitious patient and the manipulated message as a whole. A single item measured participants' perceptions of the fictitious patient's attractiveness (from the picture). The item used a seven-point scale ranging from 1 = *very unattractive* to 7 = *very attractive*. Participants then rated the extent to which the interaction in the manipulated messages was rude, truthful, and helpful, with single-item measures that used a 5-point Likert-type response scale (1 = *strongly disagree* to 5 = *strongly agree*).

Dependent variables. After covariates were measured, we measured the following dependent variables: perception of marking, labeling, assigning personal responsibility, linking to social peril, and participant self-esteem. The researchers created 4-item scales to measure the presence of each stigma component in the interaction. Each scale began with the stem "Did it seem like the doctor . . ." followed by statements that corresponded to that stigmatizing component. Participants used 5-point, Likert-type response scales (1 = *strongly disagree* to 5 = *strongly agree*). Higher scores indicate a greater presence of the stigmatizing component. Perceptions of the extent to which the physician marked the patient were measured with items such as "Did it seem like the doctor brought too much attention to the person's weight?" This scale was reliable, $\alpha = .89$. Perceptions of the extent to which the physician "labeled" the patient

were measured with items such as “Did it seem like the doctor used this person’s weight to categorize them?” This 4-item scale was reliable, $\alpha = .90$. Perceptions of the extent to which the doctor placed personal responsibility on the patient for the stigmatized condition were measured with items such as “Did it seem like the doctor made the person personally responsible for their weight?” This scale was reliable, $\alpha = .92$. Perceptions of the extent to which the doctor linked the patient with social peril were measured with items such as “Did it seem like the doctor thought the person’s weight would cause some negative effects?” This scale was reliable, $\alpha = .89$. Rosenberg’s (1965) self-esteem scale was used to measure self-esteem. This 10-item scale uses a 4-point, Likert-type response scale (1 = *strongly disagree* to 4 = *strongly agree*), where higher scores indicate greater self-esteem. The scale includes items such as “On the whole, I am satisfied with myself” or “At times, I think I am no good at all” (reverse-coded). This scale was reliable, $\alpha = .85$.

Analysis

Prior to conducting hypothesis tests, the data were examined for potential covariates. Following Tabachnick and Fidell’s (1996) guidelines, we included a variable as a covariate in the analysis if we observed a significant, linear relationship between a continuous variable and an outcome variable or if a categorical variable produced significant differences in the outcome variable. Based on these criteria, participant gender was used as a covariate for mark and personal responsibility message components, as well as for self-esteem. Participant BMI was included as a covariate for self-esteem. Participant age did not have a linear relationship with any outcome variables. Participants’ perceptions of patient attractiveness were used as a covariate for general stigma, mark, and social peril. Finally, in terms of message perceptions, perceived message rudeness was used as a covariate in *all* analyses; perceived message helpfulness was used as a covariate for general stigma, mark, label, and personal responsibility; and truthfulness was used as a covariate for general stigma, mark, label, social peril, and personal responsibility.

One-way analyses of covariance (ANCOVA) were used to test the hypothesis and to answer the research questions. The full-factorial model (2 [Stigma level: high, low] x 2 [Gender: male, female] x 2 [Body size: large, small]) was used in each test to observe main and interaction effects. The significance level was set at $p = .05$.

Results

The first group of research questions asked about the effects of each condition on participants’ self-esteem. After controlling for gender, BMI, and perceived message rudeness, there was a significant two-way interaction for Stigma Level x Body Size on self-esteem, $F(1, 305) = 5.79, p = .017$, partial $\eta^2 = .02$. There was a complete crossover effect for this interaction (Figure 2). In the large body conditions, participant self-esteem was higher in the low stigma conditions ($M = 2.94, SE = .04$) than in the high stigma conditions ($M = 2.82, SE = .41$). This effect was reversed for the small body conditions, where participant self-esteem was *lower* in the low stigma conditions ($M = 2.87, SE = .05$) compared to the high stigma conditions ($M = 2.97, SE = .05$). In the low stigma conditions, participant self-esteem was higher for the large body conditions than the small body conditions. This effect was reversed for the high stigma conditions, where participant self-esteem was higher for the small body conditions than the large body conditions.

The second group of research questions asked about the effects of each condition on participant perceptions of marking the stigmatized patient. After controlling for gender, participants' perception of patient attractiveness, and message helpfulness, rudeness, and truthfulness, there was a main effect for stigma level on participants' perceptions of the patient being marked, $F(1, 298) = 4.31, p = .039$, partial $\eta^2 = .02$, such that this perception was higher in the high stigma ($M = 4.12, SD = .72$) condition than the low stigma ($M = 3.64, SD = .92$) condition.

This main effect was subsumed by three significant interaction effects for marking. After controlling for gender, perception of patient attractiveness, and message helpfulness, rudeness, and truthfulness, the two-way Stigma Level x Gender interaction was significant, $F(1, 298) = 7.30, p = .007$, partial $\eta^2 = .03$. The two-way Gender x Size interaction was also significant: $F(1, 298) = 5.62, p = .018$, partial $\eta^2 = .02$. Finally, the three-way Stigma Level x Gender x Size interaction was also significant, $F(1, 298) = 11.72, p = .001$, partial $\eta^2 = .04$.

First, the patient's gender seems to moderate the effect of stigma level on participants' perceptions of marking. In the low stigma conditions, the participants perceived the female patient ($M = 3.79, SD = .93$) to be more marked than the male patient ($M = 3.49, SD = .88$); whereas in the high stigma conditions, the participants perceived the male patient ($M = 4.24, SD = .74$) to be more marked than the female patient ($M = 4.00, SD = .69$).

Second, there was a complete crossover effect for the Gender x Size interaction on marking. In the small body conditions, participants perceived the male patient ($M = 4.03, SD = .61$) to be more marked than the female patient ($M = 3.77, SD = .79$), whereas in the large body conditions, this effect was reversed (male: $M = 3.65, SD = 1.08$; female: $M = 3.97, SD = .86$). Similarly, participants perceived that female patients with large bodies ($M = 3.97, SD = .86$) were more marked than female patients with small bodies ($M = 3.77, SD = .79$); this effect was reversed for male patients, such that small-bodied men ($M = 4.03, SD = .61$) appeared more marked than large-bodied men ($M = 3.65, SD = 1.08$).

Third, in the three-way interaction effect, the nature of the Gender x Body Size interaction effect for marking differed based on the Stigma Level. In the low stigma conditions, there was a complete crossover effect for the Gender x Size interaction, such that participants perceived that male patients with small bodies ($M = 3.84, SE = .11$) were more marked than male patients with large bodies ($M = 3.45, SE = .12$). The reverse was true for conditions with female patients, where participants perceived that large-bodied female patients ($M = 4.16, SE = .10$) were more marked than small-bodied female patients ($M = 3.60, SE = .12$). In the high stigma conditions, body size moderated the magnitude of the effect of gender on perceptions of marking. Participants perceived that male patients were more marked than female patients and that large-bodied male patients ($M = 4.16, SE = .12$) were more marked than small-bodied male patients ($M = 3.94, SE = .13$). Similarly, participants perceived that large-bodied female patients ($M = 3.88, SE = .11$) were more marked than small-bodied female patients ($M = 3.81, SE = .11$), but this effect was not as pronounced as that observed for Body size in the high stigma, male patient conditions (Figure 3). In other words, patient body size increases the magnitude of difference in participants' perceptions of marking based on the patient's gender. Participants perceived greater differences in the physician's marking of male v. female patients when those patients had large bodies than when the patients had small bodies.

The third group of research questions asked about the effect of each condition on perceptions of labeling the stigmatized patient. After controlling for perception of message helpfulness, rudeness, and truthfulness, there was a main effect for stigma level on participants'

perceptions of labeling, $F(1, 323) = 9.89, p = .002$, partial $\eta^2 = .03$, such that participants' perceptions of labeling were greater in the high stigma conditions ($M = 4.27, SD = .67$) than in the low stigma condition ($M = 3.80, SD = .73$).

This main effect was subsumed by a significant two-way interaction effect for Stigma Level x Body Size, $F(1, 323) = 5.91, p = .016$, partial $\eta^2 = .02$. There was a complete crossover effect such that in the low stigma conditions, participants perceived greater labeling of the small-bodied patients ($M = 3.90, SD = .66$) than large-bodied patients ($M = 3.69, SD = .79$). This effect was reversed for the high stigma conditions, where participants perceived greater labeling of large-bodied patients ($M = 4.33, SD = .71$) than small-bodied patients ($M = 4.19, SD = .60$).

The fourth group of research questions asked about the effects of each condition on perceptions that the message attributed personal responsibility for the stigmatized condition to the patient. After controlling for gender and perceived message rudeness, helpfulness, and truthfulness, there was a main effect for stigma level, $F(1, 301) = 13.45, p < .001$, partial $\eta^2 = .04$, such that participants perceived that the message placed greater responsibility on the patient for the stigmatized condition, i.e., body weight, in the high-stigma conditions ($M = 4.26, SD = .73$) compared to low-stigma conditions ($M = 3.74, SD = .73$).

The fifth group of research questions asked about the effects of each condition on perceptions that the message linked the patient to social peril. After controlling for patient attractiveness and perceived message rudeness and truthfulness, there was a main effect for body size, $F(1, 322) = 8.87, p = .003$, partial $\eta^2 = .03$, such that participants perceived that large-bodied patients ($M = 4.33, SD = .60$) were linked to more social peril than small-bodied patients ($M = 4.00, SD = .61$).

This main effect was subsumed by an interaction effect. A three-way interaction for Stigma Level x Gender x Body Size was observed, $F(1, 322) = 4.86, p = .028$, partial $\eta^2 = .02$. In the low-stigma conditions with small-bodied patients, participants perceived a greater link to social peril for the male patient ($M = 4.10, SE = .10$) than the female patient ($M = 3.99, SE = .08$). This effect was reversed for large-bodied patients in the low stigma conditions, where participants perceived a greater link to social peril for the female patient ($M = 4.34, SE = .09$) than the male patient ($M = 4.18, SE = .11$). In the high stigma conditions with small-bodied patients, participants perceived a greater link to social peril for the female patient ($M = 4.17, SE = .11$) than the male patient ($M = 3.94, SE = .11$). This effect was reversed for large-bodied patients in the high stigma conditions, where participants perceived a greater link to social peril for the male patient ($M = 4.38, SE = .11$) than the female patient ($M = 4.27, SE = .09$). See Figure 4.

Post-Hoc Analyses

We also examined differences, by condition, in participants' perceptions of the attractiveness of the fictitious patient, and participants' perceptions of the rudeness, truthfulness, and helpfulness of the fictitious physician's message.

There were main and interaction effects for patient attractiveness. First, there were main effects based on Stigma Level, Gender, and Body Size, after controlling for participants' gender. Participants rated the patients as more attractive in the high stigma conditions ($M = 3.41, SD = 1.54$) compared to the low stigma conditions ($M = 3.18, SD = 1.56$), $F(1, 322) = 5.09, p = .025$, partial $\eta^2 = .02$. Participants also rated the female patients ($M = 3.47, SD = 1.52$) more attractive than the male patients ($M = 3.09, SD = 1.56$), $F(1, 322) = 8.58, p = .0045$, partial $\eta^2 = .03$.

Additionally, participants rated small-bodied patients ($M = 4.13$, $SD = 1.27$) as more attractive than large-bodied patients ($M = 2.61$, $SD = 1.42$), $F(1, 322) = 118.67$, $p < .001$, partial $\eta^2 = .27$. Second, there was a two-way interaction of Gender x Body Size on perceived patient attractiveness, $F(1, 322) = 9.26$, $p = .003$, partial $\eta^2 = .03$, again controlling for participant gender. This interaction produced differences in perceived attractiveness for large bodies, based on patient gender, such that for large-bodied patients, participants rated female patients ($M = 2.99$, $SD = 1.47$) as more attractive than male patients ($M = 2.13$, $SD = 1.18$). In the small body conditions, there was no significant difference in attractiveness by gender.

There was a main effect for Stigma Level on message rudeness, after controlling for participant gender, $F(1, 321) = 38.93$, $p < .001$, partial $\eta^2 = .11$. Participants rated high stigma messages ($M = 4.32$, $SD = 1.09$) ruder than low stigma messages ($M = 3.54$, $SD = 1.10$). There were two main effects for message truthfulness: Stigma Level and Body Size. Participants found the low stigma messages ($M = 3.59$, $SD = .87$) more truthful than the high stigma messages ($M = 3.07$, $SD = 1.01$), $F(1, 332) = 31.36$, $p < .001$, partial $\eta^2 = .01$. Participants also found the messages directed toward large-bodied patients ($M = 3.61$, $SD = .94$) to be more truthful than the ones directed toward small-bodied patients ($M = 3.12$, $SD = .93$), $F(1, 332) = 31.66$, $p < .001$, partial $\eta^2 = .09$.

There was a main effect for Stigma Level on message helpfulness; $F(1, 295) = 38.07$, $p < .001$, partial $\eta^2 = .12$, after controlling for participant BMI. Participants found the low stigma messages ($M = 2.98$, $SD = 1.08$) to be more helpful than the high stigma messages ($M = 2.19$, $SD = 1.11$).

Discussion

The current study investigated the effects of weight-based stigma messages on the self-esteem of non-stigmatized audience members, and investigated their perceptions of the stigmatizing message components using Smith's (2007) stigma communication model. The findings have implications for stigma, weight-based stigma, and stigma communication. Specifically, this study draws attention to an under-studied aspect of the stigma experience: its individual-level effects on a third-party observer, i.e., someone other than the stigma's perpetrator or victim. Previous research typically focused on the effects of stigma on stigmatized people (Puhl & Brownell, 2006; Puhl & Heuer, 2010) or suggested ways that the stigmatization of groups can affect observers' attitudes and emotions toward the stigmatized people both at the collective and individual levels (Link & Phelan, 2001; Smith, 2007). For example, collectively, stigma can influence social norms or structures that isolate or otherwise denigrate stigmatized individuals or groups (Link & Phelan, 2001; Smith, 2007). On an individual level, exposure to stigmatizing messages can generate negative (Smith, 2012a) or positive (Smith, 2014) emotions and cognitions toward the stigmatized person. The current study also focused on the effects of observing stigmatization toward another person, but instead of considering the emotional or cognitive reactions directed toward the stigmatized person, it found that observing the stigmatization of another person affects the observer's self-esteem.

Self-Esteem and Weight-Based Stigma Communication

Previous research has firmly established a negative association between self-esteem and the personal experience of stigma (Brockmeyer et al., 2011; Friedman et al., 2005; Myers &

Rosen, 1999; Pearl et al., 2015; Puhl & Brownell, 2006; Shentow-Bewsh et al., 2015). However, little is known about how exposure to the stigmatization of another person will affect one's self-esteem. In the context of a physician communicating weight-based stigma to a fictional patient, we observed that the intensity of the stigma communication and the stigmatized patient's body size interacted to affect the audience's self-esteem. Specifically, participants' self-esteem was higher when they observed a lower-intensity stigma toward a large-bodied patient or a higher-intensity stigma toward a small-bodied patient when compared to a low-intensity stigma toward a small-bodied patient or a high-intensity stigma toward a large-bodied patient. This effect was observed after controlling for the participants' gender and BMI, as well as their perceptions of message rudeness. We expected that self-esteem would be higher after exposure to low-intensity stigma as compared to high-intensity stigma, because previous research on stigma and self-esteem generally observes this relationship when stigma experiences are quite intense (Myers & Rosen, 1999). However, we did not anticipate that, for the small body conditions, a highly stigmatizing interaction would produce higher levels of self-esteem than the less-intense stigmatizing interaction.

A potential explanation for observing higher self-esteem after exposure to highly stigmatizing communication toward a small body, compared to less-intense stigma, may come from the concept of "stigma power" (Link & Phelan, 2015, p. 24). Stigma power refers to the processes of stigma that allow a stigmatizer to keep another person down, in, or away from the non-stigmatized person or group. Link and Phelan (2015) argue that cultural beliefs about standards for human behavior or appearance motivate people to stigmatize others in order to keep them down (i.e., without sociocultural power), keep them in (i.e., conform to societal norms), or keep them away (i.e., excluded from social relationships). Stigma power may operate with weight-based stigma, because cultural beliefs about acceptable weight and appearance abound (Murakami & Latner, 2015). Finally, stigma power often operates covertly or indirectly, sometimes through structural forms of discrimination (Link & Phelan, 2015). Previous research suggests that overweight and obese people experience many forms of structural discrimination, often at the hands of medical caregivers (Friedman et al., 2005; Puhl & Heuer, 2009).

In the current study, participants experienced indirect stigma when they observed a physician's stigmatization within the social structure of health care. Again note that, although the research clearly indicates that healthcare providers' stigmatization of health issues is an inappropriate and ineffective approach to motivate behavior change (Puhl & Heuer, 2010), physicians remain a common source of weight-based stigma (Puhl & Brownell, 2006). This experience is consistent with the indirect ways that stigma power operates, but Link and Phelan (2015) do not comment on how the experience of stigmatizing another person may affect one's self-esteem. However, they do suggest that the process of keeping another person or group down, in, or out could elevate one's social status compared to the stigmatized person or group (Link & Phelan, 2015). Thus, it may be that, whereas the experience of *being* stigmatized is related to lower levels of self-esteem (Crocker, 1999), the experience of exerting stigma power through the indirect stigmatization of another person could positively impact self-esteem. Future studies about stigma power in the context of weight-based stigma could modify Link and Phelan's (2015) stigma-power measures to observe the extent to which stigma power operates in this context and how it relates to self-esteem.

Perceptions of Stigma Communication Message Features

Participants' perceptions of the features of stigma communication messages varied based on the level of stigma, the stigmatized patient's gender, and the stigmatized patient's body size. In general, this study's results suggest that the features of stigma communication messages are perceived differently based on the target of the stigma message and the intensity of the stigmatizing language. In particular, gender seemed to consistently affect perceptions of message features, despite the fact that the message content varied only by body size and stigma level. That perceptions of message features varied based on the intensity of stigmatizing language is consistent with previous research (Smith, 2012a, 2012b). Our study contributes to the literature about stigma communication by suggesting that—at least in the context of weight-based stigma—attributes of the stigmatized person (namely body size and gender) also affect these perceptions.

First, there was a three-way interaction (Stigma Level x Body Size x Gender) for participants' perceptions of the message *marking* the stigmatized person. The effect of this interaction was most striking for the large-bodied male patient. Participants perceived this patient to be the *most* marked patient (compared to a small male, small female, and large male) in the high stigma condition and the *least* marked patient in the low stigma condition. This finding speaks to and complicates the gendered nature of weight bias (Anderson & Bresnahan, 2013; Fikkan & Rothblum, 2012). Anderson and Bresnahan (2013) found that large, male bodies received the most stigmatizing descriptions, compared with all other body types across genders. In contrast, Fikkan and Rothblum (2012) reviewed literature on weight-based stigma and concluded that “fat women fare worse than thinner women and worse than men, whether the men are fat or thin” (p. 575). Clearly, both genders experience weight-based stigma, albeit with different frequency, but scholars are only beginning to explore how stigma communication varies by the stigmatized person's gender.

Our findings are consistent with Anderson and Bresnahan (2013) because our findings suggest that the male patients were perceived to be more marked by weight-based stigma communication than female patients. However, due to women more commonly experiencing weight-based stigma in their lives (Fikkan & Rothblum, 2012) and via media messages (Shentow-Bewsh et al., 2015), the stigmatization of a male patient may have been particularly salient to participants due to its uncommonness. Clearly, the stigmatized person's gender affects the perception of stigmatization based on weight. Future research should investigate this phenomenon and expand to investigate whether and how the stigma target's gender affects perceptions of stigmatization in other contexts, such as mental illness or HIV/AIDS.

Perceptions of labeling, the second feature of stigma communication messages, were affected by an interaction between the intensity of the stigma (high, low) and the stigma target's body size (large, small). In this case, the high stigma conditions, again, produced results that were consistent with previous literature: large bodies were perceived to be more labeled than small bodies (Anderson & Bresnahan, 2013). However, in the low stigma conditions, the effect was reversed, so that participants perceived the small bodies to be more labeled than the large bodies. To manipulate labeling in the low stigma conditions, the message read, “According to the BMI chart, your weight is in the [obese/underweight] category.” It is unclear why “underweight” appears to be a stronger label than “obese.” This effect may be due to desensitization to the term “obesity,” because it has been termed an epidemic in popular media discourse (Gard & Wright, 2005). This example, again, speaks to the cultural expectations for physical appearance that

motivate stigma in the first place (Link & Phelan, 2015) as well as the ways that those expectations affect perceptions about weight-based stigma. Once again, the current study's findings demonstrated how the intersection of stigma intensity (Smith, 2012a, 2012b) and cultural expectations for appearance (Link & Phelan, 2015) affects the perceptions of stigma-communication features, such as labeling. Future research should investigate how stigma intensity interacts with other attributes of stigma targets, such as race, age, or sexual orientation, and how those elements impact perceptions of various types of stigma.

Perceptions of the patient's personal responsibility for his/her stigmatized condition varied based only on the intensity of the stigma communication message. Participants perceived that the highly stigmatizing message placed more personal responsibility on the patient than the less-stigmatizing message. To establish personal responsibility in the less-stigmatizing conditions, across genders and body sizes, the fictitious physician asked, "How is your weight maintenance going?" Then, the physician stated, "You should be concerned about your health." Even these somewhat innocuous statements communicate stigma by linking to personal responsibility. While every person could be admonished with "you should be concerned about your health," such a phrase has healthist (Cheek, 2008; Crawford, 1980) undertones, at worst, and, at best, clearly establishes personal responsibility for the health condition. In cases where the health condition is stigmatized, this link to personal responsibility necessarily communicates stigma. Indeed, the participants' ratings of perceptions of personal responsibility were significantly above the scale's midpoint, even in these less-stigmatizing conditions.

Participants recognized that the patient was held personally responsible for his/her weight, even in the low stigma condition. This finding speaks to the difficulty of communicating about weight in a medical setting (Friedman et al., 2005; Puhl & Heuer, 2010). Physicians need to communicate clearly about potential health concerns and their etiology (Bray, 2004). In the case of weight, it may be impossible to speak about that topic in a health setting without evoking stigma, which may explain earlier studies that reported the ubiquity of weight-based stigma in medical settings (Crandall, 1994; Friedman et al., 2005, Puhl & Heuer, 2010). Future studies could manipulate the phrasing of weight-based conversations in medical settings to determine whether it is possible to avoid evoking weight-based stigma when communicating about weight.

Finally, participants' perceptions of linking the stigmatized person to social peril varied by Stigma Level, Gender, and Body Size (of the stigma target). In general, participants perceived that large bodies were linked to more social peril than small bodies. This finding is consistent with the various health issues associated with being overweight or obese (Schwimmer, Burwinkle, & Varni, 2003), as well as the media coverage of these issues (Gard & Wright, 2005). In addition, participants' ratings of linking the stigmatized person to social peril were well above the scale's mid-point. This result indicates that these messages—whether intensely or moderately stigmatizing—all linked the individual to social peril due to his or her weight status. This finding reinforces the claims of some scholars (Anderson, 2012; Gard & Wright, 2005) that the rhetoric surrounding obesity has moral undertones that go beyond describing or predicting individual health risks to suggesting societal problems related to weight. In more specific and practical terms, much like the discussion above about personal responsibility as a mechanism of stigma, we suggest that healthcare providers and others who communicate publicly about health carefully consider how they talk about weight. Although it is unclear in all cases whether the threat of social peril is what causes a health condition to be stigmatized (Smith, 2007) or whether threats to social peril are emphasized or heightened for conditions that are stigmatized (Gard &

Wright, 2005), it is clear that social peril is clearly communicated when a health care provider speaks about a person's weight.

Our findings further suggest that the link to social peril for each body size also varies by stigma level and gender. Our results indicate that, for large bodies, in the high stigma conditions, participants perceived more social peril linked to male patients compared to female patients, whereas in the low stigma conditions, participants perceived female patients to be more linked to social peril than male patients. For small bodies, in the high stigma conditions, participants perceived more social peril linked to female patients compared to male patients; whereas in the low stigma conditions, participants perceived male patients to be more linked to social peril than female patients.

The three-way interaction affecting perceptions of social peril is more complicated than the three-way interaction observed for perceptions of marking because no patterns emerged across the conditions. Each unique combination of factors (stigma level, gender, and body size) produced different perceptions of linking the stigmatized person to social peril. The underlying mechanisms driving these differences in perception remain unclear. However, this finding speaks to the power of the stigmatized person's gender to affect perceptions of stigmatizing communication (Anderson & Bresnahan, 2013; Fikkan & Rothblum, 2012), particularly in the context of weight. In addition, this finding demonstrates that the intensity of stigmatizing communication affects perceptions of stigma (Smith 2012a, 2012b), but these effects vary based on the stigma target's attributes, in this case body size and gender. Future studies could gather qualitative data from participants regarding their perceptions of the stigmatized individual and why they felt that the stigmatized person was responsible for the stigmatized condition.

Limitations

The main limitation for this study is the photos used. We did not measure how realistic the participants felt the pictures were in relation to how the physician characterized the patient's weight, which could have affected participants' perceptions of the messages. Another limitation was that the photos of the fictitious patients did not show the person's face, which may have affected the photos' realism for the participants. The decision to crop the images was made to create similarity among all the patients and was seen as necessary to control for facial expression differences that may have influenced responses.

In addition, the interaction between the fictitious patient and physician focused primarily on the BMI as an indicator of health or, at the very least, fat. As Anderson (2012) argued, the BMI is an imperfect instrument—even when used properly—and should never be used as a way to determine a person's overall health. The BMI was used here specifically for that reason: it diminishes a very complex issue, such as overall health, into a rigid system that creates labels and, therefore, easily stigmatizes individuals based on their weight. However, it remains to be seen whether using different tools to assess, for example, an individual's adipose tissue in relation to other health indicators might also serve to stigmatize patients with respect to their body size. Future studies should examine differences in perceived stigmatization due to the healthcare provider's method of making claims about the patient's health based on weight, i.e., using the BMI or another method.

Conclusion

The results of this study generally support Smith's (2007) stigma communication model. Our study expanded the model's reach to suggest that exposure to the stigmatization of another person can affect one's self-esteem; we also demonstrated that this effect varies based on the intensity of the stigma and attributes of the stigma target (in this case, body size). Additionally, our results suggest that participants' perceptions of most features of stigma communication messages (marking, labeling, and linking to social peril) are affected by not only the intensity of the stigma messages, but also the stigma target's attributes, i.e., gender and body size. Future studies about stigma communication should account for the influence of the stigma target's attributes (e.g., gender, race, body size, etc.) on perceptions of and responses to stigma.

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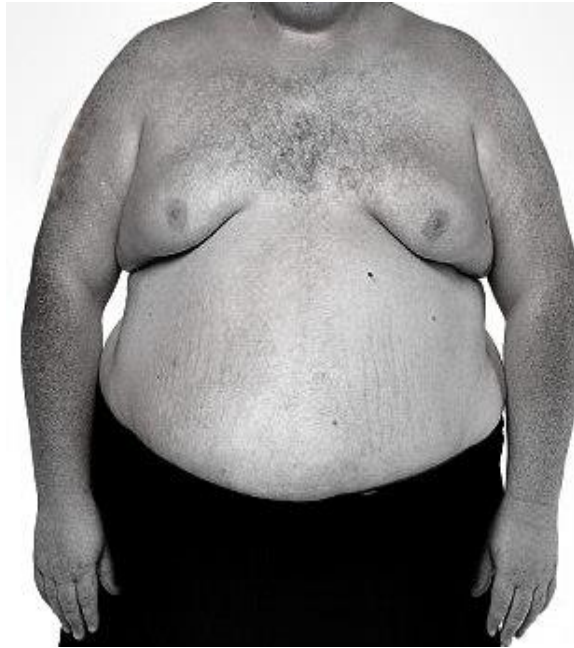
Appendix

Table 1. *Stigma Messages*

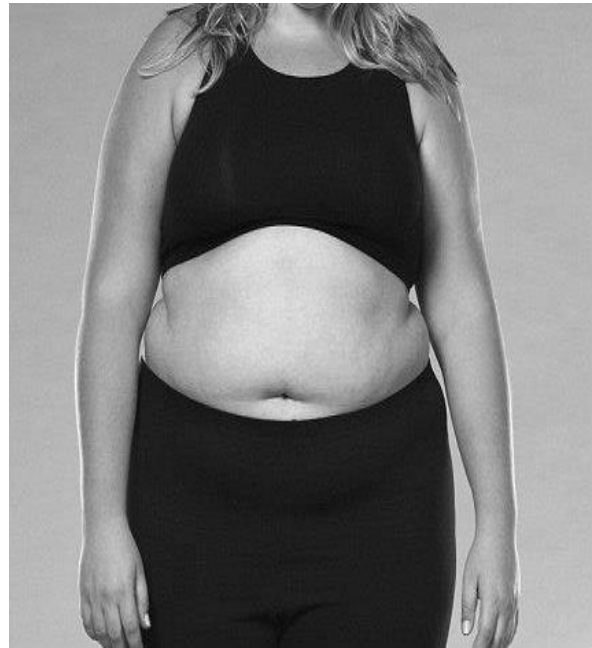
Stigma Level	Message
High	I went to the doctor today, and the first thing Dr. Jones said to me was: “How did you get that [mark : fat/emaciated]? You should be ashamed of yourself (personal responsibility).” Then the doctor proceeds to tell me, “You’re what we would call [label : ‘morbidly obese’/ ‘underweight’]. Because you are [label : morbidly obese/underweight], we’ll have to test you for [social peril : Type II diabetes/malnutrition] and who knows what else. Plus, it wouldn’t kill you to [personal responsibility : exercise a little self-control/eat a little more].” Then, as I was leaving, I heard Dr. Jones say to another doctor, “This patient is why our health care costs are so high (social peril).” And I bet Dr. Jones was talking about me.
Low	I went to the doctor today, and the first thing Dr. Jones said to me was: “How is your weight maintenance (mark) going? You should be concerned about your health. (personal responsibility)” Then the doctor proceeds to tell me, “According to the Body Mass Index (BMI) chart, your weight in is the [label : obese/underweight] category. Because you’re obese, I’m recommending we test for [social peril : Type II diabetes/malnutrition] and other weight-related health issues. Plus, adding [personal responsibility : exercise/high-calorie foods] to your [routine/diet] could be helpful.” Then, as I was leaving, I heard Dr. Jones say to another doctor, “Weight-related health problems are really driving up the cost of health care (social peril).” And I bet Dr. Jones was talking about me.

Note: These messages were identical for both the male and female patients. The brackets present the alternate text for the large- and small-bodied patients, respectively. The message features were listed in bold; these message features did not appear in the messages that the participants viewed.

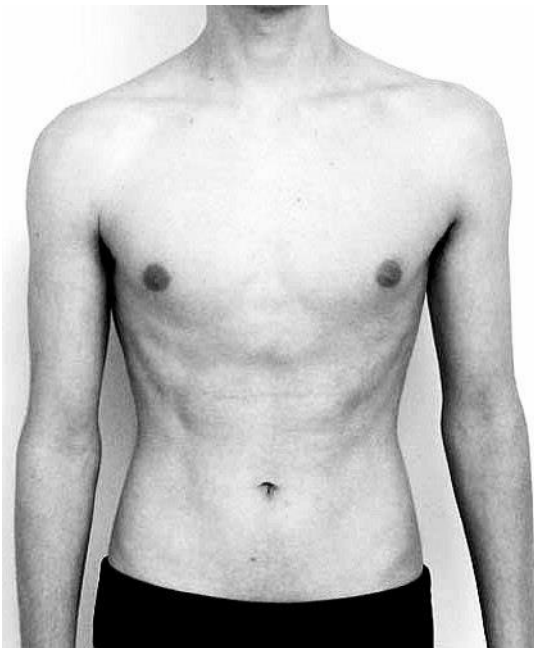
Figure 1. *Images of patient bodies used in the message manipulations*



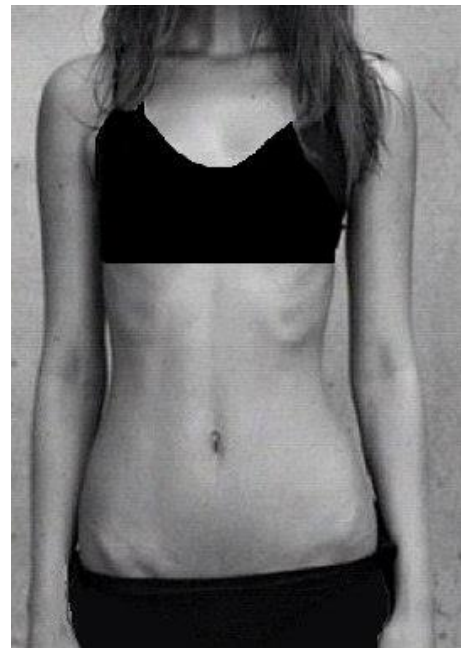
Large Male Body



Large Female Body



Small Male Body



Small Female Body

Figure 2. Two-way interaction (Body Size x Stigma Level) on Self-Esteem

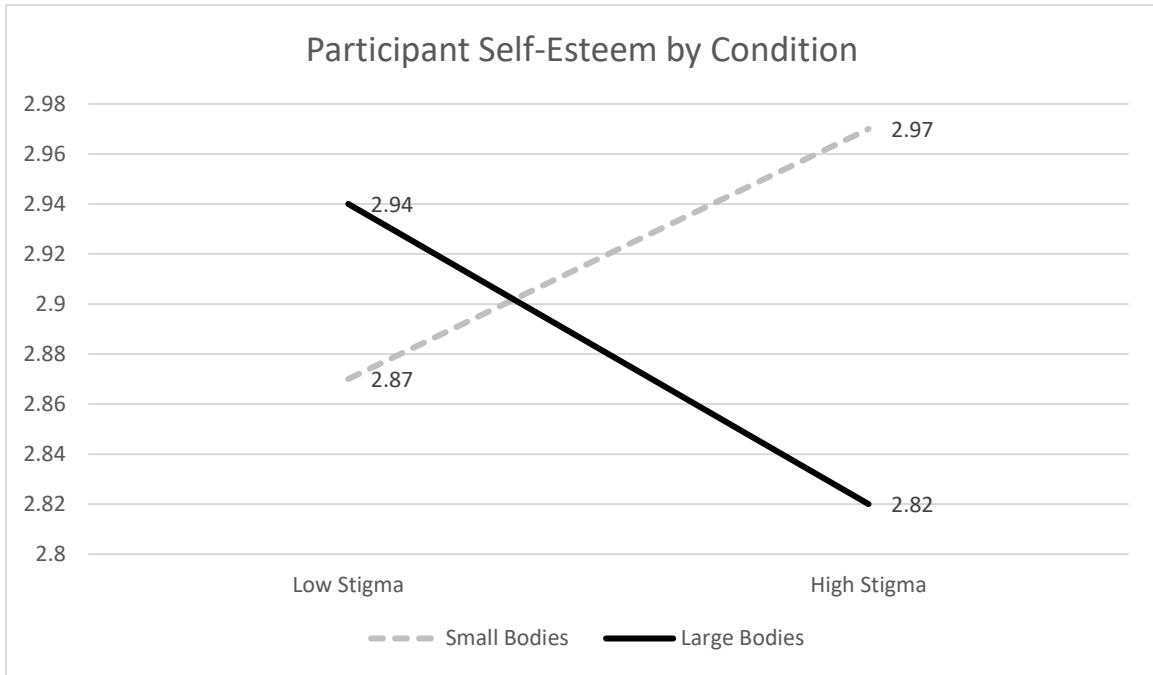
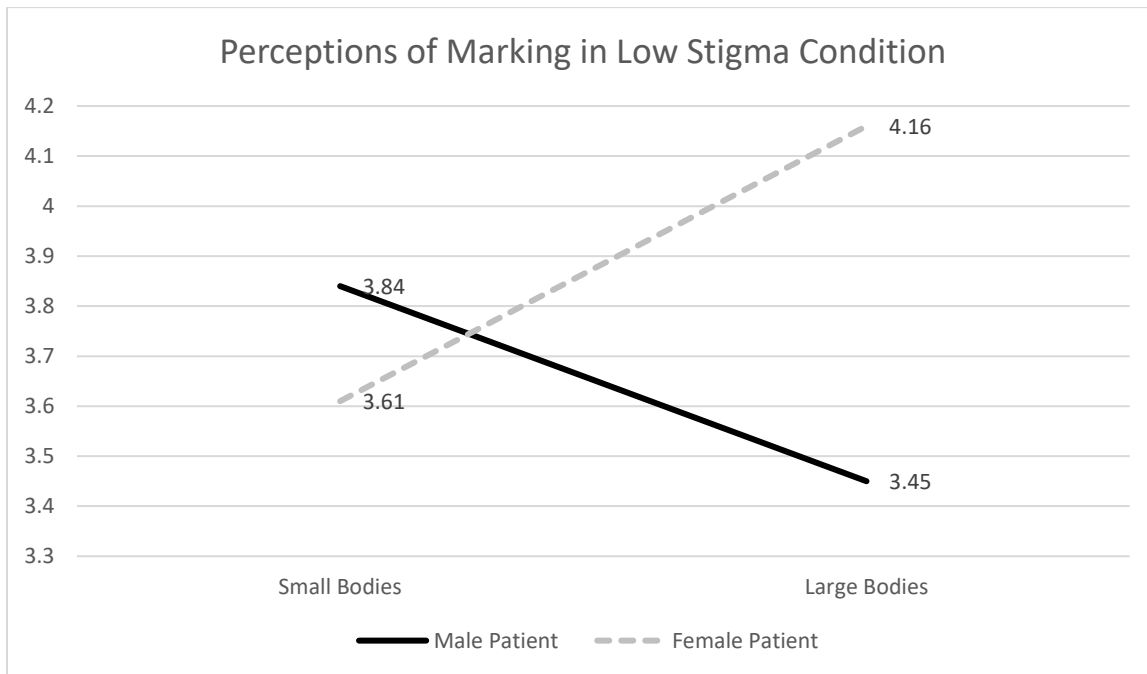


Figure 3. Three-way interaction (Body Size x Gender x Stigma Level) on Perceptions of Marking



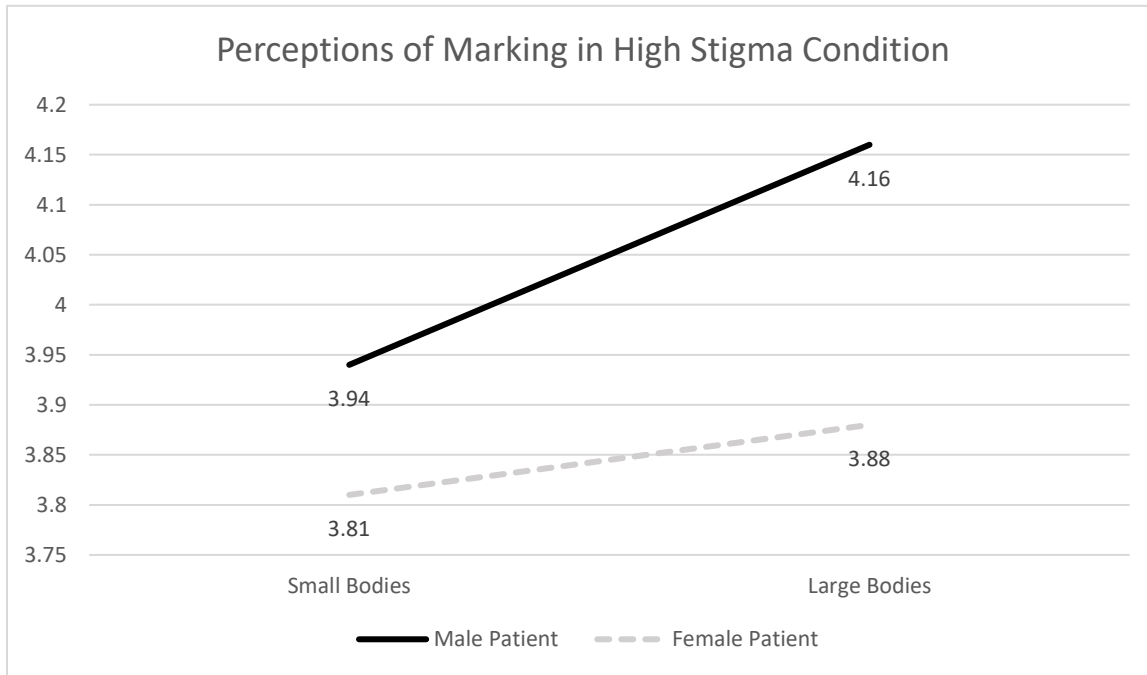


Figure 4. *Three-way interaction (Body Size x Gender x Stigma Level) on Perceptions of Social Peril*

