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Effects of Chronic Exercise on Measures of Body Shame in Obese College-Aged Individuals

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EFFECTS OF CHRONIC EXERCISE ON MEASURES OF BODY SHAME IN OBESE COLLEGE-AGED INDIVIDUALS

by

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TITLE: EFFECTS OF CHRONIC EXERCISE ON MEASURES OF BODY SHAME IN OBESE COLLEGE-AGED INDIVIDUALS

MAJOR PROFESSOR: Dr. Julie Partridge

The purpose of this investigation was to determine the effects of a 6-week structured exercise program on levels of body shame in obese college-aged individuals. It was hypothesized that participants would display lower levels of body-shame, higher levels of body-surveillance and body-control following the exercise intervention. It was also hypothesized that participants would have higher levels of self-determination upon completion of the program. Through a mixed methodology of open-ended, in-depth interviews and surveys it was determined self-conscious emotions decrease following a 6-week exercise program and participants display improved shame-coping mechanisms.

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CHAPTER 1 – INTRODUCTION

Obesity is a major public health issue in Western culture, especially within the United States. While the physiological illnesses associated with obesity (e.g., type II diabetes, coronary artery disease, hypertension, etc.) are significant they often receive more attention than the psychosocial issues (e.g., decreased self-esteem, increased body dissatisfaction and depression) that often plague obese individuals. Stigmatization of obese individuals within the United States is rampant, socially acceptable and can have severe effects on the mental health of those stigmatized individuals (Friedman, Reichmann, Costanzo, Zelli, Ashmore, & Musante, 2005; Myers & Rosen, 1999).

Weight-based stigma is defined as prejudiced attitudes toward overweight or obese individuals (Myers & Rosen, 1999). Weight stigmatization often consists of attributing negative traits to an individual purely on the basis of his or her weight. Obese individuals report feeling stigmatized in many aspects of their lives, including professional, healthcare and educational settings (Crandall & Biernat, 1990; Neumark-Sztainer, Story, & Harris, 1999; Teachman & Brownell, 2001). Healthcare providers, even those who specialize in the treatment of obesity, often hold negative stereotypes of obese individuals (Teachman & Brownell, 2001). Studies show children as young as 3 years old demonstrate negative attitudes toward obese children (Brylinsky & Moore, 1994). Obese individuals have also been shown to stigmatize other obese individuals, despite being obese themselves (Crandall & Biernat, 1990; Harris, Waschull & Walters, 1990; Neumark-Sztainer, Story & Harris, 1999; Teachman & Brownell, 2001). Common examples of weight stigmatization include

job discrimination, being stared at in public, being excluded or avoided by others or loved ones being embarrassed to be seen with them due to their weight. Obese individuals often experience weight stigma through the comments of loved ones and strangers alike (Friedman et al., 2005; Myers & Rosen, 1999). These comments may include unsolicited diet suggestions, assumptions that the individual lacks self-control due to their weight or cruel remarks regarding their size (Friedman et al., 2005; Myers & Rosen, 1999).

Stigmatizing experiences due to obesity can elicit significant psychological distress (Myers & Rosen, 1999). Obese adolescents report higher levels of shame and have a higher incidence of depression than their normal weight counterparts (Sjöberg, Nilsson, & Leppert, 2005), and weight stigma can lead to lowered self-esteem and body dissatisfaction (Myers & Rosen, 1999; Friedman et al., 2005). This psychological distress can lead to negative self-talk, avoiding stigmatizing experiences and increased food consumption as means of coping with the stigmatizing behavior of others (Myers & Rosen, 1999).

Weight, Shame, and Guilt

Stigmatization may elicit self-conscious emotions such as shame and guilt (Tangney & Dearing, 2002). Shame is a negatively valenced emotion typically elicited in response to an actual or perceived misdoing (Tangney & Dearing, 2002). Shame is a negative global evaluation of the self as the result of a specific action or situation; the self is identified as the cause of the devaluation (Nathanson, 1992). Although shame is primarily considered to be a negative emotion, it does serve an important purpose in directing one's attention to the antecedent behavior that led to

the shame experience, thus, allowing an individual to identify how to correct this action in the future (Partridge & Elison, 2010). For example, a person who feels shame after drinking too much alcohol and dancing on a table may identify the cause of the shaming experience to be overindulgence in alcohol and thus decide to decrease alcohol consumption in public. Guilt is also a negatively valenced emotion that is conceptually related to the shame experience; however, it differs from shame in that guilt involves a damaging evaluation of the behavior, rather than the self (Lewis, 1971; Nathanson, 1992). Guilt also includes a reparative component following the actual or perceived transgression or threat. An example of a compensatory behavior following feelings of guilt may be engaging in exercise following a perceived period of inactivity or an over-indulgent meal.

Lazarus (1999) suggested self-conscious emotions such as shame and guilt are social mechanisms to control and shape behavior to fit social norms and values. These self-conscious emotions may be the underlying mechanisms affecting the motivation of obese individuals who do not engage in regular physical activity (Lazarus, 1999). Obesity stigmatization may elicit feelings of shame, which can lead to low self-determination in the shamed individuals.

A meta-analysis by Kim, Thibodeau and Jorgensen (2011) established a clear correlation between shame and depression and depressive symptoms. The meta-analysis included studies that were written in English and utilized qualitative measures to evaluate depression in addition to a measure of shame and/or guilt. The researchers also required that the studies included in the meta-analysis provide the necessary information to compute effect sizes was reported in the published papers.

The *a priori* criteria led to the inclusion of seven studies with large sample sizes, published between 1991 and 2010. The relationship between shame and depressive symptoms established by these researchers was much stronger than the relationship between guilt and depressive symptoms. The strong relationship between shame and depression may predispose shame-prone individuals to clinical depression or to suffer from depressive symptoms. This increased risk may be increased further if the individual is often affected by weight stigma.

Shame Response

While shame is generally considered to be a negative emotional response, another important aspect of this experience is the manner in which one responds to it (Partridge & Elison, 2010). These shame responses may be either adaptive (i.e., the individual recognizes what led to the shame experience and then takes steps to change this experience), or maladaptive (i.e., the individual fails to recognize the precipitating factor, and thus it is likely to be repeated) (Nathanson, 1992). It is important to note that a classic maladaptive shame response would be considered to be adverse to many health behaviors that may be instrumental in the treatment of obesity and may initiate or strengthen habits that further elevate the degree of obesity (e.g., overeating and avoiding exercise).

Nathanson (1992) described four maladaptive responses to shame: withdrawal, avoidance, self-attack and other-attack. Withdrawal allows an individual to escape a situation that causes him or her to experience shame. In physical activity and exercise settings indications of physical work being performed may present themselves as shortness of breath, redness of the face or volitional fatigue. If an

individual experiences a high level of body shame they may withdraw from any situation that elicits these signs of physical work, especially if they are perceived to be [elicited prior to those around them]. For example, if a group of friends embark on a hike together and one of the members of the group is obese and significantly more deconditioned than the others on the hike, the individual may begin to experience self-conscious emotions such as shame or embarrassment, if they experience shortness of breath or are unable to keep up with the others early in the hike. These physiological responses to exercise may indicate to others a lack of physical conditioning; an individual who stops or withdraws from exercise may be doing so in an attempt to remove themselves from a situation he or she perceives as threatening and to decrease the amount shame he or she may be feeling. Following several instances of comparable shaming experiences, an individual may begin to avoid the offending activity and others like it all together. This is an attempt to prevent any further experiences of shame. If one has experienced shame due to physical activity or exercise they will be likely to avoid those types of activities in the future. Self-attack is commonly exhibited through self-deprecating remarks or jokes aimed at the self, this allows the shamed individual to express their shame in a manner that may increase others' acceptance of him or her, despite their weight. Other-attack is the redirecting of negative evaluations to others in order to reduce one's own feelings of shame. Coping behaviors of shame such as avoidance and withdrawal coupled with the maladaptive coping behaviors observed by Myers and Rosen (1999), such as binge eating and negative self-talk may impede any attempts to facilitate weight loss. While these coping mechanisms are successful at reducing the amount of shame felt

by the individual they do not encourage the behaviors (e.g., regular physical activity) necessary to maintain a healthy lifestyle.

Connections Between Shame and Motivation

Self-determination theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2000) is a motivational theory often used within the realm of exercise and physical activity. SDT proposes there are three psychological needs that individuals are constantly attempting to fulfill. The three basic psychological needs are autonomy, relatedness and competence. Autonomy is an individual's belief that he or she is able to control or choose their behaviors. Relatedness is the desire to have social connections with others. Competence allows an individual to demonstrate his or her ability of a given task or skill. SDT stipulates the degree of fulfillment of these three basic needs will determine an individual's motivation; individuals with more fulfillment of all three needs will demonstrate higher levels of self-determination.

SDT proposes a continuum of motivation varying from amotivation (i.e., a complete lack of motivation) to intrinsic motivation (i.e., an innate desire to perform an activity because of the satisfaction gained from the activity). Falling between the two previously mentioned motivators are four regulations that are all labeled as extrinsic motivations. Closest on the spectrum to amotivation is external regulation, which is when an individual performs an activity to avoid punishment or to gain a reward. An example of external regulation would be entering a road race to receive the t-shirt given to all participants of the race. The next form of extrinsic regulation is introjected regulation, which includes participating in an activity because of a sense of obligation. An individual demonstrating introjected regulation may choose to

attend an exercise session only because a friend was meeting them at the gym. One degree closer to intrinsic motivation is identified regulation. Identified regulations motivate an individual to participate in exercise in order to achieve his or her goals; for example one may only exercise to achieve a desired amount of weight loss. The most internalized form of extrinsic regulation on the continuum is integrated regulation. Individuals who are motivated by integrated regulation participate in exercise or physical activity to confirm their sense of self. This particular individual may view himself or herself as an "exerciser" so he or she engages in activities that will confirm their sense of self.

Sabiston and colleagues (2010) examined the effect of self-conscious emotions on motivation and physical activity in adult women. Sabiston et al. (2010) sought to examine the relationship between self-conscious emotions and exercise motivations through the theoretical model of self-determination theory in adult females. This was accomplished by surveying 389 women to assess levels of body-related self-conscious emotions, motivation and exercise behavior. They found significant correlations between body shame and external regulation as well as a negative correlation between body shame and intrinsic regulation. The findings of Sabiston et al. suggest experiencing high levels of body shame will negatively affect motivation to participate in physical activity. Ryan and Deci (2000) have shown higher levels of intrinsic motivation increase levels of autonomy and the likelihood of engaging in healthy behaviors such as physical activity.

In 2007, Edmunds and colleagues examined 49 overweight and obese women who were referred to a 3 month long exercise program by their physicians. The

measured variables included individuals' perceived autonomy, psychological need satisfaction, motivational regulations for exercise, their exercise behavior, commitment, behavioral intentions and adherence to exercise. These measures were taken at baseline, 1 month into the program and upon completion of the program at 3 months. Edmunds et al. (2007) discovered participants who adhered to their exercise prescription most closely at 3 months displayed higher psychological need satisfaction, perceived autonomy and self-determined motivation. These participants also displayed higher levels of self-efficacy. While the researchers do not examine shame or guilt in their study they do establish an important connection between self-determined motivation and exercise adherence.

Vartanian and Shaprow (2008) examined correlations between stigma experiences and exercise avoidance motivation in both normal weight and obese female college undergraduate students, and determined that students who were more frequently stigmatized showed strong motivations to avoid exercise behaviors. Despite including normal weight participants in the study, the researchers still found the participants engaged in avoidance behaviors in response to stigmatizing experiences; it was also determined the correlation between stigmatization and avoidance was much larger for the heavy participants than the leaner students. This study, however, did not specifically examine shame coping responses within this population, which is a limitation of the existing literature.

Purpose and Hypotheses

The purpose of this investigation was to determine the effects of a 6-week structured exercise program on levels of body shame in obese college-aged

individuals. It was hypothesized participants would demonstrate lower levels of body shame following the 6-week exercise protocol as measured by the Objectified Body Consciousness Scale (McKinley & Hyde, 1996). Also, measures of body-surveillance and body-control would increase following completion of the Healthiest Loser program. Self-determination, as measured by the Behavioral Regulation in Exercise Questionnaire – 2 (BREQ-2; Markland & Tobin, 2004) was hypothesized to increase following participation in the program.

CHAPTER 2 – METHODS

Participants

The sample for this study consisted of twelve participants (female = 10, male = 2) between the ages of 18 and 40 (M = 26.33, SD = 7.63 years). Participants were recruited from a pre-existing weight management program, titled the Healthiest Loser. The program was coordinated and managed by the student recreation center of a large midwestern university. Advertisements were placed around the university to recruit applicants for the Healthiest Loser program; program participants were selected by a committee of recreation center administrators based upon their application essays. Inclusion criteria for the Healthiest Loser program required the participants be enrolled as a full-time student of the university (undergraduate or graduate) and have a body mass index (BMI) greater than 30 kg/m^2.

Approval for the study was obtained from Southern Illinois University's Institutional Review Board prior to data collection. Approval was also received from the recreation center to recruit participants from the Healthiest Loser Program. Participants gave informed consent prior to conducting interviews and completing the surveys.

Intervention

The Healthiest Loser program consisted of two training groups; the AM group, which met in the morning, and the PM group, which met in the evening. Program participants were allowed to select which training group they would attend. The 6-week program consisted of three one-hour group exercise sessions per week and one one-hour nutrition lecture per week. The AM and PM group exercise

sessions were each led by a certified personal trainer. The program was designed as a competition and had prizes for the top three finishers; prizes were individual personal training sessions. Program winners were determined by a point system accounting for percentage of body weight lost, attendance, outside participation and fitness improvements.

Measures

Objectified body consciousness scale. The Objectified Body Consciousness Scale (OBC Scale; McKinley & Hyde, 1996) is a 24-item questionnaire. The OBC Scale was used to assess levels of body shame (8 items), body surveillance (8 items) and control (8 items). Participants assessed statements based on a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree) with an option to select N/A if the participant deemed the question not applicable to them. Each subscale is calculated separately by finding the average score for the questions contained within that subscale. An example of an item from the OBC Scale-body shame is, "When I'm not the size I think I should be, I feel ashamed." An example of an item from the OBC Scale-body surveillance is, "During the day, I think about how I look many times." An example from the OBC Scale-body control is, "It doesn't matter how hard I try to change my weight, it's probably always going to be about the same."

Motivation. Motivation was assessed using the Behavioral Regulation in Exercise Questionnaire (BREQ-2; Markland & Tobin, 2004). The BREQ-2 is a 19-item inventory used to assess different types of motivation consistent with the Self-Determination Theory (Deci & Ryan, 2000): amotivation (4-items), extrinsic (4-items), introjected (3-items), identified (4-items), and intrinsic (4-items) regulations.

Participants respond to statements using a 5-point Likert-type scale ranging from 0 (not true for me) to 4 (very true for me). Each subscale is calculated separately by finding the average score for the questions contained within that subscale. An example of an item from the BREQ-2 is, "It's important to me to exercise regularly."

Interviews. All interviews were conducted in a private room on the university's campus to ensure confidentiality of the participants. Interviews were recorded using a digital recorder (Sony ICD-PX720). The researcher transcribed all interviews verbatim. Interviews utilized semi-structured, open-ended questions to obtain information regarding participants' experiences, perceptions and attitudes regarding exercise, shame and motivation. A list of the probe questions can be found in Appendix A & B.

Procedures

Fitness testing of the participants occurred the week prior to and immediately following the 6-week exercise program. During the fitness testing participants completed the surveys assessing body shame, body surveillance, body control and motivation. Six of the program participants (all females) agreed to participate in interviews before and after the exercise program. The pre-interviews were conducted during the first week and week prior to the start of the program. Post-interviews were conducted in the two weeks immediately following the completion of the program. Two of the six participants who engaged in the pre-interview did not respond to attempts to contact them to participate in the post-interview. One participant who engaged in both, the pre- and post-interviews did not complete the program due to medical limitations. This participant was included in the data collection despite not

finishing the program because she completed all but the last week of the exercise program.

CHAPTER 3 – RESULTS

A total of 12 participants completed quantitative data for the study, and six participants completed pre- and post-intervention interviews.

Quantitative Analysis

Descriptive statistics. Means and standard deviations of survey data were calculated using SPSS. The means and standard deviations of the pre- and post-survey results can be seen in Tables 1 and 2.

Table 1

Pre-survey data

Variable	Mean	SD	Possible Range
OBC Scale			
Body-surveillance	3.79	0.86	1 – 7
Body-shame	4.26	0.71	1 – 7
Body-control	4.06	1.15	1 – 7
BREQ-2			
Amotivation	0.14	0.33	0 – 4
External	1.14	1.12	0 – 4
Introjected	3.18	0.75	0 – 4
Identified	3.47	0.46	0 – 4
Intrinsic	3.31	SD	0 – 4

Table 2

Post-survey data

Variable	Mean	SD	Possible Range
OBC Scale			
Body-surveillance	3.31	0.37	1 – 7
Body-shame	4.51	0.69	1 – 7
Body-control	3.76	0.60	1 – 7
BREQ-2			
Amotivation	0.14	0.22	0 – 4
External	1.58	0.98	0 – 4

Reliability

Internal consistency of the questionnaires was found using Cronbach's alpha and is shown in Table 3. The reliability of the OBC-Body Surveillance was $\alpha = 0.69$, the OBC-Body Shame was $\alpha = 0.71$, the OBC-Body Control was $\alpha = 0.86$. Within the BREQ-2, the reliability for the BREQ-2 was calculated as a whole measure, due to the low number of items per subscale. The reliability for the BREQ-2 was $\alpha = 0.90$. Each of these were found to be close or above the value ($\alpha = 0.70$) recommended to ensure reliability of results and were therefore deemed appropriate to use in subsequent analyses.

Table 3

Results of Reliability Analysis

	OBC-BS	OBC-Shame	OBC-BC	BREQ-2
Cronbach's α	0.69	0.71	0.86	0.90

Paired samples t-tests. Paired samples t-tests were conducted of the pre- and post-intervention survey data to determine any statistically significant changes due to the intervention in SPSS. Results can be seen in Table 4. Statistical significance was determined using $p > .05$. Statistical significance in pre- to post-testing was only detected in the OBC sub-scale of control (M = -.30, SD = .91). There was a significant difference in the pre- and post-measures of identified regulation (M = -.86, SD = .80). Significant differences were also detected in the pre- and post-introjected regulation (M = -.96, SD = 1.03) and pre- and post-intrinsic regulation measures (M = -.64, SD = .69).

Table 4

Paired samples t-test

Variable	Mean	SD
Body-control (OBC Scale)	-0.30	0.91
Introjected regulation (BREQ-2)	-0.96	1.03
Identified regulation (BREQ-2)	-0.86	0.80
Intrinsic regulation (BREQ-2)	-0.64	0.69

Qualitative Results - Pre-Intervention Themes

Results for the qualitative portion of the project were divided into two overall categories: Pre-Intervention and Post-Intervention. All themes and sub-themes can be seen in Tables 5 & 6.

Beliefs about exercise and diet. All six participants who participated in pre-interviews reported having engaged in unsuccessful past attempts to lose weight. Participants reported engaging in both specific (e.g., South Beach, Atkins, and Weight Watchers) and non-specific diets (e.g., eating less). Participants cited several negative consequences of not participating in regular exercise such as feeling guilty for not exercising and detracting time form other pursuits. Participants also listed benefits of being sedentary such as not becoming tired and sweaty, allowing them to ignore health issues that would become apparent during activity. Benefits of regular exercise included assisting in weight loss and improving quality of life. Barriers to being able to engage in regular exercise were limited time, lack of availability and low competence.

When asked to describe what makes an individual an exerciser all the participants defined exercisers by their appearance and overt (external) behaviors. When asked to define an exerciser one participant replied an exerciser was "someone who works out either by doing some kind of cardio or weightlifting and probably multiple times a week, maybe thee or more times a week and may they do for at least half an hour at a time." Another participant defined an exerciser by saying "they [exercisers] exercise a lot, on a daily basis." Only one participant described an exerciser as having different psychological attribute. She described an exerciser as someone who intrinsically enjoys exercise, she said an exerciser is "someone who enjoys being physically active and they make sure that's part of their lifestyle."

Success of previous weight loss attempts was defined by losing a desired amount of weight by the participants. One participant viewed her past attempts at

weight loss as both "successful and unsuccessful because I would lose the weight but then I would gain it back." Another participant discussed her concept of success, she said "I want to get to the weight that I want to be at, look how I want to, that's when I'm going to define it as success." Another participant described her belief that unless she followed a diet exactly she considered it a failure, she said, "[I]t's unrealistic to think that that [diets] will actually work for the rest of someone's life. And the same thing with the no carbs, I mean that's unrealistic to think I'm going to eat meat, like on the Atkin's one or whatever, it's just unrealistic, I think personally, to think that people will stay on that forever." This all-or-none way of conceptualized success of a weight loss program was very common amongst most of the participants, as all 6 participants noted this type of attitude toward previous weight loss attempts.

Motivation. The primary motivations behind why the participants joined the Healthiest Loser program were extrinsic in nature. Participants' extrinsic motivations varied from integrated, identified, introjected and external. All the participants expressed the identified desire to lose weight and viewed engaging in exercise as a means to that end. One participant exemplified this notion when asked if the way she feels about her body ever affects her exercise participation, she replied, "I want to lose the weight, so I go and exercise. Sometimes I don't care about how I look so I don't go [to the gym]." Two participants modeled external regulations when they discussed how receiving compliments after losing weight reinforced their desire to continue to exercise. After losing 70 pounds during a previous weight loss attempt the social reinforcement she received from others, she stated, "you start getting compliments and people notice, people who haven't seen you in a couple months.

You get awesome compliments all the time, so that's a good boost to keep at it." One participant cited guilt as motivation to exercise after experiencing self-conscious feelings about her body in social settings; this is an example of introjected regulation. Many participants demonstrated integrated regulations have motivated them to exercise, they wanted to be seen as an exerciser, therefore were motivated to engage in exercise to fulfill their definition of an exerciser. When explaining a lack of exercise history many participants expressed amotivation, absolutely no intrinsic desire to engage in exercise. Often they deemed exercise to be unnecessary and strongly disliked to participate in any form of physical activity.

Self-presentation. Self-presentational concerns were extremely common amongst all the participants. These concerns fell into two categories: appearance-based or ability-based. Appearance-based self-presentational concerns led to the participants feeling uncomfortable in both gym and social settings. These concerns led to embarrassment which often led to avoidance of behaviors that elicited these feelings, such as going to the gym. Appearance-based self-presentational concerns were often heightened by the presence of the opposite sex. One participant explained why she did not exercise in the free weight room of her school's recreation center, she said, "the weight room is mostly guys in there, I feel like, a little uncomfortable."

Ability-based comparisons were typically activity related. If a participant deemed themselves competent at a particular skill or exercise they were more likely to engage in it, however if a particular skill was difficult, or more difficult for them than those around them the participants were less likely to engage in that behavior. When asked what exercises she liked doing the most one participant replied she liked

performing bench press because she was good at it. Another participant explained she did not like running because "it's very exhausting and, I don't know, it just makes me want to stop." Ability-based self-presentational concerns often led to avoidance of certain areas and certain behaviors within the gym setting.

Weight-based stigma, perceived stigma, shame & embarrassment. Many participants described being stigmatized as a result of being obese, which negatively affected their mood. Several participants expressed a feeling of being treated differently by others because they are obese. One participant expressed frustration of an inability to disguise her issues with her weight, she said, "I wear it on my sleeve, people can see it." This same participant said thinner people are taken more seriously and get more respect than overweight or obese individuals. In addition to being stigmatized by others, the participants themselves also demonstrated self-stigmatization due to their weight. One participant stated,

> "I wouldn't be comfortable asking for a raise that I know I deserve or a new position. That has happened in my personal life because I know that, or I believe that I don't have the look that they are looking for or I'm not comfortable enough to know that I could stand up in front of 200 people and talk about some issue or something like that."

Participants described stigma originating both from themselves and from others as causing them to feel negative self-conscious emotions. Participants also expressed feeling self-conscious in situations that are evaluative. One participant described these feelings in an exercise setting where she felt out of place due to her body type; she said, "I feel like I don't have the bodies that the sporty people kind of do, and I

don't want to pose and be them, because I'm obviously not and I just feel out of place."

Body image. During the interviews all of the participants expressed negative evaluations of their body that negatively impacted their mood. Participants cited several different factors as being responsible for triggering these negative evaluations. One participant described how different situations lead to more negative self-evaluations than others. She said,

> "…depending on who I'm around, that can make me feel a lot different, because of them, with my family or a specific group of friends, because I know, I have one group of friends, that is more overweight than the others. And I think sometimes I feel more comfortable and better about my body around them, than maybe my thinner friends, and maybe social situations, I feel a little bit more self-conscious about my body."

Similarly, another participant described her difficulties getting ready to go out and her struggles with typical college social situations, she said,

> "I want to go out and socialize with them [her friends] and to find something to wear it's just like, 'oh' and that will make me not want to go out anymore. [Interviewer: will you still go out?] A lot of times I will but instead of trying to look nice, I'll just throw on a hoodie and jeans and tennis shoes and go out."

Table 5

Pre-intervention themes

Themes	Sub-themes	Examples
Experience with exercise & diet	Perceptions about diet & exercise	Previous experiences, drawbacks, & benefits
	Barriers to physical activity (PA)	Time, availability, low competence
	Definition of an exerciser	Overt behaviors, physical characteristics, & psychological characteristics
	Enjoyment of PA	Enjoyment of certain activities & exercise preference
	Definition of failure	All-or-none thinking
Motivation	Intrinsic motivators	Experiencing stimulation & knowledge
	Extrinsic motivators	Integrated, identified, introjected, external
	Amotivation	No motivation to exercise
Self-presentation	Appearance	Presence of opposite sex can lead to discomfort, embarrassment leads to avoidance, comparisons happen in multiple social arenas (e.g., gym, bars)
	Ability	Avoidance of certain activities (gym-related)
Stigma & prejudice	Weight-based stigma, perceived stigma, shame & embarrassment	Don't look good enough for the gym Being thin leads to being respected/validated Self-conscious in evaluative circumstances Weight-based prejudice exists Can lead to depressed mood/negative affect
Body-image	Perceptual, cognitive, emotional, & behavioral	Negative evaluations of body Weight can affect mood

Qualitative Results - Post-Intervention Themes

Relatedness. Social relatedness emerged as an important theme to the efficacy of the Healthiest Loser program for the four participants who engaged in post-intervention interviews. The shared experiences of the group members were motivating for several participants. The similarities between group members also led the participants to feel more comfortable in a setting that was previously deemed intimidating. Two participants described negative feelings when they perceived another group member as putting forth what they interpreted as minimal effort towards the program. One participant describes her irritation with a lack of commitment from a fellow group member, "We had people drop out, so that was kinda annoying that we didn't have the dependability of some of the people in the group, but the core group that stuck through it was really, really good." Three participants demonstrated group, task integration by suggesting they will continue to work out as a group to motivate each other to engage in exercise. When asked about her future exercise plans one participant stated, "We [the Healthiest Loser participants] have a Facebook group and we're planning on getting together and I think we might work out 'til the end of the semester, for the next few weeks." Another participant discussed her plans for exercising with other participants from the Healthiest Loser program,

> "It's going to be interesting, last night was the first time we tried doing it without our trainer. It was funny because I think it's going to be a lit of trial and error because at the end of the program our trainer gave us a new workout sheet that covers four weeks but some of the exercises we didn't know, or

how to do them so it was an interesting experience. We ended up using last week's exercises but, I think we'll figure it out."

The personal trainer that led the exercise training sessions also provided social support that was cited by many of the participants as beneficial to their participation in the Healthiest Loser program. Two of the participants described the encouragement and feedback provided by their trainer as a positive experience. All of the participants gained personal knowledge from interactions with the leaders of the program. One participant said she is now more comfortable in the student recreation center after having gained knowledge about the unwritten rules that had intimidated and prevented her from engaging in exercise in the past. Other participants cited the knowledge they gained regarding diet and exercise as a positive experience that they enjoyed during the program's duration.

Program outcomes. The sense of accomplishment described by the participants from achieving weight loss and improving their performance in muscular strength and endurance tests provided motivation. Experiencing the stimulation of physical activity also served to provide motivation for the participants. Several intrinsic factors were described by the participants as helping them remain motivated throughout the duration of the program. The knowledge gained during the program both the formal lecture-based nutrition sessions and also the practical knowledge gained from the exercise sessions was cited by all the participants as being a part of what helped them remain motivated to continue with the program. Often during the interviews participants coupled intrinsic motivations with extrinsic motivations. When describing why she was able to successfully achieve her goals one participant

replied, “I think cause I had a structure and things to follow and go to and just information, that helped keep me motivated.”

While the participants did identify changes to intrinsic motivators as a result of the program, all of the participants did also still discuss the importance of extrinsic motivations following the intervention. Weight loss and appearance-related motivations were still identified as being relevant, and participants all described feeling obligated to attend the exercise sessions to prevent being dropped from the program because of attendance.

Perhaps unsurprisingly, none of the participants had formal or structured plans to maintain the exercise behaviors they engaged in as part of the Healthiest Loser. Any goals presented by the participants were vague and not specific plans to continue their behavior changes. When asked what her plans were to continue exercising she replied, “just to make time everyday in my schedule to work out.” One participant cited health restrictions as a barrier to future exercise plans; she also listed lack of availability of facilities as a barrier to engaging in exercise. Three of the participants indentified lack of accountability as a barrier to continue participating in physical activity. Upon discussing her future exercise plans one participant stated,

> “I wish that I could pay for a trainer at least one time a week, just so I could have someone to be accountable to, personally that works for me. Having someone [for] motivation slash accountability and I don’t have that, so it’s going to be a lot easier for me to go ‘Oh, I have to work on this group project’ and not go workout, but if I was seeing a trainer once a week, someone that was checking on whether or not I worked out, I would be more apt to do it.

> Or if any of the people that I met in the program wanted to go work out or if I had a friend, who was like, 'let's go workout together,' then I would definitely be more apt to continue it. Because I'm not at that place yet, where I have to go work out or I'll work out on my own."

Several changes were described by the participants as a result of participating in the Healthiest Loser competition; all of the participants reported having improved body image and self-esteem. One participant described the change in her self-perception following the program, she said, "I feel better about [my body] and more optimistic about where I can go. I still don't think I have the highest self-esteem but it's definitely better." These sentiments were reflected in the other three post-interviews as well. Another participant described how the Healthiest Loser program changed how she feels about her body, despite being more aware of her weight being an issue, she said, "in general, I feel better knowing that I'm doing something and that sort of thing "

All of the participants described feeling more comfortable with exercise itself, as an activity. All participants also reported an improved emotional state following acute bouts of exercise. Three of the participants report experiencing fewer instances when their weight is negatively affected by their mood. One participant described this change in the following way, "I think we all have those days where we just kinda feel like, 'oh, I'm not having a good day,' and I think now, I don't have those days as often now." Another participant cited how adaptations to her body composition have affected her feelings about body following completion of the program, she stated "I feel better, I wouldn't say, I know I didn't lose that much weight per say but I

definitely feel stronger and more toned in some places and less flab and a little more muscle there so I feel good."

Two participants demonstrated improved shame coping by no longer avoiding the issue of their weight. One participant discussed her ability now to discuss her weight with others, where before the Healthiest Loser program she did not discuss the topic. Another participant discussed how her body surveillance habits changed following the program and how that affected her, she said,

> "I probably look at myself in the mirror more than I have in the last 5 years. Just during this program. I would have to say I'm more frustrated with it because I never looked in the mirror and didn't really acknowledge that I existed, kind of thing, that I now, I think about it and go, 'oh, wow, you are big, why didn't you notice this before?' You know, so now I feel worse but I know I have the tools to feel better versus ignoring it subconsciously or consciously when I'm alone feeling bad about it all the time, so it's like I see it more so I feel worse immediately but I know that I'm doing things that will, in 2 or 3 years, I won't be like that. […] I would say it's positive, because I'm still doing positive things to facilitate it changing."

Despite the differences observed during the post-interviews there were still several factors that remained the same throughout the program. All of the participants displayed some reliance upon the Healthiest Loser program and other external sources to provide motivation to continue to exercise. One participant attributed her success in the program to the discipline of the program alone. Despite reporting improved overall self-esteem body image still seems to drive negative

evaluations and negative emotions in all the participants. Similar to the pre-interviews the participants still defined success by external, behavior-based factors (e.g., weight loss). Two participants did include internal factors in their definition of success (e.g., increased competence); however, weight loss remained the primary defining variable concerning success.

Program characteristics. Several characteristics, both positive and negative, of the Healthiest Loser were discussed during the post-interview sessions. Positive characteristics of the program included that it was motivating, provided the participants with structure, increased the participants' enjoyment of physical activity, provided educational information and was fun for the participants. Negative aspects of the program included the participants have a lowered intention to exercise without the accountability of the program. Two of the participants cited the nutritional information as confusing and contradictory. Two of the participants also cited unfair standards of the competition portion of the Healthiest Loser program; they did not believe everyone was held to the same standard. The participant who had to leave the program during the last week due to medical problems deemed the lack of competence information she missed from not being able to participant in the final fitness assessment was discouraging and a negative aspect of the program. Despite describing their experience with the Healthiest Loser as being overall positive all of the participants desired more significant results of the program, specifically more weight loss. There was also a lack of value towards accomplishments that did not concern weight loss (e.g., strength improvements, flexibility improvements and improvements in aerobic capacity).

Table 6

Post-intervention themes

Themes	Sub-themes	Examples
Relatedness	Group dynamics	The group helped to keep members motivated, less success when exercising alone, positive social support, similarities in group membership is motivating and makes the experience more comfortable, lower commitment among group members disrupts the group and leads to negative feelings, social comparisons within the group, group integration – task, jealous over others' success & luck attributions for others' success
	Group leader	Social support & personal knowledge
Program outcomes	Resulting Motivators	Knowledge, accomplishment, experiencing stimulation, obligation to attend sessions
	Future exercise/ diet plans	Vague goals & future plans, poorly defined concept of health, barriers to maintaining activity levels
	Changes	Increased motivation, body image, self-esteem and mood, positive exercise imagery, increased awareness of exercise, improved feeling states with acute PA
	Similarities from pre- to post-	Still dependent on external sources for motivation, body-image drives negative emotions, social comparisons, low perceived behavioral control and self-determination, external definitions of success
Program characteristics	Positives	Variety made the program fun, educational information provided motivation, increased value of PA, enjoyed the structure of the program, felt more comfortable with the rec center
	Negatives	Lower intention to exercise without the program, personal responsibility is concerning for future PA, some information was confusing, program was deemed unsuccessful because desired weight was not lost

CHAPTER 4 – DISCUSSION

The purpose of this investigation was to determine the effects of a 6-week structured exercise program on levels of body shame in obese college-aged individuals. It was hypothesized participants would demonstrate lower levels of body shame following the 6-week exercise protocol as measured by the Objectified Body Consciousness Scale (McKinley & Hyde, 1996). Also, measures of body-surveillance and body-control would increase following completion of the Healthiest Loser program. Self-determination, as measured by the Behavioral Regulation in Exercise Questionnaire – 2 (BREQ-2; Markland & Tobin, 2004) was hypothesized to increase following participation in the program.

Self-Conscious Emotions

It was hypothesized that body shame would decrease while body control and body surveillance would increase following participation in the Healthiest Loser program, however, only body control measures were found to be statistically different from pre- to post-intervention testing. While the quantitative results did not fully support this hypothesis, the themes that evolved from interviews conducted with the participants did support this assertion. Interviewed participants reported increases in surveillance behaviors after participating in the program, such as looking in a mirror more frequently, and reported that the Healthiest Loser program assisted in overcoming previous avoidance behaviors and led them to accept their weight as something that needed to be managed, rather than ignoring it entirely. Healthiest Loser participants also reported improved shame coping mechanisms; indicating they were experiencing lower levels of body shame. Avoidance behaviors were reported

to decrease following the exercise intervention; by decreasing maladaptive behaviors (e.g., exercise avoidance & shame) participants likely increased the frequency of adaptive behaviors (e.g., healthy eating and engaging in physical activity). Participants also reported having fewer bad days following completion of the program, further supporting the notion that self-conscious emotions decreased after participating in the Healthiest Loser. These findings are consistent with those of Bulley et al. (2009), participants in both investigations report experiencing more positive and fewer negative emotional states.

Increased feelings of control over one's body were demonstrated in the surveys and also the interviews conducted during this investigation. Upon completion of the Healthiest Loser program participants reported feeling higher levels of control over their bodies than prior to the program. This may be a result of experiencing weight loss in response to dietary and activity behavior changes. Unsuccessful past attempts at losing weight, as consistently cited by the interviewed participants, may have created feelings of helplessness and an external loci of control amongst the participants, by achieving successful weight loss through the Healthiest Loser, the participants were able to regain a sense of control over their bodies and their weight. Greater feelings of control over weight are consistent with the findings of McKinley (2006), which also measured control using the OBC Scale.

Motivation

Statistical analyses of motivation regulations exhibit a trend towards higher levels of self-regulation; these findings support the hypothesis that participants will display increased self-regulation following the intervention. Increased intrinsic

motivation is supported by the claims made in the interviews by participants expressing their increased enjoyment of physical activity and increased competence. Bulley et al. (2009) also observed higher levels of intrinsic motivation when participants experienced improved levels of competence. While there was support for these findings in the interviews, the participants still exhibit dependence on external factors for motivation to engage in and maintain exercise behaviors. Despite the increase in self-determination all of the participants interviewed still expressed an external factor, weight loss, as their primary motivator. Several participants did express an increased understanding of the health benefits of exercise following the program but rather expressed their belief that exercise was the method through which they could achieve their weight loss goals. The high levels of extrinsic motivation are congruent with the external focus of the goals set by the participants prior to beginning the program. All of the participants interviewed cited externally focused goals, such as weight loss or winning the competition. Hardly any of the participants expressed the goal of improving their physical competence, psychological variables or minimize disease risk. The high levels of identified regulations are consistent with the findings of Sabiston et al. (2010).

Limitations

While this study utilized a unique approach to understanding the experiences and changes that occurred as a result of a physical activity and nutrition intervention, there are limitations that should be noted. The small sample size may have limited the statistical significance of the findings in this study. Future studies should attempt to recruit more participants and also, a more balanced sample of male and female

participants. The participants in this study had volunteered to take part in the Healthiest Loser program, and thus, may have differed from the general population in some motivational characteristics prior to beginning the program. Although not controllable by the researcher, the competitive nature of the Healthiest Loser program the inherent external motivation of competition may have altered the motivations of the participants of the study. Furthermore, one of the participants who engaged in both the pre- and post-intervention interviews had been dropped from the program for medical reasons prior to the final week of the program. This participant was still included in the data analysis because despite being dropped from the program she only missed two training session, which fell within the attendance policy regulations of the program, which allowed each participant to miss two training sessions before being dropped from the program upon their third absence.

Conclusions

The results of this study indicate body shame in obese college-aged individuals will decrease following participation in an exercise and dietary intervention. Participants also exhibited higher levels of body surveillance, control and improved shame coping mechanisms. Further studies should be performed to expand upon the initial findings of this investigation with larger sample sizes and greater more balanced gender samples.

CHAPTER 5 – SUMMARY & RECOMMENDATIONS

Future Obesity Interventions

Based on the results of this study, group based diet and exercise programs that foster group membership and promote social relatedness will lead to higher levels of motivation among participants. Future actions should be taken to foster autonomy and prevent dependence upon the program for motivation to engage in exercise. Emphasis should be placed on clearly defining future goals, and helping individuals to increase perceptions of control over their behaviors. Clearly defined goals will help participants maintain exercise behaviors following completion of the exercise intervention. Increased levels of autonomy amongst participants may also increase self-determination and lead to more consistent maintenance of positive health behaviors.

Summary

The results of this study indicate body shame in obese individuals can be reduced through participation in an exercise intervention. Shame coping mechanisms, levels of body-surveillance and body-control all increase in obese individuals when they engage in a dietary and exercise based intervention. In addition to the changes of self-conscious emotions participants also experience a shift towards higher levels of self-determination than when they began the exercise intervention.

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APPENDICES

APPENDIX A

Pre-Interview questions

Rapport questions:

1. What year in school are you?
2. What is your major?
3. Where are you from?
4. What do you want to do once you graduate?

Probe questions

1. What is your experience with exercise prior to joining the Healthiest Loser program?
    a. Would you describe your overall experience with exercise in the past as mostly positive or negative?
    b. What made these positive (or negative) experiences?
    c. Did these experiences change anything about how you exercised? (Lead you to exercise or not exercise?)

2. Have you actively tried to lose weight before joining the Healthiest Loser program?
    a. How did you go about achieving weight loss (e.g. diet, exercise, etc.)?
    b. Where you successful? Why or why not?

3. How would you describe how you feel about your body?
    a. Have those feelings ever impacted your participation in physical activity/exercise?
    b. In what way(s)?

4. Does the way you look ever impact the way you feel about yourself overall?
    a. Does it have an impact on your mood?

5. Have you ever felt embarrassed or ashamed to exercise in a gym setting?
    a. What caused you to experience these feelings of shame or embarrassment?
    b. How did you handle those feelings?
    c. Have those feelings changed the way that you exercised? (Location/setting, time of day, frequency of PA/exercise, etc.)
    d. Do you ever compare how you look to other people when exercising?

6. What made you decide to apply to the Healthiest Loser program?
    a. What do you hope to achieve from participating in the program?
    b. What do you think it will take to achieve your goals?

APPENDIX B

Post-Interview questions

Rapport questions:

5. How is your semester going so far?
6. Did you have a good spring break?

Probe questions

7. How would you describe your experience with the Healthiest Loser program?
    a. Would you describe your overall experience with the program as mostly positive or negative?
    b. What made these positive (or negative) experiences?

8. Would you describe your experiences with Healthiest Loser as successful or unsuccessful?
    a. Did you achieve your goals?
    b. What to you think is the reason(s) you were able/unable to achieve your goals?

9. How would you describe how you feel about your body?
    a. Have these feelings changed throughout the course of the Healthiest Loser program?
    b. If yes, what has changed?
    c. If no, why do you think they have stayed the same?

10. Does the way you look impact the way you feel about yourself overall?
    a. Does it have an impact on your mood?

11. Did you ever feel embarrassed or ashamed to exercise during the Healthiest Loser program?
    a. What caused you to experience these feelings of shame or embarrassment?
    b. How did you handle those feelings?
    c. Did you ever compare how you look to other people when exercising as part of the Healthiest Loser program?

12. Do you plan on continuing to exercise regularly now that the program is over?
    a. If yes, do you think you would have similar intentions if not for the Healthiest Loser program?
    b. If no, why not?
    c. How do you feel about engaging in exercise on your own; outside of the Healthiest Loser program?

APPENDIX C

Objectified Body Consciousness Scale

1. **I rarely think about how I look.**

   1 2 3 4 5 6 7 N/A

   Strongly disagree Neutral Strongly agree

2. **I think it is more important that my clothes are comfortable than whether they look good on me.**

   1 2 3 4 5 6 7 N/A

   Strongly disagree Neutral Strongly agree

3. **I think more about how my body feels than how my body looks.**

   1 2 3 4 5 6 7 N/A

   Strongly disagree Neutral Strongly agree

4. **I rarely compare how I look with how other people look.**

   1 2 3 4 5 6 7 N/A

   Strongly disagree Neutral Strongly agree

5. **During the day, I think about how I look many times.**

   1 2 3 4 5 6 7 N/A

   Strongly disagree Neutral Strongly agree

6. **I often worry about whether the clothes I am wearing make me look good.**

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

7. **I rarely worry about how I look to other people.**

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

8. **I am more concerned with what my body can do than how it looks.**

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

9. **When I can't control my weight, I feel like something must be wrong with me.**

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

10. **I feel ashamed of myself when I haven't made the effort to look my best.**

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

11. **I feel like I must be a bad person when I don't look as good as I could.**

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

12. I would be ashamed for people to know what I really weighed.

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

13. I never worry that something is wrong with me when I am not exercising as much as I should.

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

14. When I'm not exercising enough, I question whether I am a good enough person.

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

15. Even when I can't control my weight, I think I'm an okay person.

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

16. When I'm not the size I think I should be, I feel ashamed.

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

17. I think a person is pretty much stuck with the looks they are born with.

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

18. A large part of being in shape is having that kind of body in the first place.

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

19. I think a person can look pretty much how they want to if they are willing to work at it.

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

20. I really don't think I have much control over how my body looks.

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

21. I think a person's weight is mostly determined by the genes they are born with.

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

22. It doesn't matter how hard I try to change my weight, it's probably always going to be the same.

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

23. I can weigh what I'm supposed to when I try hard enough.

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

24. The shape you are in depends mostly on your genes.

1 2 3 4 5 6 7 N/A

Strongly disagree Neutral Strongly agree

APPENDIX D

EXERCISE REGULATIONS QUESTIONNAIRE (BREQ-2)

Age: _____ years Sex: male female (please circle)

WHY DO YOU ENGAGE IN EXERCISE?

We are interested in the reasons underlying peoples' decisions to engage, or not engage in physical exercise. Using the scale below, please indicate to what extent each of the following items is true for you. Please note that there are no right or wrong answers and no trick questions. We simply want to know how you personally feel about exercise. Your responses will be held in confidence and only used for our research purposes.

		Not true for me		**Sometimes true for me**		**Very true for me**
1	I exercise because other people say I should	0	1	2	3	4
2	I feel guilty when I don't exercise	0	1	2	3	4
3	I value the benefits of exercise	0	1	2	3	4
4	I exercise because it's fun	0	1	2	3	4
5	I don't see why I should have to exercise	0	1	2	3	4
6	I take part in exercise because my friends/family/partner say I should	0	1	2	3	4
7	I feel ashamed when I miss an	0	1	2	3	4

exercise session

		Not true for me	Sometimes true for me		Very true for me
8	It's important to me to exercise regularly	0	1	2	3 4
9	I can't see why I should bother exercising	0	1	2	3 4
10	I enjoy my exercise sessions	0	1	2	3 4
11	I exercise because others will not be pleased with me if I don't	0	1	2	3 4
12	I don't see the point in exercising	0	1	2	3 4
13	I feel like a failure when I haven't exercised in a while	0	1	2	3 4
14	I think it is important to make the effort to exercise regularly	0	1	2	3 4
15	I find exercise a pleasurable activity	0	1	2	3 4
16	I feel under pressure from my friends/ family to exercise	0	1	2	3 4
17	I get restless if I don't exercise regularly	0	1	2	3

	4				
18	I get pleasure and satisfaction from participating in exercise	0	1	2	3 4
19	I think exercising is a waste of time	0	1	2	3 4

Thank you for taking part in our research

VITA

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