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INVESTIGATING THE ROLE OF WEIGHT STIGMA, BODY MASS INDEX, AND SEX ON BODY PROJECTS

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ABSTRACT

It is believed that weight stigma, the social devaluation and negative stereotyping of overweight individuals, is broadly related to both psychological (e.g. depression, body image distress, lower levels of self-esteem) and behavioral (e.g. binge eating, exercise avoidance) outcomes (Puhl & Brownell, 2006). The purpose of this study is to examine a specific behavioral outcome, the urge to physically alter one's body, in the context of overweight or obese persons' experience of weight stigma. Previous studies on body projects (e.g. attempts to construct and maintain a coherent and viable sense of self-identity through attention to the body's surface) have revealed that females participate in efforts to change their bodies more often than males (Featherstone, Hepworth & Turner, 1991). As many body projects today revolve around the urgency to achieve skinniness, this study seeks to better understand how weight stigma impacts this phenomenon.

As part of a larger study, 48 participants expressively wrote about their weight-related experiences over the course of the previous seven days. This data was then transcribed and coded to understand the frequency and nature of body projects. Hypotheses tests (e.g. chi-square and ANOVA) were conducted in order to analyze the relationship between weight stigma, biological sex, BMI, and body projects.

This study revealed that, according to a framework derived from Brumberg (1997), females are significantly more likely to physically alter their bodies than males. No significant relationships between BMI and body projects, or weight stigma and body projects were found. This research is important because it sets the foundation for future health promotion campaigns that address obesity whilst promoting body positivity.

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I would like to dedicate this thesis to everyone else that has doubted their ability to succeed. Whether it be writing a thesis, getting a job, or going to graduate school, you can do it.

Chapter 1

Introduction

People, and particularly females, are typically socialized to dislike their bodies, which can result in maladaptive and destructive psychological states (e.g. depression, body image distress, decreased self-esteem) and behaviors (e.g. decreased competence for physical activity, increased tendency for maladaptive eating behaviors; Schmalz, 2010). For example, television shows and movies display teenagers staring in the mirror, picking their bodies apart (Brumberg, 1997). Dohnt and Tiggemann (2006) determined that by age six, American girls begin to express unhappiness with their bodies. Smolak (2011) further reported that approximately half of pre-teen girls aged 6-12 years are unhappy with their bodies. Although body image is not solely a women's issue, many researchers have analyzed how societal changes and technological advances have caused women to become increasingly dissatisfied with their bodies (Pitts, 2005). There are limits to existing research however; for example, research on body satisfaction and self-esteem has mostly focused on middle-class White women (Hatoum & Belle, 2004), and it has been noted that research conducted on women should not be extrapolated to men (Gillen, 2015).

Body Projects

Body projects, which are "attempts to construct and maintain a coherent and viable sense of self-identity through attention to the body, particularly the body's surface" (p53, Featherstone, 2000; Featherstone, Hepworth, & Turner, 1991) have become much more common in the twentieth and twenty-first centuries (Brumberg, 1997; Hatoum & Belle, 2004). Girls are told and

feel as if their bodies are objects to be managed and maintained (Brumberg, 1997). Common body projects in which women partake include shaving body hair, dyeing hair, undergoing liposuction, breast augmentations, wearing makeup, and so forth (Brumberg, 1997). Many body projects that women partake in revolve around their desires to appear skinnier (Hatoum & Belle, 2004; Wright, O'Flynn, & Macdonald, 2006). These efforts may not be benign; body projects have been argued to have compounding effects that may lead to increased anxiety regarding the size and shape of one's body (Brumberg, 1997).

Obesity

The World Health Organization claims that obesity presents an alarming national public health issue that needs to be studied and addressed (Crawford & Ball, 2002). Data derived from the National Health and Nutrition Examination Surveys (NHANES) showed that in 2015-2016, 18.5% of the United States children and adolescent population were considered obese, and 39.8% of American adults were considered obese (Hales, Carroll, Fryar, & Ogden, 2017). There has been a significant increasing linear trend in rates of obesity, with a 9.1% increase between 1999 and 2016 (Hales, et al., 2017). Among youth, the age groups with the highest obesity rates were adolescents (12-19 years) at 20.6% (Hales et al., 2017). In regards to sex, NHANES data shows that there were no significant differences between obesity rates in males versus those in females (Hales et al., 2017). Hispanics had the highest rate of obesity (47.0%), followed by non-Hispanic black (46.8%), non-Hispanic white (37.9%), and non-Hispanic Asian (12.7%; Hales et al., 2017).

Data has shown that overweightness and obesity rates have reached epidemic proportions in certain countries, including the United States and Australia (Kumanyika, Jeffrey, Morabia, Ritenbaugh, & Antipatis, 2002). More generally, public health officials have highlighted the

global burden of disease and how high rates of obesity represent a very costly public health crises and threaten to overwhelm health care systems (Kumanyika et al., 2002). The rising rates of obesity are believed to contribute to discrimination on the basis of weight status.

Weight Stigma

As the average American body weight increases, and the attention on the obesity epidemic has intensified, it is becoming increasingly important to understand how individuals are impacted by and react to sentiments that stigmatize overweight individuals. It is plausible that body projects are related to a common social phenomenon labeled as weight stigma, or the social devaluation and negative stereotyping of overweight individuals (Puhl & Brownell, 2003). There is reason to believe that weight stigma and stigma of obesity is more pervasive today than 40 years ago (Schwartz, Vartanian, Nosek, & Brownell, 2006). The interaction of body projects and weight stigma may be broadly related to psychological (e.g., body image distress, lower levels of self-esteem, and poorer psychological functioning; Tomiyama, 2014), physiological (e.g. stress responses, such as sympathetic arousal and glucocorticoid secretion) and behavioral (e.g. binge eating, over-exercising) indicators of health (Puhl & Brownell, 2006). Weight stigma has been found to be positively correlated with body dissatisfaction, the urge to be thinner, and bulimic symptoms, and negatively correlated with self-esteem (Vartanian & Novak, 2011). Weight stigma affects people's explicit perceptions of others in addition to their personal implicit actions and beliefs, such as viewing their bodies as projects to be altered and perfected (Schwartz et al., 2006).

Researchers have found that weight-based stigmatization begins early in childhood and negatively impacts overweight and obese individuals in various spheres of their lives (e.g. employment, educational setting, healthcare environments, and romantic relationships; Puhl &

Brownell, 2006; Vartanian & Novak, 2011). Overweight and obese individuals are often stereotyped as having a variety of negative traits, such as laziness, sloppiness, incompetence, and lack of motivation and self-control (Puhl & Brownell, 2006). Anti-fat bias is pervasive and prevalent across all weight groups, with thinner people more likely to hold negative stereotypes about fatter people (Schwartz et al., 2006). Similarly, the media has correlated fatness with a deficit of control, worthiness, attractiveness, trust, and responsibility (Gurrieri et al., 2012).

Weight stigma can lead individuals to social isolation or social withdrawal, which can in turn increase psychological vulnerability and exacerbate obesity (Puhl & Brownell, 2003). Some of the psychological ramifications of weight stigma and anti-fat bias include depression, body dissatisfaction, and low self-esteem (Vartanian & Novak, 2011). Puhl and Brownell (2006) report that the most common form of weight-based stigmatization involved people making negative assumptions about themselves, the most common source of weight stigma was family members, and that such themes are consistent for both males and females. Although individuals of all body types receive weight-based stigmatization, weight stigma is typically higher in individuals with higher body mass indexes (Puhl & Brownell, 2006).

Although the majority of available weight stigma research focuses on psychological consequences, there is reason to believe that weight stigma alters behaviors as well. Weight stigma may cause overweight and obese individuals to change eating habits (e.g. diet avoidance and binge eating), exercise habits (i.e. students may feel ashamed of participating in physical activities) as well as partake in unhealthy weight control behaviors (Vartanian & Novak, 2011). Weight stigma, compounded with anti-fat attitudes and internalization of societal standards of attractiveness, increases individuals' motivations to avoid exercising (Vartanian & Novak, 2011). Weight stigma may discourage people from exercising because of fear of judgement and

decreased perceived competence. Weight stigma has also been found to worsen diabetes outcomes (Potter, Wallston, Trief, Ulbrecht, Juth, & Smyth, 2015). The compounding effects of being overweight and having diabetes may place individuals at a further risk of heart disease and other chronic health conditions (Potter et al., 2015). Some women report high internalization of weight stigma and an accompanying motivation to uphold a certain body standard; for example, women sometimes avoid pregnancy because of the fear of appearing fat, and others choose cigarette smoking to remain thin (Puhl & Brownell, 2003).

Efforts to reduce weight stigma may promote a wide array of health behaviors and their associated health outcomes, including physical activity, diet, and diabetes management (Potter et al., 2015). Perceived stigmatization on the basis of weight decreases motivation and self-efficacy for physical activity, although this relationship has been found to be modified by self-esteem (Schmalz, 2010). For children in school, being overweight is related to decreased physical activity and increased sedentary behavior (Vartanian & Novak, 2011). Similarly, a study of undergraduate female students found that stigma experiences were positively correlated with desire to avoid exercise (Vartanian & Shaprow, 2008).

Stigma as a Tool to Promote Health

Research on using obesity stigma to promote health highlights that further stigmatizing obese and overweight individuals in order to motivate them to lose weight often neglects the Hippocratic oath "first, do no harm" (Vartanian & Smyth, 2013). Public health campaigns that shame overweight individuals as a method for encouraging them to lose weight appear to assume that weight status is entirely controllable. External factors, such as living in an environment where walking outdoors is unsafe or unpractical and living in a food desert, often make weight loss difficult. Even those individuals whose environmental factors promote healthy living may

find that their genetics may limit their weight loss ability (Vartanian & Smyth, 2013). Research has shown that adult body mass is between 55% and 75% attributable to genetics, thus weight is not entirely in someone's control (Appelhans, Whited, Schneider, & Pagoto, 2011). As such, evidence is accumulating that stigmatizing individuals does not motivate them to lose weight; in fact, research shows it can have the opposite effect. A common coping response to weight stigma is eating more (Puhl & Brownell, 2006). Some individuals may avoid exercise and overeat to compensate for the negative responses that result from stigmatization, which further prevents them from achieving healthy weight loss (Vartanian & Smyth, 2013). Relatedly, Barkley, Salvy, and Roemmich (2011) reported that experimentally simulated ostracism reduced physical activity by 22% and increased sedentary behaviors by 41%.

Body Dissatisfaction and Body Projects in Males

Even though a great deal of literature focuses on female body dissatisfaction and the accompanying body projects, researchers have posited that male body dissatisfaction is nearing the high prevalence of their female counterparts. Previous research has revealed that 24% of women and 17% of men reported they would rather live three years less if they could be their ideal weight (Puhl & Brownell, 2003) and scholars believe that this rate is rising. For example, in one study with male participants, 80.9% of the sample reported wishing they weighted differently; however, only 34.9% of the sample was outside of the normal BMI range (Hatoum & Belle, 2004). Of those who wanted to weigh differently, 50.6% wanted to gain weight and 18.7% wanted to lose weight (Hatoum & Belle, 2004). Whereas females often undergo body projects to look leaner, research shows that the male equivalent of a weight-focused body project entails gaining weight, not losing it (Boyd & Murnen, 2017). The prevalence of extreme dieting behaviors (e.g. extreme dietary restriction and extreme purging) is higher in females, but it is

increasing more rapidly in males (Mitchison & Mond, 2015). Although both sexes experience dissatisfaction, the desires may reflect different social pressures, standards, and expectations.

Scholars have posited, over the past decade, visibility and the accompanying scrutiny of men's bodies has also increased significantly (Turner, 2000). While women have been hyperfeminized and sexualized, men have been hypermasculinized and eroticized as well. Even though most occupations or requirements of daily life do not typically require immense physical strength and manual labor, muscles and muscularity are fetishized in the media which leads men wishing they were more muscular (Gill, Henwood, & McLean, 2005). Males and females may undergo body projects with similar intentions (i.e. conform to societal beauty standards) even though the outcomes are drastically different (e.g. trying to lose weight vs. try to gain weight).

Featherstone and colleagues (1991) argue that bodies are vehicles of self-expression fueled by consumerism, men and women are targeted differently, and thus media and advertising may differentially affect people different based on their sex. There is an apparent disconnect in the reasoning why men and women partake in certain body projects. Understanding intentions that lead to body projects may better inform interventions that increase body satisfaction and decrease unhealthy habits. For example, female-centered eating disturbance research and treatment is often seen as a barrier for males getting help for eating disorders (Mitchison & Mond, 2015).

Just as body projects have been linked to unhealthy behaviors in females, there is reason to believe that body projects can be harmful in male populations. For example, emerging research has been conducted on muscle dysmorphia (a subtype of body dysmorphic disorder categorized by a high drive for muscularity) as an eating disorder in male populations (Mitchison & Mond, 2015). Whereas internalizing societal ideas of the perfect body may result in women

wanting to lose weight via caloric restriction, men who internalize societal pressures may want to gain weight via anabolic steroids usage and binge eating (Boyd & Murnen, 2017).

Body image dissatisfaction in males appears to be a particularly dire issue in the United States (Boyd & Murnen, 2017). Compared to men in other countries, American men desire having a muscular body significantly more (Boyd & Murnen, 2017). Bodily concern may lead men to partake in unhealthy exercise behaviors (e.g. over-exercising, taking anabolic steroids) and maladaptive nutritional behaviors (e.g. skipping meals, taking dietary supplements; Hatoum & Belle, 2004). Understanding sex differences in body projects is important because it can better inform public health interventions. People, regardless of biological sex, generally partake in many, often unhealthy, body projects – diet, exercise, training bras, liposuction, cellulite cream, waxing, shaving, piercing, body sculpting, mammoplasty, anabolic steroids, dieting pills, etc. – all in the pursuit of the perfect body as designated by societal beauty standards.

Body Dissatisfaction and Body Projects in Females

Although many researchers now stress the importance of analyzing eating disorders and body dissatisfaction in both males and females, others continue to posit that adolescent girls are particularly vulnerable to appearance-related social comparisons as their bodies change and they try to conform to adult beauty standards publicized through the media (Halliwell & Dittmar, 2005).

Perhaps some researchers believe that females are disproportionately made victims of body projects because companies and organizations profit off advertising that may make girls feel insecure about their bodies (Gurrieri, Previte, & Brace-Govan, 2012). As consumers of health and fitness-related social media content are predominantly female, the marketing of products such as detox or skinny teas, skinny-branded alcohol, and other related consumer goods

disproportionately targets girls (Carrotte, Vella, & Lim, 2015). Advertisements and media messaging that focus on women's appearance have been shown to increase body-focused anxiety and to be detrimental to women's self-esteem (Halliwell & Dittmar, 2005). As mentioned earlier, body projects for females disproportionately involve the desire to appear skinnier (Brumberg, 1997). This sentiment is often fueled by awareness and desire of the male gaze, which may lead to self-consciousness, body shame, and desire for change (Chrisler, 2011). The increase of body-focused attention and the subsequent anxiety may manifest through different methods of body policing, such as the use of activity trackers.

Body Policing and Self-Monitoring

Some researchers have recently argued that activity trackers, such as Fitbits and Apple Watches, have exacerbated tendencies to attempt to achieve the perfect body through body projects, particularly for women (Sanders, 2017). Women are more likely than men to track their bodily functions, from steps per day to calories burned (Sanders, 2017). Some companies believe that increasing biometric surveillance will make the general population healthier by increasing people's daily activity level (Karapanos, Gouveia, Hassenzahl, & Forlizzi, 2016). As Cadmus-Bertram and colleagues note, activity monitors may be effective for enhancing health behaviors related to increased moderate-to-vigorous physical activity and steps per day (Cadmus-Bertram, Marcus, Patterson, Parker, & Morey, 2015). Activity monitors increase self-awareness surrounding physical activity, which may encourage overweight individuals to increase their participation in exercise, a common body project (de Vries, Kooiman, van Ittersum, Brussel, & de Groot, 2016). Although self-monitoring may increase physical activity in the short-run, a clinical weight loss trial revealed that these effects may not be sustained over time (Wang et al., 2015).

There is nothing inherently wrong with people wanting to look and feel their best, in fact, health professionals urge individuals to eat right and exercise (The Centers for Disease Control and Prevention, 2018). However, corporations and communities should consider not shaming people into looking a certain way; using scare-tactics and fear-based health promotion are not the most effective manner in promoting health behaviors (such as safe sex, tobacco prevention and cessation, and exercising). Striving to look a certain way, which due to biological or financial constraints may be impossible, can leave many people feeling hopeless. Research has linked negative emotional states, such as disappointment and dissatisfaction, with major depression, decreased motivation and self-efficacy (Anton, & Perri, Riley, 2000). Understanding the reasons why people feel the need to change their body may decrease these negative emotional states and increase positive health behavior, such as mindful eating and appropriate levels of exercise.

Body Mass Index

Body mass index (BMI) is a measure of weight status calculated by dividing weight in kilograms by height in centimeters (Hall & Cole, 2006). BMI has been used to classify individuals on various ranges of excessive body weight and serves as an indicator of weight-related health risks (Puhl & Brownell, 2003). Some researchers have argued that using BMI as a measure of healthy weight is inadequate, whereas other researchers have argued it is an adequate (albeit minimalistic) way to categorize people by weight (Bouchard, 2007). Much scientific research has not been conducted on how objective health measures, such as BMI, may change the likelihood of partaking in body projects. Brumberg (1997) posits that as adolescents, specifically girls, go through puberty, the biological maturation of their bodies sends them into a frenzy. During puberty, girls' body mass index naturally increases as fat deposits and lipid storage changes (Brumberg, 1997). Brumberg (1997) argues that during this time, self-scrutiny

on girls' bodies worsen. Much more research is needed on how objective measures of weight status, such as BMI, impact people's urges to change their bodies.

Project Goals Little quantitative research has been done to examine how weight stigma, sex, and body mass index may be related to individual's thoughts about, or attempts to, physically alter their bodies. Weight stigma is known to decrease perceived competence, body esteem, self-esteem, and health behaviors. The compounding of these psychological experiences may manifest themselves via a change of behavior in an attempt to alter one's physical appearance (Puhl & Brownell, 2006). Researchers have shown that males and females experience weight stigma differently, but it is unclear how those experiences may translate into urges to change their bodies. Little research has been conducted on how BMI may impact body projects, thus this project will shed light on this relationship. Thus, the purpose of this project is to examine the impact of weight stigma, biological sex, and BMI on negative thoughts about, or attempts to alter, one's body.

This research is important because it can enhance the understanding of different contributors to body projects, which in turn might be used to inform prevention efforts and/or interventions to promote body positivity in a time period where obesity is rapidly increasing. Public health professionals and health advocates should focus on decreasing and preventing overweightness and obesity and the associated health risks whilst doing so in a manner that does not result in the adoption of expectations that may increase body projects (Neumark-Sztainer, Falkner, Story, Perry, Hannan, & Mulert, 2002).

Hypotheses

1. People who report higher weight stigma are more likely to intend to carry out and execute body projects than those who report lower weight stigma.
2. Women will exhibit more body projects and intention/consideration of body projects than men will.
3. BMI and number of body projects are positively correlated.
4. BMI relates to the type of body project engaged in.

Chapter 2

Methods

Eligibility: Eligibility criteria for the larger study, Weight Status in Daily Life, included being between the ages of 18 and 55, fluent in English, and overweight as defined by CDC (e.g. BMI>25.0; Center for Disease Control and Prevention, 2018). Participants could not be pregnant or breastfeeding, previously diagnosed with an eating disorder, hospitalized for a psychiatric disorder during the past three months, have a visual impairment that prevented them from being able to answer questions on a smartphone screen, or previously diagnosed with a developmental disorder.

Recruitment: Recruitment was conducted in four main ways. First, fliers were placed on bulletin boards in buildings across the Pennsylvania State University Park's campus as well as in public locations surrounding the university. Second, with permission from instructors, researchers made class announcements in Biobehavioral Health courses. Third, an advertisement for the study was placed on Facebook. Fourth and finally, information about the study was placed on Study Finder, a website hosted by the Pennsylvania State University Clinical and Translational Science Institute. Individuals interested in participating who believed they were eligible called or emailed the laboratory (N=155 participants inquired about the study). Research assistants screened possible participants for eligibility, and if eligible, participants were scheduled for a baseline visit, the EMA portion, and a follow-up visit.

Weight Status and Health in Everyday Life Study: This research is being done as part of The Weight Status and Health in Daily Life (WSDL) study, a larger IRB approved study

conducted in the Stress, Health and Daily Experiences Laboratory in the Biobehavioral Health department at Penn State University. WSDL sought to examine the prevalence of and reactions to weight stigma, vigilance, and discrimination in real time using Ecological Momentary Assessment (EMA), as well as the factors that affected perception of weight stigma (Potter, 2018).

Forty-eight participants (males = 21, females =27; see Appendix A for sample characteristics) completed three distinct portions of Weight Status in Daily Life. Of the N=155 that inquired about the study, only 48 participants were eligible and completed all stages of the study. During the baseline visit, participants were given details about the study, were run through the informed consent protocol, and were weighed using an electronic bathroom scale and measured for height using a tape measure. These data were entered into the National Heart, Lung, and Blood Institute website (https://www.nhlbi.nih.gov/health/educational/lose_wt/BMI/bmi-m.htm) to calculate BMI. Any participants that had a BMI lower than 25.0kg/m^2 were compensated for their time and screened out from further participation in the study. Eligible participants then answered demographic and baseline surveys addressing weight stigma, vigilance, physical activity, eating behavior, stress, mood, stigma consciousness, stereotype threat, anti-fat attitudes, weight bias internalization, neuroticism, and self-esteem using Qualtrics (Potter, 2018). Key measures used in this study are described in detail below.

Over the following seven days, in real time, participants answered ecological momentary assessment (EMA) surveys in their natural environments using provided cell phones about their experiences, mood, and context. At the conclusion of the seven-day EMA portion of the study, participants were instructed to return to the laboratory for the follow-up visit. At this follow-up

visit, participants returned all laboratory supplies and provided a blood sample via finger prick to measure blood glucose levels (HbA1c). This blood sample was used to analyze whether weight vigilance was associated with higher blood glucose levels (Potter, 2018). Participants were then taken to a different room in the laboratory, and were instructed to expressively write for 15 minutes about their weight-related experiences over the course of the study. More specifically, research assistants provided participants with a blank notebook, several writing utensils, and told participants to "*write for 15 minutes about the most salient or meaningful experience you had related to your weight over the 7-day portion of the study you just completed. Try to be as descriptive as possible, including both the facts and your memories. Focus on how it made you feel by describing your deepest thoughts and emotions. As you write about it, try to reflect on the meaning of the experience. Think about how it ties into other aspects of your life, including your relationships with others or your perception of yourself"* (see Appendix C for full script; Potter, 2018). At the conclusion of these 15 minutes, the research assistant collected the booklet, compensated the participant, and thanked them for their participation. The qualitative data obtained from the expressive writing portion of the larger study was analyzed to better understand how individuals may attempt to change the appearance of their bodies (e.g., through exercise, diet, clothing choices) in an effort to maintain "a coherent and viable sense of self-identity" (i.e., body projects; Gill, 2005).

Measures

Stigmatizing Situations Inventory (SSI; Myers & Rosen, 1999): Myers & Rosen specifically created the SSI to "create inventories of stigmatizing situations faced by obese people and ways of coping with stigmatization, and to examine how stigma and coping are related to psychological distress in an obese patient population" (Myers & Rosen, 1999).

Lifetime experiences of weight stigma were measured during the baseline portion of the study and momentary weight stigma experiences were measured during the EMA portion of the study, however for the purpose of this paper only the former will be used. The SSI is a 50-item battery (see appendix) that asks participants to rate the frequency of various experiences in their lifetime on a scale of 0 (never) to 9 (daily; Myers & Rosen, 1999). Example of stigmatizing situations that people encounter because of their weight are "a child coming up to you and saying something like "you're fat!" "a doctor blaming unrelated physical problems on your weight" and "a part or other relative nagging you to lose weight" (Myers & Rosen, 1999). Higher scores for the SSI represent a higher level of lifetime experience of weight stigma.

Body Mass Index (BMI): BMI was measured during the baseline visit to confirm eligibility. Participants were weighed using an electronic body weight scale. Research assistants recorded the participant's weight in pounds. Participant's height was then measured using a tape measure and recorded by the research assistant. The research assistant then calculated the participant's BMI using a calculator available from the National Heart, Lungs, and Blood Institute website.

Body Project Category: The author of this thesis derived a codebook consisting of all the body projects mentioned in Brumberg's (1997) seminal work on body projects; *The Body Project: An Intimate History of American Girls* was reviewed, and all mention of physical alteration of bodies were written down (see Appendix B). Nineteen different types of body projects were located. A score was created for the codebook such that the absence of any mention of the urge to change one's body was coded as 0. The mention of a participant's intention to physically alter their body (e.g. I need to exercise more) was coded as 1, and the mention of the execution or fulfillment of a body project was coded as 2 (e.g. I have cut my

sugar intake). Each code (e.g. 0, 1, 2) represents a specific body project category (e.g. none, intention, execution). The participant's highest score was recorded. For example, if a participant mentioned an intended body project (coded as 1) and an executed body project (coded as 2), they were placed in category 2. The possible categories were none, intended, executed. The researcher included common body projects mentioned in Brumberg (1997) even if they overlap with common health behaviors, such as exercising and dieting.

Using transcripts of participant's expressive writing essays regarding experiences related to weight, the researcher identified and coded all body projects mentioned.

Body Project Sum: Using the code from the Body Project Category measure, each participant's body project scores were summed assuming equal distance between each category (e.g. if a participant displayed two different body project intentions (each coded as 1), they would be added for a total score of 2). The body project sum score for each participant could thus potentially range from 0 to 38.

Data Analyses

Research assistants transcribed the expressive writing sessions following the conclusion of the study. Manual textual analysis based on the codebook (see Appendix B) was used to isolate phrases reflecting both the intention and the execution of body projects. All data analyses were conducted using IMB SPSS Statistics. Descriptive data analyses were conducted for age, BMI, body project sum, and SSI score. Frequencies were obtained for body project category and participant sex at birth.

Regarding hypothesis 1 (i.e. those with higher weight stigma scores are more likely to report intended and executed body projects), linear regression was used in order to understand the relationship between weight stigma and body projects.

For hypothesis 2 (i.e. testing if women will exhibit more body projects than men), a chi-square hypothesis test was conducted.

In reference to hypothesis 3 (i.e. testing if BMI is associated with sum body projects), a linear regression was conducted.

In order to address hypothesis 4 (i.e. testing if BMI is related to body project category), a one-way ANOVA hypothesis test was conducted.

Chapter 3

Results

Of 155 possible participants that expressed interest in the Weight Status in Daily Life study, 48 were eligible and participated through all three phases of the study. The other 107 initially interested participants were either ineligible, stopped responding to the research assistant's emails and phone calls, or declined to participate. The ages of participants ranged from 18 to 54, the average age was 27.69 and the standard deviation was 9.61. The mean SSI total score was 0.69 and the standard deviation was 0.59. The average BMI for participants was 31.91 (i.e., in the obese range) and the standard deviation for BMI was 6.21. The body project total scores ranged from 0 to 6, the average sum was 1.46 and the standard deviation was 1.53. Twenty-one of the participants were male and 27 of the participants were female.

Across all 48 participants, 18 displayed no body project intention or action (coded as 0), 9 displayed an intention of a body project (coded as 1), and 21 displayed the execution of a body project (coded as 2). Body project sum scores ranged from 0 to 6; 37.50% of participants had a score of 0, 16.70% of participants had a score of 1, 27.10% of participants had a score of 2, 6.30% of participants had a score of 3, 8.30% of participants had a score of 4, and 2.10% of participants had a score of 5 and 6. During the 15-minute expressive writing session, participants revealed various common body projects. Participants mentioned exercise with the end-goal of changing their physical appearance 11 times, cutting calories 6 times, wearing clothes to camouflage their bodies 8 times, food restriction 12 times, and wearing makeup 1 time.

Hypothesis 1: Individuals with higher weight stigma scores (based on the SSI) will have more intended and executed body projects than those with lower weight stigma scores. Results showed that there was no significant difference in endorsement of body projects based on weight stigma scores (p=.709; see Table 1).

Table 1. Linear Regression of Stigmatizing Situations Inventory Scores and Body Projects

Model	B	Std. Error	t	Sig.
(Constant)	1.121	.205	5.482	.000
SSI_total	-.085	.225	-.376	.709

a. Dependent Variable: Body Project Category (action/intended/none)

Hypothesis 2: Women will exhibit more body project intention and body project executions than men. Of the 18 participants that displayed no body projects, 12 of them were male (66.67%) and 6 of them were female (33.33%). Of the 9 participants that displayed the intention of a body project, 5 were male (55.56%) and 4 were female (45.54%). Of the 21 participants that displayed the execution of a body project, 4 were male (19.04%) and 17 were female (81.06%). There is a significant difference in body projects exhibited between male and female participants (X^2=9.56, p=0.008), with females significantly less likely to have no body project mention (coded as 0) and significantly more likely to have executed a body project (coded as 2) compared to males (see Table 2, Figure 1, and Figure 2).

Table 2. *Chi-Square of Sex & Body Project Category*

Category	Male	Female	X^2
None	12	6	*9.558***
Intended	5	4	
Executed	4	17	
Total	21	27	

Note: **=p<.05. p=.008

Figure 1. Bar graph showing the mean sex differences in body project category.

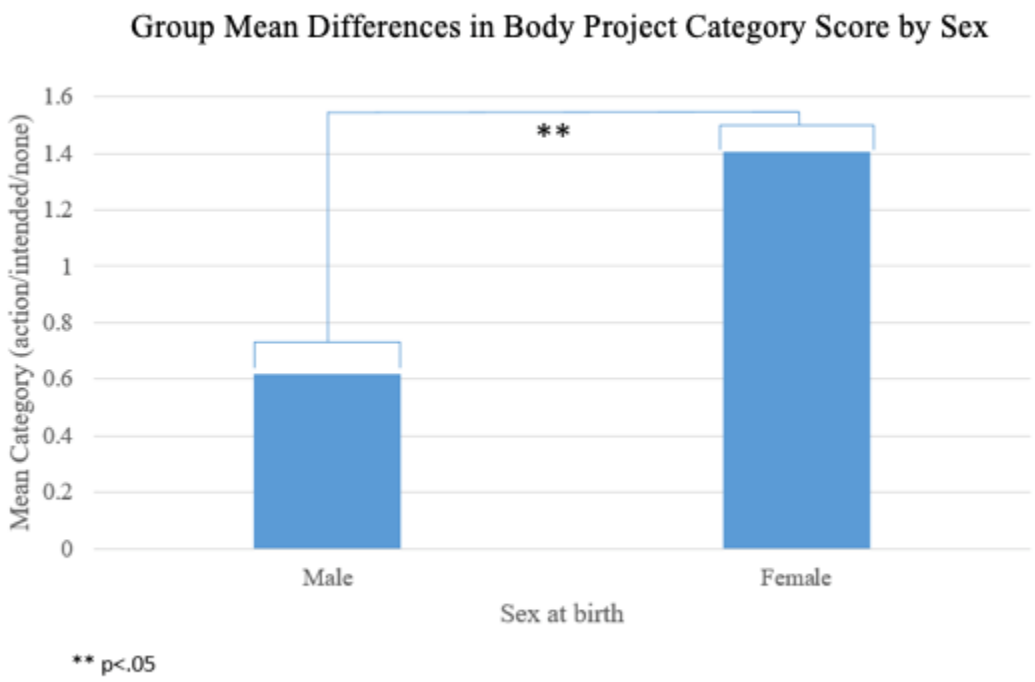
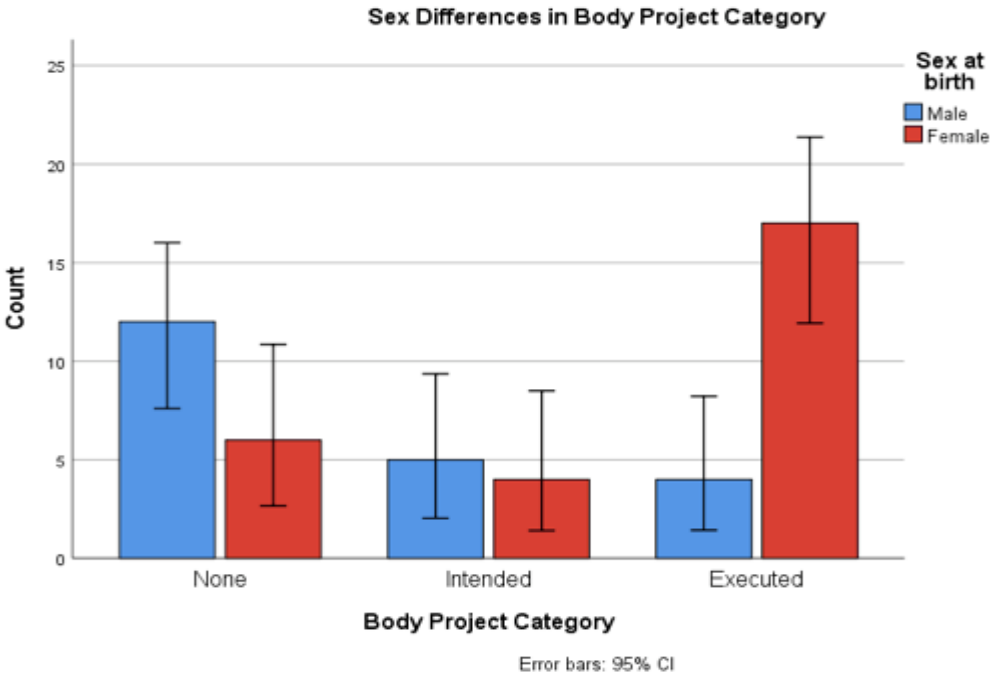


Figure 2. Clustered bar graph showing the sex differences in body project category.



Hypothesis 3: BMI and body project sum are positively correlated. The lowest score of body project sum was 0 and the highest was 6. The data analyses conducted show that this hypothesis was not supported. Across all participants, there was no significant regression between the body project sum and BMI (p=.53; see Table 3).

Table 3. Linear Regression of Body Mass Index and Body Project Sum

Model	B	Std. Error	t	Sig.
(Constant)	.727	1.175	.619	.539
BMI	.023	.036	.634	.529

a. Dependent Variable: Body Project Sum

Hypothesis 4: BMI is related to body project category placement. It was hypothesized that there is a significant difference in body project category endorsement based on BMI. ANOVA tests were conducted to examine whether there were significant difference in BMI between body project categories (none, intended, executed). Results showed that there are no significant BMI differences between body project categories (p=.50). The average BMI for the body project category coded as 0 (no intended or executed body projects) was 32.77. The average BMI for the body project category coded as 1 (expression of intended body project) was 29.77. The average BMI for the body project category coded as 2 (expression of an executed body project) was 32.10. The results of this study thus do not support hypothesis 3 (see Table 4).

Table 4. One-way Analysis of Variance of Body Project Categories by BMI

Source	*df*	*SS*	*MS*	*F*	*p*
Between groups	2	55.275	27.638	*0.708*	*0.498*
Within groups	45	1757.850	39.063		
Total	47	1813.125			

Chapter 4

Discussion

The goal of this study was to further understand and highlight the relationship between weight stigma, sex, body mass index, and body projects. This study is one of the first to quantitatively analyze qualitative data on body projects in relation to weight stigma. This study explored common body-altering themes extracted from brief expressive writing sessions in response to prompts to write about salient weight-related experiences. In addition to having explored body project themes, this study analyzed the role that weight stigma, biological sex, and BMI play on the reporting of body projects.

Participant Reports of Body Projects

Common body projects reported in this study include wearing clothes to alter or camouflage their bodies, wearing makeup, cutting calories, restricting food, and exercising with the goal of changing physical appearance. For the purpose of this study, health behaviors such as exercise and dieting were considered body projects since they are mechanisms that participants reported using in order to physically change the appearance of their bodies. These specific body projects often serve dual purposes, improving health and physical fitness as well as improving attractiveness.

Correlates of Body Projects

Although it was hypothesized that individuals with more perceived weight stigma would have more body projects (both intended and executed), this research concluded otherwise. There may be factors other than weight stigma, such as internalization of societal standards, that impact body projects (Vartanian & Novak, 2011). This study also revealed that there is a significant relationship between sex at birth and body projects. Females are more likely to report having

executed body projects and are less likely to report the absence of body projects. This highlights sex differences in body satisfaction and pressure to conform to society's ideal body standards. Within this overweight sample, no males reported the urge to gain weight, even though the literature points towards this trend in normal weight populations. Similar to how research on weight stigma has emphasized the sex differences in psychological effects of weight-based prejudice, research on body projects should continue to explore how certain messaging and advertising in the media differentially affects males and females.

It was hypothesized that BMI and number of body projects were positively correlated, and prior research has shown that BMI is significantly correlated with negative body image (Watkins, Christie, & Chally, 2008). However, this study revealed that BMI and number of body projects are not correlated in this sample. Participants who had higher BMI's did not report more body projects than those who had lower BMI's. A possible explanation for this non-significance, and all of the non-significant findings in this study, could be that this study did not prompt individuals to speak about body projects specifically. Participants simply spoke about the most salient weight related experiences, and those appeared to not include body projects. Future researchers may consider including other measures of weight status and conduct similar studies on people that are underweight, normal weight, and overweight to further understand how the general population experiences weight stigma and the associated urge to change one's body.

Similarly, it was believed that BMI would impact body project category (none, intended, executed) placement, but the results of this study did not support this hypothesis. BMI status did not impact whether a participant displayed no body projects, intended body projects, or executed body projects. Instead of being related BMI or weight stigma as originally hypothesized, perhaps body projects are more related to psychological constructs such as self-esteem, self-efficacy, and

body appreciation. Future research should focus on how these constructs may influence the reporting of body projects.

Interesting to note is that regardless of the correlates at play, the reporting of body projects in this study was very low; at most, participants reported the execution of three body projects at one time. Several participants did not mention any body projects at all. In a sample that was chosen strictly off being overweight or obese, it was expected that the number of body projects reported would be much higher. Prior research reveals that overweight individuals are victims of stigmatization in nearly every sphere of their everyday lives, which increases body dissatisfaction (Puhl & Brownell, 2006; Vartanian & Novak, 2011). Brumberg (1997) posited that body dissatisfaction, social comparison, and self-esteem all contributed to body projects, so it was believed that an overweight sample would report a high level of body projects that resulted from those sentiments.

A possible explanation for the low reporting of body projects could be that the participants were not prompted to disclose specific physical alterations to their bodies, rather, they were simply asked to write about their weight related thoughts and experiences. Not prompting individuals to specifically discuss their body project related experiences may have impacted the type of information participants revealed during the expressive writing session. Future researchers might consider informing individuals on the concept of body projects and specifically prompting participants to speak about body project endorsement in their everyday lives. Additionally, the literature on body projects could have overestimated the prevalence of this phenomenon or participants could have simply not felt a great need to change their bodies.

Qualitative Observation

Participants mentioned feeling physically uncomfortable during exercise, feeling discriminated against because of remarks from family members (e.g. “the first comment my mother made after asking how I was doing was that I had gained the freshman 15”), feeling unmotivated to work out, and feeling uncomfortable whilst shopping for or trying on clothes (e.g. “I tried on at least ten other shirts that made me feel bad about my appearance due to my weight”).

One participant revealed that their attempts at food restriction often result in over-eating calorie dense nutrient deficient foods. Sweet treats left a participant feeling a “short burst of positive emotion followed by guilt and a desire to make better eating choices.” Participants discussed that perceived moderators for the psychological effects of weight stigma (e.g. depression, hopelessness, decreased competence) include positivity, body-appreciation, social support, and believing that your BMI does not accurately represent your weight status.

Participants revealed that social comparison often worsens self-esteem (e.g. “my weight is a big part of my life because I am very self-conscious and always compare myself to others). Self-worth was also related to social comparison (e.g. “once others complimented my achievement, the image of my body correlated to what others saw”). Participants “found themselves believing they took up too much space” and “trying to camouflage their bodies more often.” One participant expressed deep unhappiness with the way society made them feel about their body; “I don’t want to live my life always wanting to look like someone else or be what society wants.”

In the context of this study, reported barriers to achieving the ideal body standard and partaking in a healthy lifestyle include cost of healthy food (e.g. “Danishes cost $3.49 and a

veggie pack costs $5.80"), lack of time or means to exercise, fear of judgement, lack of motivation, and lack of perceived competence in the gym. Studies have revealed that overweight adolescents exercise less and are more sedentary as compared to their normal weight peers, but that both groups benefit from interventions that seek to increase physical activity (De Bourdeaudhuij, Lefevre, Deforche, Wijndaele, Matton, & Philippaerts, 2005). Researchers have previously concluded that feeling too overweight to partake in physical activity is a common barrier, and this relationship is particularly strong in females (Ball, Crawford, & Owen, 2008). Particularly among low-income overweight female populations, barriers to health behaviors include the type of food available, social support, finances, and stress (Chang, Nitzke, Guilford, Adair, & Hazard, 2008).

Common sources of weight stigma mentioned in the expressive writing portion of this study are family members, significant others, and close friends. Acknowledging that the media is not the only perpetrator of weight stigma and fat-shaming is important in improving the mental and physical health of overweight individuals. Research shows that discrimination ensues in many different ways, whether it be through behaviors, glances, words, from a variety of sources, such as friends and family, and in many different settings, such as at home, in the gym, and at work (Potter, Brondolo, & Smyth, 2019).

Higher reports of weight stigma have been linked to worse health outcomes, (e.g. eating disturbances, depressive symptoms, anxiety, body dissatisfaction, and low self-esteem) for overweight and obese adults (Wu & Berry, 2018). In concordance with the literature, transcriptions from this study revealed that feelings of depression and general sadness often arose because of participants' unhappiness with their weight status (e.g. "I feel worthless and stupid as a result of my weight").

Body Project Appearances in Everyday Life

As the literature reveals, various components of everyday life play a role in promoting body dissatisfaction. Specifically, the media has recently come under great scrutiny for promoting body types that are largely unattainable and often times too unhealthy to sustain (Roberts & Muta, 2017). Magazines, such as *Playboy*, promote an unrealistic thin-ideal body which leaves many people hating their bodies and going to drastic means in order to achieve this unattainable ideal of an attractive body (Roberts & Muta, 2017).

Some studies reveal that the toys children choose to play with during childhood are predicted of their view on gendered career possibilities in the future (Boyd & Murnen, 2017). Toys may contribute to teaching children what type of careers are common for each gender and, similarly, they show children what socially acceptable body types look like (Boyd & Murnen, 2017). In response to criticisms of Barbie promoting unrealistic beauty standards that may worsen body dissatisfaction in girls, Mattel released a new line of Barbie dolls in 2016 (Jarman, 2016). An experimental study concluded that showing young girls thin dolls worsened body esteem and increased the desire for thinness (Dittmar, Halliwell, & Ive, 2006; as cited by Jarman, 2016).

Similarly, research has shown that when exposed to images of bodies that are seen as ideal, the discrepancy between men's ideal and actual body type increases (Leit, Gray, & Pope, 2001). In Leit and colleagues' study, the male groups that were exposed to advertisements of hypermasculine and muscular male figures had decreased body dissatisfaction (Leit et al., 2001). Lewallen and Behm-Morawitz (2016) report that people who interact more with fitness content on social media are more likely to engage in body projects, specifically partaking in extreme-weight loss behaviors. Understanding the reasons that people cite for physically altering their

bodies, whether it be pressure from family members, social media, well-meaning medical professionals, and so forth, is important in increasing body satisfaction, and self-esteem, and decreasing maladaptive dieting behaviors and unhealthy body projects.

The Importance of Body Project Research

This research is important because as the rates of obesity increase, so will experiences of weight stigma on individual and systematic levels (Levy & Pilver, 2012). It is believed that twenty percent of individuals who are overweight or obese experience weight stigma in the United States may experience stigmatization repeatedly over their lifetimes (Wu & Berry, 2018), and that weight stigma appears to be worsening (Puhl & Brownell, 2006). The pervasiveness of weight discrimination and weight stigma underscore the need for effective and the need for effective and widespread interventions to promote body positivity, body satisfaction, and decrease the prevalence of unhealthy body projects. Although BMI and weight stigma were not significantly related to body projects in this study of individuals who were all overweight or obese, there is still reason to believe that bodily dissatisfaction may impact the urge to physically alter one's body (Brownell, 1991). Perhaps the association between BMI and weight stigma is mostly within normal BMI individuals, which this study did not include.

Limitations, Implications, and Future Research

The validity and accuracy of this study could be improved by using an automated textual analysis software to analyze body projects within the expressive writing sessions, and having longer and/or multiple writing samples to increase overall text length. To do so, studies should specifically design questions that explicitly ask about body projects, intention, and body dissatisfaction. Researchers may consider potentially developing a checklist of all 19 body projects that individuals may partake in. This would further prompt individuals to report specific

body project related behaviors and provide slightly more objective self-report data. Additionally, further adapting and focusing the body project codebook on weight-based body projects could increase validity of this study by decreasing subjectivity and room for error. More research should focus on how to quantify body projects.

The validity and accuracy of this study could have been impacted by many factors. First, the population included in this study was mostly college students living in college town. Perhaps within this atmosphere, people are more focused on improving their education rather than changing their physical appearances. Second, only one measurement was used to understand the frequency of body projects. Future studies should create and include various measures in order to increase reliability. Codebooks could be test for test-retest reliability within researchers to ensure objectivity. Third, Potter (2018), the Principal Investigator for the Weight Status and Health in Daily Life Study, noted that the weather of late winter and early spring could have played an important role in participants' weight and body-centered experiences. With colder weather comes more clothing and less exposure of the body, which might decrease the incidence reporting of weight-related negative experiences (Potter, 2018). Studies like this one should be replicated under a variety of conditions in several settings to increase reliability.

Other factors, such as race, ethnicity, and socioeconomic status, should be examined in future studies to better understand how body projects manifest in different contexts. Body project researchers, such as Brumberg, often fail to discuss body projects as an opportunity that certain populations might not have; not everyone has the financial, social, or cultural means to afford a gym membership, hair dye, makeup, low-calorie food and beverages, spanx, tattoos, and so forth. Additionally, not every racial and ethnic community may value the same body types, so certain body projects may be tailored to certain groups. Research reveals that African American women

express more body satisfaction than their Caucasian counterparts (Bruns & Carter, 2015), and may be protected from disordered eating (Quick & Byrd-Bredbenner, 2013). Researchers posit that African American women feel less pressure to adhere to broader societal standards of beauty, are less likely to avoid certain clothing because of bodily insecurity, and are less likely to pinch their bodies as a form of scrutiny (Quick & Byrd-Bredbenner, 2013). This literature may lead some to believe that body projects may be less prevalent in African American communities. Analyzing the prevalence, cause, and effect of body projects within different ethnic groups may provide more information on how professionals should address body dissatisfaction and body projects in different communities across the nation.

Addressing Body Dissatisfaction

Future research should focus on discovering and implementing ways to increase body satisfaction, which might include filtering advertisements. Although some researchers have studied eating disturbances and eating disorders specifically in minority groups - and found that they are less prominent than in White Americans - body projects as a whole should be studied in more detail within minority populations (Crago, Shisslak, & Estes, 1996; Franko & Striegel-Moore, 2002). Weight stigma is an additional stressor that low-income overweight individuals are faced with. Often times, these individuals are within food deserts that prohibit them from partaking in healthy behaviors and result in continuous weight gain (Ghosh-Dastidar, Cohen, Hunter, Zenk, Huang, Beckman, & Dubowitz, 2014). As health behaviors, such as healthy diet and exercise, are often intertwined with attempts to alter one's physical appearance, understanding how to promote both physical and mental health is important for all health promotion campaigns. Encouraging exercise while promoting body positivity may result in positive health behavior changes simultaneously with increased self-love and body appreciation.

Although disordered eating and body dissatisfaction appear to be widespread and affect people of all ages and races, there are potential solutions to eliminating such harmful thought patterns and behaviors. Wood-Barclow, Tylka, and Augustus-Horvath (2010) used psychological principles, such as cognitive dissonance, to counteract negative body image, bodily dissatisfaction, and the urge for body projects. Reducing internalization of societal standards can negate the negative impact of weight stigma thus promoting healthy weight management efforts (Vartanian & Novak, 2011). Further research on body projects and how to negate them is needed to increase the health of the general public.

Overall conclusions

This study contributed to the few studies that have quantitatively analyzed the correlates of body projects. Most body-focused research highlights the prevalence of body dissatisfaction which decreases self-esteem and negatively impacts health behaviors, such as dieting and exercising. With the rise of technology, individuals are finding more ways to police their bodies for good and for bad. In order to effectively combat the increasing rates of obesity without contributing to the also increasing body dissatisfaction rates, health professionals should consider encouraging health without stigmatizing individuals. Body projects, such as skin care, dieting, and exercising, should be reframed as means to improve holistic health rather than improve physical appearance. Within body-positive and health-focused contexts, body projects may have the potential to be beneficial to the general public; however, health professionals should keep "Primum Non Nocere" (first, do not harm) at the forefront of their efforts (Vartanian & Smyth, 2013).

This project revealed that, within this sample of overweight individuals, weight stigma and BMI are not correlated with body projects. Perhaps other factors (such as internalization of

stigma) impact the decision to partake in body projects. In concordance with the literature, females reported higher instances of body projects than males, which highlights the importance of understanding how sex may impact body dissatisfaction and the urge to change one's body. This sample of overweight participants had a surprisingly low incidence of reported body projects, which may signal that Brumberg and other body project researchers overestimated the pervasiveness of body projects.

In sum, this study underscores the importance of complexity of body project correlates in a time period where people are largely socialized to dislike their bodies. This study also highlights the need for additional objective and scientific studies that examine the causes and effects of body projects among generalizable samples.

Appendix A

Sample Characteristics

Table 5. *Participant characteristics*

	M or n	*SD or %*
Age	27.69	9.61
Sex at Birth		
Male (1)	21	43.75%
Female (2)	27	56.25%
Race		
White (0)	34	74.56%
African-American or Black (1)	5	11.11%
Asian (3)	4	8.89%
Other (6) (multi-racial)	2	4.44%
Body Mass Index	31.91	6.211
Stigmatizing Situations Inventory	0.6918	0.59365
Body Project Category		
None (0)	18	37.5%
Intended (1)	9	18.75%
Executed (2)	21	43.75%

Note: $N_{persons} = 48$.

Appendix B

Body Project Codebook

Table 6. *Body Projects Codebook*
(Derived from Brumberg, 1997)

Body Project	*Label*	*Code*
Removal of Body Hair	RemBodHair	None (0) Intended (1) Executed (2)
Food restriction	FoodRestrict	None (0) Intended (1) Executed (2)
Counting calories	CountCal	None (0) Intended (1) Executed (2)
Exercise with the goal of changing appearance	Exercise	None (0) Intended (1) Executed (2)
Getting a haircut	Haircut	None (0) Intended (1) Executed (2)
Getting a perm	Perm	None (0) Intended (1) Executed (2)
Dyeing your hair	HairDye	None (0) Intended (1) Executed (2)
Using hair products to change hair texture	HairProd	None (0) Intended (1) Executed (2)
Wearing a bra	WearBra	None (0) Intended (1) Executed (2)
Stuffing your bra	StuffBra	None (0) Intended (1) Executed (2)

Liposuction	Lipo	None (0) Intended (1) Executed (2)
Using anti-cellulite cream	AntiCel	None (0) Intended (1) Executed (2)
Using anti-stretch mark cream	AntiStretch	None (0) Intended (1) Executed (2)
Getting a piercing	Piercing	None (0) Intended (1) Executed (2)
Using skin care creams	SkinCream	None (0) Intended (1) Executed (2)
Wearing a corset or spanx	CorsetSpanx	None (0) Intended (1) Executed (2)
Wearing makeup	MakeUp	None (0) Intended (1) Executed (2)
Getting plastic surgery	PlasticSurg	None (0) Intended (1) Executed (2)
Wearing clothes you wouldn't typically wear	DiffClothes	None (0) Intended (1) Executed (2)

Appendix C

Expressive Writing Script

WRITING EXERCISE

Next is the writing portion of the study. Your task is to write for 15 minutes about the most salient, or meaningful experience you had related to your weight over the 7-day portion of the study you just completed. As you write, try to be as descriptive as possible, including both the facts and your memories. Focus on how it made you feel by describing your deepest thoughts and emotions. As you write about it, try to reflect on the meaning of the experience. Think about how it ties into other aspects of your life, including your relationships with others or your perception of yourself. Please write continuously and do not worry about spelling or grammar.

I will leave the room so you can focus on your writing in private. When there are 5 minutes remaining I will lightly tap on the door. When there is 1 minute remaining, I will lightly tap again – this will be your warning that I'll be entering the room shortly.

Do you have any questions? **[Answer questions as necessary]**

You can use this booklet to write in. Please do not write your name on the booklet. Unless you thought of any questions, you may begin.

DEBRIEFING AND COMPENSATION

RESEARCH ASSISTANT

Great, the writing portion is complete, and you can place your booklet in the yellow envelope. Now I will debrief and compensate you.

In this study, we were interested in understanding the frequency, location, and modality of negative events related to weight status, as well as contextual correlates of these experiences. We were also interested in understanding how the anticipation of negative experiences could be linked to health indicators, such as heart rate, physical activity, and mood.

Since the study will continue over the next few months, we ask that you do not share this information with others as that could compromise our results.

Do you have any questions?

These forms are used to maintain documentation that you have been compensated. Please print your name, sign it, and date the form. Then I can pay you for your participation. One of the copies is for our lab, and one is for you to keep.

We have also provided you with another contact information sheet in case you have any questions. Thank you for participating in the study. Have a great day.

Bibliography

Appelhans, B. M., Whited, M. C., Schneider, K. L., & Pagoto, S. L. (2011). Time to abandon the notion of personal choice in dietary counseling for obesity?. *Journal of the Academy of Nutrition and Dietetics*, *111*(8), 1130-1136.

Anton, S. D., Perri, M. G., & Riley III, J. R. (2000). Discrepancy between actual and ideal body images: Impact on eating and exercise behaviors. *Eating Behaviors,* 1(2), 153-160.

Ball, K., Crawford, D., & Owen, N. (2000). Obesity as a barrier to physical activity. *Australian and New Zealand journal of public health*, 24(3), 331-333.

Barkley, J. E., Salvy, S. J., & Roemmich, J. N. (2012). The effect of simulated ostracism on physical activity behavior in children. *Pediatrics*, *129*(3), e659-e666.

Bouchard, C. (2007). BMI, fat mass, abdominal adiposity and visceral fat: where is the 'beef'?. *International journal of obesity*, 31(10), 1552.

Boyd, H., & Murnen, S. K. (2017). Thin and sexy vs. muscular and dominant: Prevalence of gendered body ideals in popular dolls and action figures. *Body Image*, *21*, 90-96.

Brownell, K. D. (1991). Dieting and the search for the perfect body: Where physiology and culture collide. *Behavior therapy*, 22(1), 1-12.

Bruns, G. L., & Carter, M. M. (2015). Ethnic differences in the effects of media on body image: The effects of priming with ethnically different or similar models. *Eating behaviors*, *17*, 33-36.

Brumberg, J. J. (1997). The body project: An intimate history of American girls. Vintage.

Cadmus-Bertram, L., Marcus, B. H., Patterson, R. E., Parker, B. A., & Morey, B. L. (2015). Use

of the Fitbit to measure adherence to a physical activity intervention among overweight or obese, postmenopausal women: self-monitoring trajectory during 16 weeks. *JMIR mHealth and uHealth,* 3(4).

Carrotte, E. R., Vella, A. M., & Lim, M. S. (2015). Predictors of "liking" three types of health and fitness-related content on social media: a cross-sectional study. *Journal of Medical Internet Research*, 17(8).

Center for Disease Control and Prevention. (2018). Healthy Weight. Retrieved February 29th, 2019 from https://www.cdc.gov/healthyweight/index.html

Chang, M. W., Nitzke, S., Guilford, E., Adair, C. H., & Hazard, D. L. (2008). Motivators and barriers to healthful eating and physical activity among low-income overweight and obese mothers. *Journal of the American Dietetic Association*, 108(6), 1023-1028.

Chrisler, J. C. (2011). Feminist Psychology and the "Body Problem" Sexuality, Physical Appearance, and Women's Physical and Mental Health. *Psychology of Women Quarterly*, 35(4), 648-654.

Crago, M., Shisslak, C. M., & Estes, L. S. (1996). Eating disturbances among American minority groups: A review. *International Journal of Eating Disorders,* 19(3), 239-248.

Crawford, D., & Ball, K. (2002). Behavioural determinants of the obesity epidemic. *Asia Pacific Journal of Clinical Nutrition*, *11,* S718-S721.

Croll, J., Neumark-Sztainer, D., Story, M., & Ireland, M. (2002). Prevalence and risk and protective factors related to disordered eating behaviors among adolescents: relationship to gender and ethnicity. *Journal of Adolescent Health*, *31*(2), 166-175.

De Bourdeaudhuij, I., Lefevre, J., Deforche, B., Wijndaele, K., Matton, L., & Philippaerts, R. (2005). Physical activity and psychosocial correlates in normal weight and overweight 11

to 19 year olds. *Obesity research*, 13(6), 1097-1105.

de Vries, H. J., Kooiman, T. J., van Ittersum, M. W., van Brussel, M., & de Groot, M. (2016). Do activity monitors increase physical activity in adults with overweight or obesity? A systematic review and meta-analysis. *Obesity*, *24*(10), 2078-2091.

Dittmar, H., Halliwell, E., & Ive, S. (2006). Does Barbie make girls want to be thin? The effect of experimental exposure to images of dolls on the body image of 5-to 8-year-old girls. *Developmental psychology*, *42*(2), 283.

Dohnt, H. K., & Tiggemann, M. (2006). Body image concerns in young girls: The role of peers and media prior to adolescence. *Journal of youth and adolescence*, *35*(2), 135.

Farnell, G., & Barkley, J. (2017). The effect of a wearable physical activity monitor (Fitbit One) on physical activity behaviour in women: A pilot study.

Featherstone, M., Hepworth, M., & Turner, B. S. (Eds.). (1991). The body: Social process and cultural theory (Vol. 7). *Sage*.

Featherstone, M. (2000). Body Modification. *Sage*.

Franko, D. L., & Striegel-Moore, R. H. (2002). The role of body dissatisfaction as a risk factor for depression in adolescent girls: Are the differences Black and White*? Journal of Psychosomatic research*, 53(5), 975-983.

Ghosh-Dastidar, B., Cohen, D., Hunter, G., Zenk, S. N., Huang, C., Beckman, R., & Dubowitz, T. (2014). Distance to store, food prices, and obesity in urban food deserts. *American journal of preventive medicine*, 47(5), 587-595.

Gill, R., Henwood, K., & McLean, C. (2005). Body projects and the regulation of normative masculinity. *Body & society*, 11(1), 37-62.

Gillen, M. M. (2015). Associations between positive body image and indicators of men's and

women's mental and physical health. *Body Image*, 13, 67-74.

Gurrieri, L., Previte, J., & Brace-Govan, J. (2013). Women's bodies as sites of control: Inadvertent stigma and exclusion in social marketing. *Journal of Macromarketing*, 33(2), 128-143.

Haedt-Matt, A. A., & Keel, P. K. (2011). Revisiting the affect regulation model of binge eating: a meta-analysis of studies using ecological momentary assessment. *Psychological bulletin*, 137(4), 660.

Hales, C. M., Carroll, M. D., Fryar, C. D., & Ogden, C. L. (2017). Prevalence of obesity among adults and youth: United States, 2015–2016.

Hall, D. M., & Cole, T. J. (2006). What use is the BMI? Archives of disease in childhood, 91(4), 283-286.

Halliwell, E., & Dittmar, H. (2005). The role of self-improvement and self-evaluation motives in social comparisons with idealised female bodies in the media. *Body Image*, 2(3), 249-261.

Hatoum, I. J., & Belle, D. (2004). Mags and abs: Media consumption and bodily concerns in men. *Sex Roles*, 51(7-8), 397-407.

Jarman, H. (2016). 'Curvy'Barbie: a step in the right direction, but is it far enough?. *Journal of Aesthetic Nursing*, *5*(8), 396-397.

Karapanos, E., Gouveia, R., Hassenzahl, M., & Forlizzi, J. (2016). Wellbeing in the making: peoples' experiences with wearable activity trackers. *Psychology of well-being*, 6(1), 4.

Kumanyika, S., Jeffery, R. W., Morabia, A., Ritenbaugh, C., & Antipatis, V. J. (2002). Obesity prevention: the case for action. *International journal of obesity*, *26*(3), 425.

Leit, R. A., Gray, J. J., & Pope Jr, H. G. (2002). The media's representation of the ideal male

body: A cause for muscle dysmorphia? *International journal of eating disorders*, 31(3), 334-338.

Levy, B. R., & Pilver, C. E. (2012). Residual stigma: Psychological distress among the formerly overweight. *Social Science & Medicine,* 75(2), 297-299.

Lewallen, J., & Behm-Morawitz, E. (2016). Pinterest or thinterest?: Social comparison and body image on social media. *Social Media+ Society*, *2*(1), 2056305116640559.

Mitchison, D., & Mond, J. (2015). Epidemiology of eating disorders, eating disordered behaviour, and body image disturbance in males: a narrative review. *Journal of eating disorders*, *3*(1), 20.

Myers, A., & Rosen, J. C. (1999). Obesity stigmatization and coping: relation to mental health symptoms, body image, and self-esteem. *International journal of obesity,* 23(3), 221.

Neumark-Sztainer, D., Falkner, N., Story, M., Perry, C., Hannan, P. J., & Mulert, S. (2002). Weight-teasing among adolescents: correlations with weight status and disordered eating behaviors. *International journal of obesity*, *26*(1), 123.

Pitts, V. (2005). Feminism, technology and body projects. *Women's Studies*, 34(3-4), 229-247.

Puhl, R. M., & Brownell, K. D. (2003). Psychosocial origins of obesity stigma: toward changing a powerful and pervasive bias. *Obesity reviews*, 4(4), 213-227.

Puhl, R. M., & Brownell, K. D. (2006). Confronting and coping with weight stigma: an investigation of overweight and obese adults. *Obesity,* 14(10), 1802-1815.

Potter, L., Brondolo, E., & Smyth, J. (2019). Biopsychosocial Correlates of Discrimination in Daily Life. *Stigma and Health,* 4(1), 38-61.

Potter, L. N. (2018). AN ECOLOGICAL MOMENTARY INVESTIGATION OF WEIGHT

STIGMA: EXPLORING ASSOCIATIONS BETWEEN WEIGHT VIGILANCE AND POOR HEALTH IN EVERYDAY LIFE.

Potter, L., Wallston, K., Trief, P., Ulbrecht, J., Juth, V., & Smyth, J. (2015). Attributing discrimination to weight: associations with well-being, self-care, and disease status in patients with type 2 diabetes mellitus. *Journal of behavioral medicine*, *38*(6), 863-875.

Quick, V. M., & Byrd-Bredbenner, C. (2014). Disordered eating, socio-cultural media influencers, body image, and psychological factors among a racially/ethnically diverse population of college women. *Eating behaviors*, *15*(1), 37-41.

Roberts, A., & Muta, S. (2017). Representations of female body weight in the media: An update of Playboy magazine from 2000 to 2014. *Body image*, 20, 16-19.

Sanders, R. (2017). Self-tracking in the digital era: Biopower, patriarchy, and the new biometric body projects. *Body & Society*, 23(1), 36-63.

Schmalz, D. L. (2010). 'I Feel Fat': Weight-Related Stigma, Body Esteem, and BMI as Predictors of Perceived Competence in Physical Activity. *Obesity facts*, 3(1), 15-21.

Schwartz, M. B., Vartanian, L. R., Nosek, B. A., & Brownell, K. D. (2006). The influence of one's own body weight on implicit and explicit anti-fat bias. *Obesity*, 14(3), 440-447.

Shih, P. C., Han, K., Poole, E. S., Rosson, M. B., & Carroll, J. M. (2015). Use and adoption challenges of wearable activity trackers. IConference 2015 Proceedings.

Smolak, L. (2011). Body image development in childhood. *Body image: A handbook of science, practice, and prevention*, *2*.

Tomiyama, A. J. (2014). Weight stigma is stressful. A review of evidence for the Cyclic Obesity/Weight-Based Stigma model. *Appetite*, 82, 8-15.

Turner, B.S. (2000) 'The Possibility of Primitiveness: Towards a Sociology of Body Marks in

Cool Societies', in M. Featherstone (ed.) *Body Modification*. London: Sage.

Vartanian, L. R., & Novak, S. A. (2011). Internalized societal attitudes moderate the impact of weight stigma on avoidance of exercise. *Obesity*, 19(4), 757-762.

Vartanian, L. R., & Shaprow, J. G. (2008). Effects of weight stigma on exercise motivation and behavior: a preliminary investigation among college-aged females. *Journal of health psychology*, 13(1), 131-138.

Vartanian, L. R., & Smyth, J. M. (2013). Primum non nocere: obesity stigma and public health. *Journal of bioethical inquiry*, *10*(1), 49-57.

Wang, J. B., Cadmus-Bertram, L. A., Natarajan, L., White, M. M., Madanat, H., Nichols, J. F., Ayala, G. X., & Pierce, J. P. (2015). Wearable sensor/device (Fitbit One) and SMS text-messaging prompts to increase physical activity in overweight and obese adults: a randomized controlled trial. *Telemedicine and e-Health*, *21*(10), 782-792.

Wood-Barcalow, N. L., Tylka, T. L., & Augustus-Horvath, C. L. (2010). "But I like my body": Positive body image characteristics and a holistic model for young-adult women. *Body Image*, 7(2), 106-116.

Wright, J., O'Flynn, G., & Macdonald, D. (2006). Being fit and looking healthy: Young women's and men's constructions of health and fitness. *Sex roles*, 54(9-10), 707-716.

Wu, Y. K., & Berry, D. C. (2018). Impact of weight stigma on physiological and psychological health outcomes for overweight and obese adults: a systematic review. *Journal of advanced nursing*, 74(5), 1030-1042.

ACADEMIC VITA

Mariana Espinosa

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EDUCATION

The Pennsylvania State University — **University Park, PA**
Schreyer Honors College | College of Health and Human Development — Graduation May 2019
Bachelor of Science in Biobehavioral Health — Dean's List: **7 out of 7 semesters**
Minors in Human Development & Family Studies and Women's Studies
Honors Thesis: An Analysis of the Impact of Weight Stigma on Body Projects

WORK EXPERIENCE

Saxbys — **University Park, PA**
Barista — *August 2018 - Present*

- Attend to guests and process drink and food orders rapidly and attentively in an effort to "Make Life Better"
- Maintain clean working environment and ensure guests are receiving an exceptional experience
- Assist new team members in acclimating to the work environment through clear guidance

Philadelphia Department of Public Health — **Philadelphia, PA**
Intern for the Maternal, Child and Family Health Division — *June 2018 – August 2018*

- Analyzed grants and synthesized reports to showcase accomplishments of the department
- Researched and compiled lists of community resources in order to best aid families in Philadelphia
- Provided administrative support to the executive staff as needed

Penn State Residence Life — **University Park, PA**
Schreyer Honors College Resident Assistant — *August 2017 - Present*

- Collaborate on a team of 14 Resident Assistants to enforce safety and security policies, respond to stressful situations, and mediate conflicts of all 400+ residents in the building
- Host weekly community builders and educational events to enrich the lives of scholars
- Coordinate and create events for the GLOBE special living option of 75 residents

Stress Health and Daily Experience laboratory — **University Park, PA**
Research Assistant — *August 2016 - Present*

- Explore 'Mind-Body' issues as they relate to physical health and well-being
- Conduct literature searches, annotated bibliographies to examine how person-level and contextual factors may influence within-person experiences and dynamics

Gulf Star Sports — **Dubai, United Arab Emirates**
Summer Activity Coordinator and Administrative Assistant — *June 2015 - June 2017*

- Facilitated exercise and wellness sessions for 100+ children ranging from the ages of 2 to 15
- Worked administratively to coordinate activities and ensure safety of campers and staff

LEADERSHIP EXPERIENCE

Penn State THON — **University Park, PA**
Supply Logistics Captain – Arts, Crafts, and Fabric Donor Contact / Donor Relations — *August 2018 - Present*

- Establish and maintain positive relationships with donors to procure in-kind donations that minimize THON's internal costs and ensure that 95 cents per dollar is donated to the Four Diamonds Foundation
- Work with a team of 20 student-leaders to procure supplies, organize inventory, and properly acknowledge and benefit our generous donors

Hospitality Committee Member and Cadet — *August 2015 – February 2018*

- Worked directly under Hospitality captains to raise money and awareness in order to enhance the lives of children and families impacted by childhood cancer
- Staffed events, such as the THON 5k, throughout the year in an attempt to provide THON families with the best experience possible during a very difficult time

SKILLS, HONORS & INTERESTS

- Selected as the Student Marshal for the College of Health and Human Development Class of 2019
- Fluent in English and Spanish, Proficient in Portuguese
- Excel in high-pace team environments that require dedication, time-management, and collaboration
- Recipient of the Sparks Award, the President's Award, and the Evan Pugh Scholar Award for undergraduate students that are in the top 0.5 percent of their respective classes