LOCALIZED COPING RESPONSES AS MEDIATORS IN THE RELATIONSHIP BETWEEN PERCEIVED WEIGHT STIGMA AND DEPRESSION

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Currently an estimated 66% of U.S. adults are overweight or obese (Ogden, Carroll, McDowell, & Flegal, 2007). Despite the prevalence of obesity, overweight and obese individuals experience prejudice and discrimination as a result of their weight (i.e. weight stigma). This often leads to negative consequences such as depression (Puhl & Heuer, 1999; Myers & Rosen; Friedman, et al., 2005). The present study examined whether coping with stigmatizing experiences mediated the relationship between perceived weight stigma and depression. In addition, the study examined whether gender and optimism moderated the relationship between coping and depression. Fifty-five overweight and obese (mean BMI = 37.2) weight loss treatment seeking participants (87.3% Caucasian, 79.6% female) were included. Results showed that both adaptive and maladaptive coping significantly mediated the relationship between weight stigma and depression. Surprisingly, greater adaptive coping was positively related to depression. Neither gender nor optimism moderated the coping and depression relationship. Results from this study highlight the importance of identifying psychological factors that can mitigate the negative consequences of experiencing bias and discrimination because of one’s weight. Obese individuals are at considerable risk for psychological complications secondary to weight-based mistreatment by others.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Obesity</td>
<td>1</td>
</tr>
<tr>
<td>Stigma</td>
<td>2</td>
</tr>
<tr>
<td>Weight Stigma</td>
<td>3</td>
</tr>
<tr>
<td>Theories of Weight Stigma</td>
<td>3</td>
</tr>
<tr>
<td>Thin Ideal</td>
<td>5</td>
</tr>
<tr>
<td>Visibility and Controllability of Weight</td>
<td>5</td>
</tr>
<tr>
<td>Types of Weight Stigma</td>
<td>6</td>
</tr>
<tr>
<td>Consequences of Weight Stigma</td>
<td>7</td>
</tr>
<tr>
<td>Coping</td>
<td>9</td>
</tr>
<tr>
<td>Coping and Weight Stigma</td>
<td>12</td>
</tr>
<tr>
<td>Optimism</td>
<td>15</td>
</tr>
<tr>
<td>Optimism and Coping</td>
<td>16</td>
</tr>
<tr>
<td>Summary and conclusions</td>
<td>18</td>
</tr>
<tr>
<td>Goals and Hypotheses</td>
<td>19</td>
</tr>
<tr>
<td>METHODS</td>
<td>22</td>
</tr>
<tr>
<td>Participants</td>
<td>22</td>
</tr>
<tr>
<td>Study Design</td>
<td>22</td>
</tr>
<tr>
<td>Measures</td>
<td>23</td>
</tr>
<tr>
<td>Demographic Variables</td>
<td>23</td>
</tr>
<tr>
<td>Assessment of Body Weight and Composition</td>
<td>23</td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Gender Moderating Positive Self-Talk and Depression</td>
</tr>
<tr>
<td>2</td>
<td>Gender Moderating Avoidance and Depression</td>
</tr>
<tr>
<td>3</td>
<td>Optimism Moderating Weight Stigma and Depression</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Demographic Characteristics</td>
<td>56</td>
</tr>
<tr>
<td>2  Stigmatizing Situations, Coping Responses, Optimism, and Depression</td>
<td>58</td>
</tr>
<tr>
<td>3  Correlations among Coping Responses</td>
<td>59</td>
</tr>
<tr>
<td>4  Correlations between Stigmatizing Situations and Potential Mediators</td>
<td>60</td>
</tr>
<tr>
<td>5  Correlations between Potential Mediators and Depression</td>
<td>61</td>
</tr>
<tr>
<td>6  Effect of Stigmatizing Experiences on Depression when Coping is Included as a Mediator</td>
<td>62</td>
</tr>
</tbody>
</table>
INTRODUCTION

*Obesity*

Obesity is an epidemic in the United States. Currently, an estimated 66% of U.S. adults are overweight or obese (Ogden, Carroll, McDowell, & Flegal, 2007). It is the second leading cause of preventable premature mortality, and is expected to soon surpass smoking as the number one cause of preventable death (Stein & Colditz, 2004). Overweight and obesity are both labels for a body weight (i.e., body mass index) that is above the range of what is considered healthy. Body Mass Index (BMI) is calculated from a person’s height and weight and provides an indirect measurement of body fat. While an imperfect measure of body fat, BMI is significantly correlated with an individual’s percent body fat (r=.71-.88; Mei, Grummer-Strawn, Pietrobelli, Goulding, Goran, & Dietz, 2002). An adult who has a BMI of 25-29.9 is considered overweight. A person with a BMI of 30 or higher is considered obese (NIH, 2000). Obese persons are at a greater risk of suffering from a number of physical ailments, including coronary heart disease, type 2 diabetes, cancer, hypertension, sleep apnea, stroke, and early mortality (CDC, 2004).

In addition to health problems, obese individuals are at a higher risk for experiencing negative psychological effects including depression, disordered eating, social discrimination, and poorer quality of life, than normal weight individuals (Fabricatore & Wadden, 2006). Severely obese individuals, particularly those seeking treatment, report greater psychological distress than healthy weight individuals (Sullivan et al, 1993). In one study, extremely obese persons (Class III obesity or greater; BMI > 40), were five times more likely to be diagnosed with major depression compared to average weight individuals (Onyike, Crum, Lee, Lyketsos, & Eaton, 2003).

Overall, obese women have a 37% higher rate of depression than their normal weight peers (Carpenter, Hasin, Allison, & Faith, 2000) and women are more likely to be depressed as a result of
their weight status than men (Fabricatore & Wadden, 2006). While the etiology of gender differences in depression by weight status is complex, gender differences in depression among the obese may be exacerbated by greater weight bias against women. There is some evidence that women suffer greater discrimination as a result of their weight status than men (Brownell, Schwartz, Puhl, & Rudd, 2005).

**Stigma**

Stigma is defined as bias and discrimination that stems from negative beliefs about, and attitudes toward, a group that is perceived as being lesser than society as a whole (Crocker & Major, 1989). While the terms bias and stigma are often used interchangeably in the research literature, generally bias refers to negative attitudes and stereotypes toward an individual because of some attribute, whereas stigma refers to the mistreatment and discrimination of a person because of a devalued trait or behavior. A person who experiences stigma is often perceived as being different than societal expectations of what is normal because of one or more undesirable traits or behaviors (Dovidio, Major, & Crocker, 2000). While variation exists across social contexts about what qualifies a person as possessing undesirable traits which warrant stigma, the results of experiencing stigma are quite predictable and include social and psychological consequences such as avoidance, rejection, and marginalization (Puhl & Brownell, 2003).

Social groups may experience stigma related to various characteristics including, race, gender, sexual orientation, disability, body size, etc. Stigmatized individuals are likely to experience health consequences such as heart attack or high blood pressure (Gee, 2002; Guyll, Matthews, & Bromberger, 2001), economic consequences, such as underemployment (Guyll, Mathews, & Bromberger, 2001), and psychological consequences such as low self-esteem.
(Crocker, Voelkl, Testa, & Major, 1991), depression (Noh, Kaspar, 2003), and greater psychological distress (Brown, Williams, Jackson, Neighbors, Sellers, & Brown, 2000).

Weight Stigma

Regarding weight, weight bias in North America is pervasive. Weight bias refers to negative attitudes and beliefs towards children and adults because of their weight (Puhl & Heuer, 2009). Negative attitudes and stereotypes about obese persons can manifest both explicitly and implicitly (Schwartz, Chambliss, Brownell, Blair, & Billington, 2003; Teachman & Brownell, 2001; Teachman, Gapinski, Brownell, Rawlins, & Jeyaram, 2003). Explicit attitudes about the obese are those biases that people consciously endorse, and are often measured through self-report questionnaires (Schwartz, Vartanian, Nosek, Brownell, 2006). A person that would readily acknowledge their dislike or disgust of obese persons would evidence an explicit bias. Of course, social desirability often influences whether explicit attitudes are actually reported on self-report questionnaires. On the other hand, implicit attitudes are automatically activated evaluations acquired from repeated messages in the environment. These biases reflect an accumulation of negative evaluations of weight through environmental exposure (e.g., media, family, etc.; Schwartz, Vartanian, Nosek, Brownell, 2006). Individuals who inadvertently or unconsciously discriminate against overweight individuals (e.g., a well intentioned, equal opportunity employer unconsciously choosing to hire a thin person versus an overweight person despite equal qualifications) may possess an implicit negative weight bias.

Theories of Weight Stigma

Theoretical work has examined the origins of weight stigma in order to provide a more thorough understanding of why these individuals are rejected. Attribution theory has emerged as a significant contributor to our understanding of weight bias. According to attribution theory, people
attempt to determine the causes of uncertain outcomes, (Puhl & Brownell, 2003). In the case of an obese person, people attempt to determine the cause of the obesity. Because weight gain and loss are commonly believed to be under an individual’s personal control, people attribute negative character traits as the cause of the obesity. These attributions are likely precipitators of weight stigma, because the person is viewed as bringing this condition (i.e. overweight) on themselves (Crandall, 1994).

Additionally negative attitudes towards obese persons have been shown to be exacerbated by ideological world views consistent with self-determination, Protestant work ethic (i.e. the belief that overweight people got and remain obese, primarily from overeating and having a lack of self-control; Crandall, 2003), and a belief in a just world (i.e. the idea that people get what they deserve in life; Crandall, 1994). It appears that people who hold these ideological beliefs infer that obese persons either deserve their negative plight or have not worked hard enough to reverse their highly controllable negative condition.

Social Identity Theory has also been commonly used to conceptualize weight stigma (Tajfel & Turner, 1986). According to Social Identity Theory, individuals’ social identity and self-esteem are tied to group membership. As such, individuals generally categorize themselves (in-group) and others (out-group) into specific groups (e.g. thin versus fat). Social identity is established and enhanced by making favorable comparisons with the in-group relative to the out-group (Tajfel & Turner, 1986). Consistent with Social Identity Theory, normal weight individuals typically make downward comparisons to obese individuals. Interestingly however, obese individuals appear to lack this preference for the in-group (i.e. other obese persons) and instead hold negative attitudes toward the obese as well (Rudman, Feinberg, & Fairchild, 2002).
Thin Ideal

Prejudice, discrimination and the extreme weight bias observed in American society are also fueled by American’s strong preference for thinness; often referred to as the thin ideal. For example, in one study, 46% of individuals reported that they would give up a year of their life to be thin, while 15% said they’d give up ten years of their life for thinness (Schwartz, Vartanian, Nosek, Brownell, 2006). Individuals also said that they would rather be unable to have children, be an alcoholic, be clinically depressed, lose a limb, or be legally blind than overweight (Schwartz, Vartanian, Nosek, Brownell, 2006). The significant sacrifices that individuals are willing to make in order to achieve thinness are evidence of extreme fears about becoming obese (and indirectly a strong anti-fat bias). As a result of American society’s increased desire for thinness and aversion to overweight, research suggests that bias and discrimination toward obesity is stronger today than it was 40 years ago (Latner & Stunkard, 2001). Research on the prevalence of weight stigma has also shown an increase. While 7% of the population reported experiencing weight stigma in 1995-1996, 12% of the population reported experiencing weight stigma in 2005-2006 (Andreyeva, Puhl, & Brownell, 2008). Similarly, overweight individuals experienced more stigma than non-overweight people, with up to 80.6% of severely obese persons (BMI>40) reporting a perception of weight stigma (Andreyeva, Puhl, & Brownell, 2008).

Visibility and Controllability of Weight

Other influential factors contributing to the amount of discrimination that a group experiences are the visibility and perceived controllability of the stigmatized condition (Crocker, Major, & Steele, 1998). Undesirable characteristics which are readily observable, such as skin color or body shape, are more likely to elicit social rejection. Similarly, characteristics that are viewed as more controllable and changeable may also lead to more social denigration. It is plausible that the
rejection of obese persons is a result of the visibility associated with being overweight (i.e. one can readily observe a person’s body size and shape), as well as the perceived controllability of one’s weight status. Those persons who choose not to, or are unable to lose weight, likely face bias and discrimination as a result.

*Types of Weight Stigma*

Among the most common types of weight stigma reported are encountering negative assumptions from others (e.g. all overweight people are unhappy), receiving negative comments from children (e.g. a child saying “you’re fat!”), encountering physical barriers and obstacles (e.g. not fitting in airplane seats), and receiving inappropriate comments from doctors and family members (e.g. a spouse calling you names because of your size, or a doctor attributing unrelated problems to your weight; Myers & Rosen, 1999; Puhl & Brownell, 2006). Overall, stigmatizing experiences can occur in several settings and come from many sources such as employers and co-workers (Paul & Townsend, 1995; Roehling, 1999; Puhl & Brownell, 2006), physicians (Teachman & Brownell, 2001), nurses (Maroney & Golub, 1992), mental health professionals (Young & Powell, 1985), teachers (Neumark-Sztainer, Story, & Harris, 1999), landlords (Karris, 1977), peers (Latner & Stunkard, 2001; Neumark-Sztainer, Story, & Faibisch, 1998), multiple media sources (Greenberg, Eastin, Hofshire, Lachlan, & Brownell, 2001), parents (Crandall, 1995), and children as young as age 3 (Cramer & Steinwert, 1998).

In employment settings, as many as 25% of overweight individuals reported experiencing job discrimination because of their size, 54% reported discrimination from co-workers, and 43% reported experiencing weight stigma from their employers or supervisors (Puhl & Brownell, 2006). In health care settings, many overweight individuals report experiences of discrimination as a result of their weight, including messages from doctors, nurses, psychologists, and medical students that
obese patients were lazy, noncompliant, had low willpower, and were undisciplined (Puhl & Brownell, 2001). In a study of doctors’ evaluation of obese patients, over half of the obese patients were rated as awkward, unattractive, sloppy, ugly, and non compliant with medical recommendations (Foster, Wadden, Makris, et al., 2003). In another study, 43% of obese bariatric surgery candidates reported that they had been treated disrespectfully by medical professionals because of their weight, and more than 70% of patients felt like doctors did not understand how difficult it is to be overweight (Anderson & Wadden, 2004).

In education settings, obese persons are more likely to experience educational disparities. They also experience weight bias from educators who, research has shown, generally endorse negative weight based stereotypes and antifat attitudes (Puhl & Heuer, 2009). Peers of overweight and obese persons are more likely to label them as mean, stupid, ugly, unhappy, less competent, socially isolated, and lacking in motivation and self-discipline compared to normal weight individuals (Puhl and Brownell, 2006). Recent research also suggests that people believe that overweight and obese peers are more likely to be carrying communicable pathogens than non-obese individuals (Klaczynski, 2008). In the popular media, overweight and obese characters in television and film are portrayed in negative roles that perpetuate stereotypes where they are openly ridiculed and laughed at (Puhl & Heuer, 2009).

**Consequences of Weight Stigma**

Weight-based prejudice and discrimination has detrimental effects on overweight individuals, affecting many areas of living including physical and psychological health (Puhl & Brownell, 2001). Research has shown that individuals who encounter weight stigma are more likely to have eating disturbances such as binge eating and eating restraint problems (Jackson, Grilo & Masheb, 2002), reduced participation in physical activity (Rosenberg, Henderson, & Grilo, 2006),
and poorer health outcomes (Guyll, Matthews, & Bromberger, 2001). While not well documented with adults, limited research has documented links between perceptions of weight based stigma and cardiovascular health indices in adolescents (Mathews, Salomon, Kenyon, & Zhou, 2005). It is still unclear what the nature of the relationship between weight stigma and physical health consequences is, however; the experience of increased stress as a result of the stigma is thought to be a precipitating force in the development of these negative health outcomes (Puhl & Heuer, 2009).

As indicated earlier, psychological distress has also been reported as a result of weight stigma. Research has shown that experiencing more frequent weight stigma is positively associated with depression and psychological distress (Myers and Rosen, 1999; Friedman, et al., 2005). One study found that more than 40% of obese persons reported being mistreated because of their weight, and this treatment was significantly related to higher instances of impaired mood (Carr, Friedman, & Jaffè, 2007). Perceived weight stigma has also been associated with current diagnosis of mood and anxiety disorders, and was related to an increased likelihood of mental health services used (Keyes, Hatzenbuehler, Alberti, Narrow, Grant, Hasin, 2008). Studies examining obese treatment samples have found that a history of weight based teasing is related to lower self-esteem (Jackson, Grilo, & Masheb, 2002). Finally, several studies indicate a relationship between instances of weight stigma and body image disturbances (Puhl & Heuer, 2009).

Overall, individuals who experience weight stigma face discrimination, social rejection, and are at risk for a devalued identity. In order to reduce the negative consequences of this bias, overweight persons apply various coping strategies. There is evidence that the way in which individuals cope with stressors, such as weight stigma, can have an impact on their physical and
psychological well being, particularly if they are using more locally adaptive coping responses to deal with stress (Myers & Rosen, 1999; Skinner, Edge, Altman & Sherwood, 2003).

**Coping**

In general, researchers agree that the study of how an individual copes is the basis of our understanding of how stress affects people (Skinner, Edge, Altman, & Sherwood, 2003). Classically, coping has been defined as efforts to adapt to or reduce distress during stressful events (Lazarus & Folkman, 1984). It has been shown that coping methods are of chief importance in determining the impact that stressful events can have on individuals. The literature on coping is vast, leading to many different subtypes and dimensions of coping. Researchers have concluded that there has been little consistency in the definition of coping’s core constructs, leading to difficulty in developing a cohesive conceptualization of coping (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001). In an attempt to bring coherence to the vast and confusing research literature on coping, Skinner, Edge, Altman, and Sherwood (2003) created a hierarchical organization of the coping literature. While reviewing over 20 years of coping literature, they conceptualized higher, middle, and lower order processes of coping (See Appendix 1). Higher order processes represent Adaptive Processes which can be viewed as serving more evolutionary functions. The systems humans use to detect and respond to threats are evolved and are one basis for organizing higher order coping strategies. Therefore, the higher order categories represent global action categories that evolved to deal with a wide variety of threats (Skinner, Edge, Altman, & Sherwood, 2003). These higher order adaptational responses are often quite abstract and far removed from individual coping responses. In order to increase specificity and concreteness of each higher order coping process, middle and lower level coping mechanisms were conceptualized.
Generally speaking, from top to bottom in this structure, coping mechanisms become more tangible and particular to specific situations.

At the lowest level are specific “coping instances,” which are the daily ways that people deal with specific stressful events, such as “I wore my lucky socks the day of the surgery” or “I read everything I could find about it” (Skinner, Edge, Altman, & Sherwood, 2003). With over 400 lower order ways of coping, the specific instances of coping mechanisms have been widely studied. Examples of lower order coping includes, problem-solving, seeking social support, escape, etc. when faced with a particular challenge (Skinner, Edge, Altman, & Sherwood, 2003). This category describes what is happening specifically during coping episodes, i.e. behaviors, cognitions, and perceptions that people utilize when confronting life’s problems (Pearlin & Schooler, 1978). Coping responses at this level can be captured by self-reports or by real-time observations of actual coping behaviors. These lower order coping mechanisms also can have short term effects on the consequences of the stressor, as well as long term effects on mental and physical health (Skinner, Edge, Altman, & Sherwood, 2003).

Perhaps the most difficult aspect of conceptualizing coping as a structure is in the construction of a coherent set of intermediate levels that organize the many situation-specific and personal coping methods used with respect to their purpose in mediating the effects of stress (Skinner, Edge, Altman, & Sherwood, 2003). Directly below the highest order coping responses are middle level coping mechanisms, which are more specific instances of coping observations or items by which the lowest level coping responses are grouped. Within middle level coping responses are “Families of Coping” which represent higher order categories within which, the lower order “Ways of Coping” are placed (Skinner, Edge, Altman, & Sherwood, 2003). These “Families” are typically multifunctional and multidimensional ways of nesting various coping responses. “Ways of Coping”
then, refer to recognizable actions, such as rumination, venting, or problem solving (Lazarus 1996). The middle level allows for greater classification and organization within the model by which to relate higher and lower order coping mechanisms.

While previous attempts to specify a hierarchical set of coping mechanisms has been undertaken, these hierarchies usually include an ordering of categories according to their effectiveness (Skinner, Edge, Altman, & Sherwood, 2003). However, the model proposed by Skinner, et al. does not include evaluations of the adaptiveness of coping responses. Movement up and down the levels implies a movement in subordinate and superordinate categories. For example, if a person encounters a stressor such as teasing, they may employ a specific behavior (i.e. lower order coping mechanism) such as using positive self-talk (e.g. telling themselves that they are a good person) by which to ward off negative effects. Self-talk would be classified at this level because the person utilized a specific action (self-talk) to avoid negative consequences of the stressor (teasing). Self-talk could be also categorized under the “ways of coping” level if the person utilizes this response in a variety of stressful situations relating to different aspects of his or her life. A person utilizing self-talk would likely do so as a function of a higher order coping response (i.e. “familiiy of coping”) such as self-calming. This coping response is less action oriented and situation specific, but rather, applies to broader array of stressful situations. Lastly, self-calming could be conceptualized as serving a more adaptive and evolutionary function related to survival in life threatening situations.

While a valuable conceptualization of coping structure, the boundaries between each level of Skinner et al.’s model (higher, middle, and lowest) remain somewhat unclear. More research is needed to determine how the levels interact and how various coping responses can be more accurately classified based on this particular structure.
The goal of much of the research related to coping, has been to determine which processes are most effective in dealing with stress. It is important to note, however, that most researchers maintain that it is often impossible to determine “adaptive” or “maladaptive” coping styles. Given unique circumstances, nearly every possible way of coping can be normative or appropriate (Skinner, Edge, Altman, & Sherwood, 2003). Rather than focusing on the “right” versus “wrong” way to cope, one can assemble coping responses based on specific stressors (e.g. weight stigma) and situational constraints (e.g. hypothyroidism’s impact on the ability to lose weight) leading to “locally adaptive” coping. Individual differences aside, by looking at specific stressors, one may be able to determine more accurately, which coping methods are effective in reducing distress.

Coping and Weight Stigma

When looking specifically at weight stigma as a stressor, current research on coping is limited. Little research has specifically examined what types of responses are most effective for overweight and obese persons’ coping with stigma to reduce the negative impact of these events on psychological and physical health. Puhl and Brownell have pioneered work in the area of coping with weight stigma. In their work, they derived from the literature ten potential coping responses to obesity stigma. These include confirmation, self-protection strategies, compensation, personal attribution, identity negotiation, confrontation, social activism, avoidance/disengagement, communal coping, and surgery (2006). Each of these specific mechanisms could fall into middle or lower order coping processes which specifically counteract the experience of weight stigma in specific or multiple situations.

One of the few studies on weight stigma that has attempted to determine what coping mechanisms are common for dealing with weight stigma, as well as to identify more locally adaptive ways that individuals may cope specifically with weight stigma was conducted by Myers
and Rosen (1999). They examined the types of stigmatizing situations that obese persons commonly face and how individuals cope with their stigmatizing experiences. In contrast to previous research, Myers and Rosen allowed their participants to provide open-ended responses about the types of stigma they experienced, and how they coped with it. They hoped to create an assessment tool that could adequately measure weight stigma and coping responses. Another goal of their research was to discover which coping methods were locally “adaptive” or “maladaptive,” such that they appeared to be related to less psychological distress in response to instances of weight stigma. From over three hundred identified coping responses, they identified twenty-one categories of coping.

The final instruments they developed were named “Stigmatizing Situations” and “Coping Responses,” consisting of 50 and 99 items respectively (Myers and Rosen, 1999). For the Stigmatizing Situations Inventory, participants are asked to indicate whether and how often each of the given 50 stigmatizing situations happens to them. On the Coping Responses portion, participants are asked to indicate whether and how often they utilize each of the given 99 coping responses to cope with the stigmatizing situations listed above.

The most common types of stigmatizing experiences reported were ‘Comments from children’ (e.g. “A child coming up to you and saying something like ‘you’re fat!’”), ‘Others making negative assumptions about you’ (e.g. “Having other people have low expectations of you because of your weight”), and ‘Physical barriers’ (e.g. “Not being able to find clothes that fit”). The most commonly endorsed coping responses were ‘Positive self-talk,’ (e.g. “I think it’s who I am on the inside that matters”) ‘Heading off negative remarks,’ (e.g. “I make eye contact and say ‘hi’ to people who might be staring.”) and ‘Using faith and religion’ (e.g. “I think to myself, God is on my side;” Myers & Rosen, 1999). After controlling for the frequency of stigmatizing experiences and
body weight, three coping responses were designated as “maladaptive” because they were significantly associated with more mental health symptoms, negative body image, and low self esteem. They were ‘Negative self-talk,’ (e.g. “I feel really bad about myself”) ‘Cry and isolate myself,’ (e.g. “I get depressed and isolate myself”) and ‘Avoid or leave situation’ (e.g. “I quit jobs where I encounter stigma or discrimination;” (Myers & Rosen, 1999).

According to Skinner, Edge, Altman, and Sherwood’s coping model (2003), these processes would likely be conceptualized as “locally maladaptive” in dealing with weight stigma, i.e. it is plausible that they might be effective in dealing with other types of stressors, but appear to be ineffective in reducing distress resulting directly from weight stigma. Interestingly, no coping categories met criteria for “adaptive coping” as defined by Myers and Rosen (lower mental health symptoms, positive body image, higher self esteem). Although some were found to be in the predicted direction, none of the relationships between adaptive coping and stigmatizing situations were statistically significant. These were ‘Positive self talk,’ ‘See situation as other person’s problem,’ (e.g. “If people do not like me because of my size, I see it as their loss”) ‘Refuse to hide body, be visible,’ (e.g. “I make a point of not hiding my body”) and ‘Self-love, self acceptance” (Myers and Rosen, 1999). Again, these coping responses could be categorized as “locally adaptive” in response to weight stigma.

Coping strategies that appeared “maladaptive,” generally involved self-criticism and avoidance of distressing situations, while coping strategies that appeared “adaptive” involved a more engaged and active way of dealing with weight stigma. This is consistent with previous research which has found that self-criticism and avoidance are forms of ‘disengaged’ coping (Tobin, et. al, 1989; Puhl & Brownell, 2006). Both of these constructs have been associated with greater distress in stigmatized individuals. Further research is needed to clearly determine the
relationships between locally ‘adaptive’ and ‘maladaptive’ coping strategies on depressive symptoms resulting directly from weight stigma.

Another, more recent study of overweight and obese adults found that women who used positive coping strategies like self-talk reported healthier psychological adjustment, while negative coping responses, such as coping through avoidance were associated with higher distress (Puhl & Brownell, 2006). In addition, for men, coping with weight stigma through self-acceptance was associated with higher self-esteem, and coping with avoidance, crying, and negative self-talk were associated with lower self-esteem (Puhl & Brownell, 2006). However, men differed from their female counterparts in that the utilization of “positive” coping responses (e.g. positive self-talk) were related to higher depressive symptoms whereas strategies like ignoring the situation were indicative of reduced depressive symptoms (Puhl & Brownell, 2006). While it appears that coping strategies in dealing with weight stigma are as strongly related to psychological well being, more research is needed to determine which coping mechanisms are most “effective” (e.g. depressive symptom reduction) in various stigmatizing situations, and whether certain coping responses affect emotional responses differently across gender.

**Optimism**

While researchers attempt to understand resiliency in the face of stressful life events, they have begun to look beyond coping responses to stress, to dispositional influences that might moderate stress-distress outcomes and/or coping responses to stress. One promising variable is dispositional optimism. Dispositional optimism is briefly defined as the generalized expectancy for good versus bad life outcomes (Scheier, Carver, & Bridges, 1994). Theoretically, dispositional optimism is based on the idea of behavioral self-regulation, where behavior is directed toward a goal which the person hopes to attain (Carver & Scheier, 1981, 1982a, 1983; Scheier & Carver,
1982a). As an individual attempts to achieve their goals, obstacles may interfere with goal attainment. A person’s expectancies of how they will overcome the obstacle may change depending on how salient the goal is, and based on past behavioral goal attainment experiences. This is often referred to as an outcome expectancy assessment (Carver & Sheier, 1982). Having a more positive expectancy leads toward a greater likelihood that an individual will continue to strive toward a goal, whereas having a negative expectancy may induce disengagement from the goal (Grant & Higgins, 2003).

Previous research has shown that one’s outcome expectancies for life’s experiences can have a significant impact on a person’s psychological state (Carver & Schier, 2002). Measures of optimism have been able to predict positive mood, good physical health, and greater recovery from surgery (Grant & Higgins, 2003). Optimists also experience greater physical well being and endorse an emphasis on practicing positive health habits (Scheier & Carver, 1992). In addition, individuals who are optimistic are more likely to adjust favorably to life stressors, such as the loss of a loved one, or the diagnosis of a serious medical condition (Aspinwall & Taylor, 1991). Finally, greater optimism has been associated with less mood disturbance as a result of a variety of stressors including, adjustment to school (Segerstrom, Taylor, Kemeny, & Fahey, 1998), coronary bypass surgery (Carver et al., 1993; Sheier et al., 1989), and exposure to SCUD missile attacks (Zeidner & Hammer, 1992). Optimists, as a whole, appear to experience a variety of both psychological and physical benefits.

Optimism and Coping

In several instances, dispositional optimism has been found to act as a buffer to stress (Scheier, Weintraub, & Carver, 1985). For example, in a study that examined the amount of physical symptoms reported after experiencing a stressor, it was found that individuals who were
high in dispositional optimism were less likely to report physical symptoms resulting from stress (Scheier & Carver, 1985). Similarly, in a person who experienced weight stigma, levels of dispositional optimism may moderate the relationship between the stigma and depressive symptomatology. For example, an optimist might be more confident about their ability to cope with weight stigma or confident that positive growth and understanding might come from a stigmatizing experience. As such they would be likely to have lower levels of distress (i.e. depression) in response to stigmatizing events. Dispositional optimism when confronting less frequent weight stigma is unlikely to be as important.

Previous research has yet to examine the role of optimism in coping directly with weight stigma. However, regarding coping, optimism was found to correlate with active coping and seeking social support to deal with a variety of other stressors, and was inversely related to disengagement from the goal (Schier & Carver, 1985). Optimists have been found to be better equipped to cope more adaptively and stably over time with difficult life events by utilizing more active and adaptive coping responses in various situations (Grant & Higgins, 2003). Dispositional optimists also have been found to make less use of avoidance strategies such as denial to cope with stress (Aspinwall & Taylor, 1986, Carver et al., 1993; Scheier, Weintraub, & Carver, 1986; Stanton & Snider, 1993; Taylor et al., 1992), and have been found to possess a greater ability to positively cope with stressful life events such as cancer and depression (Cummings and Nistico, 2002; Grant & Higgins, 2003; & Schier & Carver, 1985, 1995). While it has been suggested that optimists cope more effectively with stressors than do pessimists (Brissette, Carver, Scheier, 2002), it also appears that optimists utilize different strategies to cope with stressful events. Further research is needed to determine which types of coping are most utilized by optimists, and the routes by which these coping strategies are effective in reducing distress from weight stigma.
Summary and Conclusions

Weight stigma, or the mistreatment and discrimination of overweight and obese individuals based on their size, has been shown to have a negative impact on many who experience it (Puhl & Heuer, 2009). Physical consequences include, eating disturbances such as binge eating and eating restraint problems (Jackson, Grilo & Masheb, 2000), reduced participation in physical activity (Rosenberg, Henderson, & Grilo, 2006), cardiovascular health problems (Mathews, Salomon, Kenyon, & Zhou, 2005), and poorer health outcomes (Guyll, Matthews, & Bromberger, 2001). Psychological consequences of weight stigma such as depression (Myers and Rosen, 1999) low self-esteem (Jackson, Grilo, & Masheb, 2000), poor body image (Puhl & Heuer, 2009), and psychological distress (Friedman, et al., 2005) have all been well documented.

There is evidence that the way in which individuals cope with stressors, such as weight stigma, can have an impact on their overall well being. The literature on coping with weight stigma is sparse. Further research is needed to determine which localized coping methods are most effective in various stigmatizing situations.

Researchers have also looked beyond coping responses to stress, to dispositional influences that might moderate the stress-distress outcomes and/or coping responses to stress. One promising variable is dispositional optimism, which has been found to predict many benefits for individuals, such as positive mood, good physical health, and greater recovery from surgery (Grant & Higgins, 2003). Dispositional optimism has been conceptualized as a buffer to stressful life events (Segerstrom, Taylor, Kemeny, Fahey, 1998), and studies have found that optimists tend to cope more adaptively with stressors than pessimists (Brissette, Carver, Scheier, 2002). Research has yet to examine the role of optimism in coping directly with weight stigma. Dispositional optimism may moderate the relationship between weight stigma and depressive symptomatology. Finally,
optimism was found to be related to active coping and seeking social support to deal with a variety of other stressors, and was inversely related to disengagement from the goal (Schier & Carver, 1985). Additional research is needed to examine the association between optimism and coping responses to weight stigma.

**Goals and Hypotheses**

The present study will examine whether coping with stigmatizing experiences mediates the relationship between perceived weight stigma and depression. This study will also examine whether dispositional optimism moderates the effect of perceived weight stigma on depression. The association between dispositional optimism and coping as well as the impact of gender on coping strategy and psychological well-being will also be explored.

First, it is hypothesized that coping will mediate the relationship between stigmatizing experiences and depression. To satisfy the conditions of mediation, it is hypothesized that perceived stigmatizing experiences will be significantly related to locally adaptive and maladaptive coping styles. For example, the use of locally adaptive coping responses such as using positive self-talk, self-love and acceptance, refusing to hide one’s body (being visible), and seeing the situation as the other person’s problem will be negatively associated with depressive symptoms while locally maladaptive coping responses such as using negative self-talk, avoiding or leaving a stigmatizing situation, and crying or isolating oneself will be positively associated with depressive symptoms. Similarly, it is hypothesized that the use of positive coping responses to weight stigma and seeking therapy will be negatively associated with depressive symptoms whereas the use of negative coping responses to weight stigma will be positively associated with depressive symptoms. Furthermore, it is hypothesized that reporting higher instances of stigmatizing experiences will be associated with
greater levels of depression. Finally, the relationship between stigmatizing experiences and depressive symptoms will be mediated by adaptive and maladaptive coping strategies, respectively.

Second, prior research suggests that gender differences may exist between type of coping response and its association with depressive symptoms (Puhl & Brownell, 2006), for example, women who used coping strategies like positive self-talk had better psychological adjustment, while coping through avoidance was associated with higher distress (Puhl & Brownell, 2006). For men however, the use of positive self-talk was related to higher depression, while strategies like ignoring the situation (i.e. avoidance) were indicative of reduced depression (Puhl & Brownell, 2006). Therefore, it is hypothesized that gender will moderate the relationship between positive self-talk and depression and avoidance coping and depression such that women’s use of positive self talk will minimize the impact of weight stigma on depressive symptoms, while male’s use of positive self talk will exacerbate the impact of weight stigma on depressive symptoms. Additionally, women’s use of avoidance will aggravate the impact of weight stigma on depressive symptoms, whereas male’s use of avoidance will lessen the impact of weight stigma on depressive symptoms. See figures 1 and 2 below.

1. Use of Positive Self-talk:

2. Use of Avoidance Coping:
Third, it is hypothesized that dispositional optimism (e.g. “overall, I expect more good things to happen to me than bad”) will moderate the relationship between stigma and depression such that greater optimism will minimize the impact of weight stigma on depressive symptoms. See figure 3 below.

![Graph showing relationship between optimism, stigma, and depression](image)

Finally, it is also hypothesized that individuals who are high in dispositional optimism will utilize more locally adaptive coping strategies than individuals who are low in dispositional optimism.
METHODS

Participants

Fifty-five obese adults participated in a 14-week weight loss intervention program. Participants were recruited through local newspaper advertisements and campus updates at a Midwestern university. Participants were eligible to participate in the program if they were overweight/obese (BMI ≥ 27 kg/m²), able to provide informed consent, approved for participation by their primary care physician, and had submitted the $100 refundable deposit upon program completion. In cases of financial hardship, the $100 deposit was waived.

Participants were excluded if their BMI was less than 27 kg/m², or if they had a) been currently smoking; b) severe cardiovascular disease (i.e. stroke, angina, heart surgery); c) musculoskeletal problems that would prevent moderate levels of physical activity (i.e. osteoporosis, osteoarthritis, joint problems); d) insulin dependent diabetes; e) adult onset Type II diabetes that was uncontrolled; or f) resting blood pressure greater than or equal to 160/100 mg Hg; or f) life limiting or complicated illness (i.e. cancer, renal dysfunction, hepatic dysfunction, or dementia). All procedures received approval from the Human Subjects Review Board.

Participants were primarily Caucasian (87.3%) and female (79.6%). Mean age was 47.8 (SD=11.5; range=25-73) years. Average yearly income exceeded $30,000 for 77.4% of individuals, and a majority (85.5%) had at least a baccalaureate degree. Most participants (69.1%) were married or living with a partner. Mean weight was 232.2 pounds (SD=49.8; range=163.8-388.4). Mean BMI was 37.2 (SD=6.7; range=27.4-56.0). See Table 7.

Study Design

Participants were randomly assigned to one of two weight loss treatment groups; the LEARN program which focused on lifestyle change, exercise, attitudes, relationships, and
nutrition, and a program called “Transforming Your Life” (TYL), that emphasized self-monitoring, habit reversal, environmental modification, and motivation. Participants met in small groups (12-15 individuals) weekly for approximately 75 minutes. Classes were taught by a licensed clinical health psychologist and graduate students specializing in weight loss. Prior to beginning the intervention, individuals completed questionnaires and assessments of height, weight, and body fat. Only baseline data on these variables were used in this investigation. The data collected was part of a larger investigation on weight loss. The goal of the weight loss study was to compare the LEARN and TYL programs effectiveness in achieving weight loss and weight loss maintenance; however, treatment outcomes were not examined in relation to the data presented here.

Measures

Demographic variables. Participants completed a questionnaire at the beginning of the intervention assessing age, race/ethnicity, marital status, income, and education.

Assessment of Body Weight and Body Composition.

Body weight was assessed using a digital scale (BF-350e, Tanita, Arlington Heights, IL) to the closest 0.1 lb. Height was measured in inches to the closest 0.5 inch using a standard balance beam scale height rod. Height and weight were later converted to kilograms and meters to calculate BMI (kg.m²).

Stigmatizing Situations and Coping Responses Survey

The Stigmatizing Situations Inventory and Coping Responses Survey is a two part questionnaire that first measures the frequency of stigmatizing situations a person has encountered, and secondly measures their coping responses to the stigma (Myers and Rosen, 1999). Eleven stigmatizing situations and 21 coping categories were originally identified.
The Stigmatizing Situations Inventory is a 50-item measure that examines participants experience with 11 types of common stigmatizing situations including: comments from children, others making negative assumptions about you, physical barriers, being stared at, inappropriate comments from doctors, rude comments from family, rude comments from others, being avoided excluded or ignored, loved ones embarrassed by your size, job discrimination and being physically attacked. Responses are based on a 10-point ordinal scale (0 = never, 5 = once a month, 9 = daily), with higher scores indicating more frequent encounters with stigmatizing situations. Participants report whether, and how often they have encountered a specific stigmatizing situation. The current investigation examined an individual’s overall number of stigmatizing experiences. Prior research with obese individuals’ indicated that individuals report experiencing stigmatizing experiences ‘several times’ in their lives (mean score=1.9, s.d.=2.0; Myers & Rosen, 1999). Previously, internal consistency of the Stigmatizing situations portion was found to be high (α=.95; Myers & Rosen, 1999). In the current study, internal consistency was also strong (α=.92).

The current study utilized a subset of the 99- item Coping Responses Survey (7 of the 21 total coping categories). These categories were chosen for inclusion because the subscales evidenced: 1) high endorsement by obese individuals experiencing stigma, 2) strong associations with “adaptive” or “maladaptive” coping responses, and 3) adequate internal consistency. See Table 8 for internal consistencies for current investigation. Coping response scales included were: Positive self-talk (e.g. “I think ‘it’s who I am on the inside that matters’”), Negative self talk (e.g. “I think that no one will ever love me because of my weight”), Cry, Isolate myself (e.g. “I cry about it, then get over it”), See situation as other person’s problem (e.g. “If people do not like me because of my size, I see it as their loss”), Refusing to hide one’s body, being visible
(e.g. “I make a point of not hiding”, my body”), Avoid or leave the situation (e.g. “I quit jobs where I encounter stigma or discrimination”), Self-love, self-acceptance (“I put myself and my needs before other people’s needs”). Respond positively, being ‘nice’ (e.g. “I just say hello and am friendly”), Respond negatively, insulting back (e.g. “I tell the other person off”), and Seeking therapy (e.g. “I talk to a counselor or social worker”).

Coping response scales not used because of poor internal consistency were: Diet (e.g. “I go on a diet to reduce or avoid discrimination/ stigma based on weight”), Heading off negative remarks (e.g. “I make eye contact and say ‘hi’ to people who might be staring”), Physical violence (e.g. “I fight back physically”), Eating (“If people make me feel badly about my weight, I just eat more”).

Finally, coping response scales not used because of poor “adaptive” versus “maladaptive” face validity were: Using humor, witty comebacks, or joking (e.g. “I laugh it off or joke about it”), Ignoring situation, making no response (e.g. “I ignore them and try not to let them get to me”), Social support from other fat people (e.g. “I talk to other overweight people”), Educate self or others about fat stigma (e.g. “I wear buttons, t-shirts, etc. with size-positive messages”), Using faith, religion, prayer (e.g. “I think to myself, ‘God is on my side’”).

Previous research has found an alpha for the Coping Responses Inventory to be .95 (subscale range=.33-.87). Internal consistency in the current study was found to be similarly strong (α=.87; subscale range=.30 -.82). Coping Response subscales that evidence internal consistency below 0.60 were omitted from analyses. Subscales excluded were self-love, being visible, negative self-talk, and negative responses (See table 8).
Life Orientation Test-Revised (LOT-R)

The LOT-R is a widely used 10-item self-report survey that measures dispositional optimism (Scheier, Carver, Bridges, 1994). Respondents were asked to indicate their agreement with each of the items (i.e. “In uncertain times, I usually expect the best” or “I’m always optimistic about my future”), using a likert scale ranging from 0 (strongly disagree) to 4 (strongly agree). It is generally found to have high internal consistency ($\alpha=.75$) and high test-retest reliability (Schierer, Carver, Bridges, 1994). In the current study, internal consistency was also found to be high ($\alpha=.80$).

Center for Epidemiological Studies- Depression Scale (CES-D)

The CES-D is a 20 item self-report questionnaire measuring severity of depression in the general population (Radloff, 1977). It has been widely used in both clinical and non-clinical populations, and is generally found to be a valid measure of depressive symptoms (i.e. feeling lonely, being unable to shake the blues, and feeling depressed). Response categories are based on a likert scale and describe how a person may behave or feel. Participants report how often they have experienced each of the 20 items ranging from “rarely/none of the time,” “some/a little of the time,” “occasionally/moderate amounts of time,” and “most/all of the time.” Scores can be broken into three cutoffs; non-depressed (scores less than 15), mildly depressed (16-20), and moderately depressed (21-30). The sensitivity, or true positive rate has been found to be 92%, and specificity was 87% (Lyness, et. al., 1997). The measure is found to have very high internal consistency ($\alpha=.85$), and high test-retest reliability (Radloff, 1977). In the current study, internal consistency was found to be strong ($\alpha=.86$).
Data Analyses

Bivariate correlations were used to determine if age and BMI were related to stigmatizing situations, coping responses, depression, or optimism. Independent samples t-tests were performed to determine if gender, marital status, income, education, or race were related to stigmatizing situations, coping responses, depression, or optimism. Significant relationships found between demographic characteristics and variables of interest were controlled for in subsequent analyses.

Mediation Analyses

The most commonly used method to conduct mediation analyses has been proposed by Baron and Kenny (1986). Based on the steps proposed by Baron and Kenny (1986; 1998) and Judd and Kenney (1981), a variable must meet four criteria in order to be a mediator. The criteria are 1) that the independent variable predict the dependent variable (this establishes that there is an effect that may be mediated), 2) that the independent variable predict the mediator (this involves treating the mediator as if it were an outcome variable), 3) that the proposed mediator predict the dependent variable, and 4) that the effect of the independent variable on the dependent variable decrease when the mediator is included as a predictor.

Complete mediation occurs when the correlation between the IV and DV becomes zero after controlling for the mediator. Partial mediation occurs when the relationship between the IV and DV is reduced to a non-significant amount, but not to zero. Limitations to Barron and Kenney’s method have been identified including; low power, Type I error, not being able to address suppression effects, and not addressing the central question of whether the indirect effect is significantly different from zero and in the expected direction (MacKinnon, Lockwood,
Hoffman, & West, 2002; Preacher & Hayes, 2004; Shrout & Bolger, 2002). In order to overcome these limitations, Sobel tests are recommended (1982).

While conservative, Sobel tests determine the significance of the indirect effect of the mediator by testing the hypothesis of no difference between the total effect (path c; relationship between the IV and DV not adjusted for the mediator) and the direct effect (path $c'$; relationship between IV and DV with adjustment for mediator). The indirect or mediated effect of the mediator is the product of path $ab$ which is equivalent to $(c - c')$. This is based on the rationale that mediation depends on the extent to which the IV affects the mediator (Parameter $a$) and the extent to which the mediator affects the DV (Parameter $b$). The $ab$ shows how much a change in the IV affects the DV directly through the mediator. In other words, $ab$ or $c-c'$ shows how much of the relationship between the IV and the DV can be explained by the mediator. In this investigation, parameters were estimated using least squares regression to obtain estimates of the mediated effect, $ab$ and $c-c'$ using the formula $z$-value $= \frac{a*b}{\sqrt{b^2s_a^2 + a^2s_b^2}}$. Due to the small sample size, and directional hypotheses, one-tailed significance tests were utilized in all analyses.

**Moderation Analyses**

In order to determine the effects of weight stigma and optimism on depression, hierarchical multiple regression was used. In order to test the moderating hypothesis, moderating variables were constructed by multiplying pairs of variables to create their product. Weight stigma was entered in step one, optimism was entered in step two, and the interaction term was entered in step three. Additionally, to examine the effects of gender and coping on depression, hierarchical multiple regression was also used. Gender was entered in step one, coping was entered in step two, and the interaction term was entered in step three.
RESULTS

As expected, higher BMI was significantly correlated with greater experiences of stigmatizing situations ($r = .63, p < .01$). Age was significantly correlated with optimism, indicating that as one gets older, their level of optimism increases ($r = .27, p < .05$). No other demographic variables were related to stigmatizing situations, coping responses, optimism, or depression.

As shown previously by Myers and Rosen (1999), amount of stigmatizing situations was correlated to amount of coping responses ($r = .53, p < .01$), with a greater experience of stigmatizing situations related to greater coping. Additionally, coping with weight stigma was also correlated with depression; the more an individual coped with weight stigma, the higher their level of depression ($r = .49, p < .01$). Participants in this study scored an average of 18.21 ($S.D. = 5.98$) on their level of depression, which is over the established cutoff score for clinical depression of 16.

Correlations between coping responses were examined. See Table 9. As expected, many of the coping responses were highly correlated, with those that had been previously classified as adaptive coping styles (Myers and Rosen, 1999) being highly inter-correlated, and those that are considered maladaptive being inter-correlated also.

Average number of stigmatizing situations reported was 0.88 ($S.D. = .59$), which indicates that participants reported experiencing each of 50 common stigmatizing situations as a result of their weight around, on average, once in their life. Previous research reported somewhat higher levels of stigmatizing experiences, with an average of .98 (Puhl & Brownell, 2006). Results indicated that most participants utilized coping in response to stigmatizing experiences between “several times in my life” to “about once a year” ($M = 2.44, S.D. = .86$). Previous
research reported lower levels of coping in response to weight stigma ($M = 1.41$) (Puhl & Brownell, 2006). Positive self-talk was the most commonly endorsed adaptive coping response, with most participants reporting using it “once in my life” ($M = 0.74, SD = 0.33$). Refusing to hide one’s body or being visible, using positive responses, self-love or self acceptance, seeing the situation as the other person’s problem and seeking therapy were commonly endorsed between “never” and “once in my life.” See table 2. Maladaptive coping was used less frequently than adaptive coping responses, with participants endorsing its use approximately “once in my life” ($M = .57, S.D. = .34$). Negative self-talk was the most commonly used maladaptive coping response, however it was reported as only being used between “never” and “once in my life” ($M = .24, S.D. = .02$), followed by avoiding the situation, using a negative response, and crying, all of which were endorsed between “never” and “once in my life.” See table 2.

**Hypothesized Mediation Analyses**

**Criterion 1: Relationship between stigmatizing experiences and depression**

The first condition for mediation model is that the independent variable predicts the dependent variable. In this study, it was first hypothesized that stigmatizing experiences would be related to depression. A Pearson product moment correlation revealed that, consistent with the original hypothesis, self-reported experiences of stigmatizing experiences were positively and significantly related to greater depression ($r = .39, p = .004$).

**Criterion 2: Relationship between stigmatizing experiences and coping responses**

The second condition for mediation is that the independent variable predicts the mediator. It was hypothesized that stigmatizing experiences would be significantly related to coping responses. More specifically it was hypothesized that stigmatizing experiences would be significantly related to locally adaptive coping styles (e.g. Positive Self-Talk, Positive...
Responses, Seeking Therapy, and Seeing the Situation as the Other Person’s Problem) and locally maladaptive coping styles (e.g. Avoiding or Leaving, and Crying or Isolating oneself). Pearson product moment correlations showed that stigmatizing experiences were significantly related to adaptive coping responses. The greater the experience with weight stigma, the greater amount of adaptive coping used ($r = .32, p = .02$). When looking specifically at the relationship between stigmatizing experiences and locally adaptive coping responses, the greater use of Positive Self-Talk, and Seeking Therapy were found to be significantly related to greater self-reports of stigmatizing experiences, respectively ($r = .28, p = .02; r = .49, p < .001$). Greater refusing to hide one’s body, showed a trend toward significance ($r = .21, p = .06$), while greater Seeing the Situation as the Other Person’s Problem were not related to reports of stigmatizing experiences ($r = .05, p = .37$). See table 4.

It was also hypothesized that self-reported experiences of stigmatizing situations would be related to maladaptive coping styles (e.g. Avoiding or Leaving, and Crying or Isolating Oneself). As with adaptive coping, results showed that greater stigmatizing experiences were also significantly related to greater maladaptive coping responses ($r = .68, p < .001$). While examining the individual’s locally maladaptive coping responses, the greater use of Crying, and Avoiding were significantly related to greater experiences with stigmatizing situations ($r = .42, p = .001; r = .71, p < .001$). See table 4.

**Criterion 3: Relationship between coping responses and depression**

The third condition for mediation is that the proposed mediator predicts the dependent variable. It was hypothesized that adaptive coping responses would be negatively related to depression, while maladaptive coping responses would be positively related to depression. Contrary to initial hypotheses, both adaptive coping and maladaptive coping responses were
positively related to depression ($r = .40, p = .003; r = .45, p = .001$). When examining locally adaptive coping responses, results showed that greater Positive Self Talk, Positive Responses, and Seeking Therapy, were all positively related to depression ($r = .40, p = .001; r = .31, p = .01; r = .34, p = .005; r = .27; p = .005$). Seeing the Situation as the Other Person’s Problem was not related to depression ($r = .09, p = .25$). Results of correlations between locally maladaptive coping responses and depression showed that greater Avoidance, and Crying were significantly related to higher levels of depression ($r = .42, p = .001; r = .33, p = .007$). See Table 5.

**Criterion 4: Effect of stigmatizing experiences and coping responses on depression**

The fourth condition for mediation is that the effect of the independent variable on the dependent variable significantly decreases when the mediator is included as a predictor. Least squares regression was conducted to determine if the relationship between stigmatizing situations and depression decreased when the potential mediators were included as predictors in the regression models. When adaptive coping was included as a potential mediator between stigmatizing situations and depression, the relationship between stigmatizing situations and depression was reduced, though remained significant, and the relationship between adaptive coping and depression was significant. See Table 6. Sobel tests were conducted to determine the significance of the indirect effect of the mediators. Based on this, results showed that adaptive coping did significantly mediate the relationship between stigmatizing experiences and depression ($t = 1.61, p = .05$).

Locally adaptive coping responses were also included as possible mediators between stigmatizing situations and depression. When positive self-talk was used as a mediator between stigmatizing situations and depression, the relationship was reduced, though was still significant, and the relationship between Positive Self-Talk and Depression was significant. See Table 6.
However, Sobel tests indicated that Positive Self-Talk did not significantly mediate the relationship \( (t = 1.57, p = .06) \). When Positive Responses was used as a mediator between stigmatizing situations and depression, the relationship between stigmatizing situations and depression was reduced, though the relationship between Positive Responses and depression was non-significant. See Table 6. Sobel tests show that Positive Responses did not mediate the relationship \( (t = 1.29, p = .10) \). When Seeing the Situation as the Other Person’s Problem was used as a mediator in the relationship between stigmatizing situations and depression, the relationship was reduced, and Seeing the Situation as the Other Person’s problem was non-significant, and did not mediate the relationship \( (t = .22, p = .41) \). See Table 6. When Seeking Therapy was used as a potential mediator in the relationship between stigmatizing situations and depression, the relationship was reduced, though the relationship between Seeking Therapy and depression was non-significant and was not found to mediate the relationship \( (t = 1.25, p = .11) \). See Table 6.

Next, maladaptive coping was included as a mediator in the relationship between stigmatizing situations and depression. In this case, the relationship between stigmatizing situations and depression became non-significant, while the relationship between maladaptive coping and depression remained significant, See Table 6. As with adaptive coping, Sobel tests were conducted to determine the strength of the indirect effect. Results indicated that maladaptive coping significantly mediated the relationship between stigmatizing experiences and depression \( (t = 1.96, p = .03) \).

Locally maladaptive coping responses were also included as possible mediators between stigmatizing situations and depression. When Crying was used as a mediator in the relationship between stigmatizing situations and depression, the relationship between stigmatizing situations and depression...
and depression was reduced, though the relationship between Crying and depression was non-
significant. See Table 6. Sobel tests indicated that Crying was not a mediator in the relationship
\((t = 1.47, p = .07)\). Finally, when Avoidance as included as a potential mediator between
stigmatizing situations and depression, the relationship between stigmatizing situations and
depression became non-significant, and the relationship between Avoidance and depression was
significant. See Table 6. Sobel tests revealed that Avoidance significantly mediated the
relationship \((t = 1.62, p = .05)\).

**Hypothesized Moderation Analyses**

Previous research suggests that gender differences may exist between type of coping
response and its association with depressive symptoms (Puhl & Brownell, 2006). It was
hypothesized that gender would moderate the relationship between positive self-talk and
depression and avoidance coping and depression such that women’s use of positive self talk
would minimize the impact of weight stigma on depressive symptoms, while male’s use of
positive self talk would exacerbate the impact of weight stigma on depressive symptoms.
Additionally, it was hypothesized that women’s use of avoidance would aggravate the impact of
weight stigma on depressive symptoms, whereas male’s use of avoidance would lessen the
impact of weight stigma on depressive symptoms.

Results of hierarchical multiple regression revealed that positive self-talk positively and
significantly predicted depression \((\beta = .42, R^2 = .18, p = .002)\), however there was no main effect
for gender \((\beta = .08, R^2 = .18, p = .56)\) and the interaction between positive self-talk and gender
was not significant \((\beta = -.23, R^2 = .19, p = .44)\). Additionally, results showed that using
avoidance to cope positively and significantly predicted depression \((\beta = .44, R^2 = .19, p = .001)\).
No main effect was found for gender ($\beta = -.093, R^2 = .20, p = .47$), nor was a significant interaction between avoidance and gender found ($\beta = -.037, R^2 = .20, p = .88$).

It was also hypothesized that dispositional optimism (e.g. “overall, I expect more good things to happen to me than bad”) would moderate the relationship between stigma and depression such that greater optimism would minimize the impact of weight stigma on depressive symptoms. Results of hierarchical multiple regression showed that stigmatizing situations significantly predicted depression ($\beta = 3.85, R^2 = .15, p = .004$), however there was no main effect of optimism on depression ($\beta = .05, R^2 = .15, p = .73$). Additionally, no significant interaction between stigmatizing situations and optimism emerged ($\beta = .07, R^2 = .15, p = .62$).

**Hypothesized Correlational Analyses**

Finally, it was hypothesized that individuals who were high in dispositional optimism would utilize more locally adaptive coping strategies, than individuals who were low in dispositional optimism. No significant relationship, however, was found between optimism and adaptive coping ($r = -1.5, p = .29$).
DISCUSSION

Overweight and obese individuals frequently experience weight stigma from a variety of sources (Puhl & Heuer, 2009). Greater weight stigma is often associated with depression and other negative psychological outcomes (Myers & Rosen, 1999; Friedman, et al., 2005; Puhl & Brownell, 2001). As with other forms of stress and negative life outcomes, individuals likely rely on coping strategies in an attempt to avoid negative outcomes from the stigmatizing events.

The current study sought to examine whether locally adaptive and maladaptive coping strategies mediated the relationship between weight-based stigmatizing experiences and depression. Additionally, based on prior research suggesting gender differences in coping responses and their relationship with depression (Puhl & Brownell, 2006), the current study examined whether gender moderated the potential relationship between positive self-talk and depression, and avoidance coping and depression. The current study also sought to examine if dispositional optimism moderated the relationship between weight stigma and depression. Lastly, the present study examined the relationship between dispositional optimism and amount of adaptive coping used.

Of primary interest in this investigation was the potential for coping responses to mediate the relationship between weight stigma and depression. In order for mediation to occur, four necessary preconditions for mediation were examined. For condition one to be met, stigmatizing experiences must be associated with depression. Consistent with previous research (Myers & Rosen, 1999, Puhl & Heuer, 2009), this study found that experiencing greater stigmatizing events was associated with greater reports of depressive symptoms. Similar relationships have been documented in other discriminated populations as well, e.g. Hispanic Americans,
homosexual adults, and impoverished women (Finch, Kolody, Vega, 2000; Mays & Cochran, 2001; Belle & Doucete, 2003). It is plausible that stigma leads to an internalization of the belief that one is not adequate, in turn, contributing to greater depression. For example, among persons diagnosed with AIDS greater internalized stigma was positively associated with greater depressive symptoms (Simbayi, et al., 2007). Regarding weight stigma, weight-related teasing and negative comments by others may result in greater internalization of the belief that one is flawed or inferior. In addition, research has shown that the experience of weight stigma can lead to other correlates of depression, such as low self-esteem and poor body image (Puhl & Heuer, 2009).

For condition two to be met, stigmatizing experiences must be associated with coping. Results from this study indicate that individuals who experienced more weight stigma utilized more adaptive and maladaptive coping responses. Specifically, greater reports of stigmatizing experiences were positively associated with adaptive coping as a whole. More specifically, localized adaptive coping strategies including, positive self-talk, positive responses, and seeking therapy were also positively related. Greater reports of stigmatizing experiences were also positively associated with reports of maladaptive coping. Localized maladaptive coping mechanisms including avoidance and crying were also positively related greater reports of stigmatizing experiences.

For condition three to be met, coping must be associated with depression. As expected, the global maladaptive coping responses subscale, as well as individual maladaptive coping responses, was significantly and positively related to depression. Specifically, individuals reporting greater avoidance, and crying also reported significantly higher levels of depression. Contrary to initial hypotheses however, the global adaptive coping subscale as well as individual
adaptive coping responses (Positive self talk, Positive responses, and Seeking therapy) were actually associated with reports of greater depression in this sample.

While unexpected, these findings are not entirely without explanation. First, due to the cross sectional nature of this study, it is difficult to untangle the temporal co-occurrence of depression, coping, and stigmatizing experiences. For example, if coping occurred in close proximity to a stigmatizing situation, increased adaptive coping could reflect a mobilizing effect. In other words, it may take time for adaptive coping to lead to a reduction in depression. In contrast, it may be that adaptive coping is ineffective at reducing the negative impact of stigmatizing events on depression. As such, the coping response is not locally adaptive.

It is also plausible that a person’s level of depression could influence their recollection of stigmatizing events, that is, individuals who are depressed could experience a heightened recall of their stigmatizing experiences as well as their attempts to cope with them. For example, one study found that among African American and non-white Hispanic respondents, perceptions of discrimination were strongly correlated with their level of psychological distress (Taylor & Turner, 2002). However, the cross sectional nature of the current study limits our understanding of the influence depression had on perception of weight stigma in this sample.

Research has shown that one possible mediator of coping adaptiveness is perceived coping efficacy, that is how effective the person believes his or her coping response will be in mitigating negative consequences. One study examining the relationship between coping and mental health, found that in absence of perceived coping efficacy, coping strategies, even those that were adaptive, actually increased emotional distress (Aldwin & Revenson, 1987). Unfortunately, the current study did not examine participants’ perceived coping efficacy. Doing
so may have shed light on the positive relationship between adaptive coping responses and depression in this sample.

In addition, some research suggests that the act of coping itself could lead to negative consequences for some. Aldwin and Revenson (1987) found that the shear effort of coping may be linked to greater psychological distress. They discovered that under certain circumstances, using minimal effort to cope may be highly adaptive. In some circumstances, minimal efforts to cope, if appropriate to the situation, can reduce the negative consequences of stress without taxing an individual’s psychological resources. Again, measuring the effort involved in adaptive and maladaptive coping responses were not assessed in this study. However an examination of coping effort might shed light on the somewhat unusual relationship between adaptive coping and depression.

Due to the nature of individual personalities and overall dispositions, Carver, Sheier, and Weintraub (1989) suggest that coping responses utilized by individuals very greatly from situation to situation, as well as over time, and that the outcomes (e.g. less depression) of using adaptive or maladaptive coping styles may be difficult to discern. Nevertheless, despite some unexpected findings, the results from this investigation may aid investigators attempting to understand how to better mitigate negative consequences of weight stigma. It appears that there are consistent relationships between the way in which an individual copes and their level of depressive symptoms.

For condition four to be met, the relationship between weight stigma and depression must be significantly reduced when the affect of coping is taken into account. It was hypothesized that maladaptive coping (negative responses, negative self-talk, crying, and avoidance) would mediate the relationship between depression and weight stigma. As expected, maladaptive
coping did mediate the relationship. In other words, the association between weight stigma and depression was accounted for by the participants’ use of maladaptive coping responses. Interestingly, adaptive coping also mediated the relationship between weight stigma and depression but in a direction contrary to the initial hypotheses.

Beyond the more general adaptive and maladaptive coping styles, locally adaptive or action-oriented, situation specific strategies were also examined as mediators in the relationship between weight stigma and depression. None of the locally adaptive coping responses significantly mediated the relationship between weight stigma and depression. These findings indicate that while adaptive responses as a whole mediate the relationship between weight stigma and depression, when examined individually, these specific coping responses did not. This may be indicative of the necessity for using a variety of adaptive coping methods in response to the experience of weight stigma. It appears that any one single method of coping (e.g. Positive Self-Talk alone) has little effect on the relationship between weight stigma and coping. Regarding, locally maladaptive coping responses only, avoidance positively and significantly mediated the relationship between weight stigma and depression. These findings would appear to indicate that avoidance strategies provide little relief for the negative impact of stigmatizing situations on depression.

It is interesting to note that many locally adaptive and maladaptive coping responses were not mediators of the relationship between weight stigma and depression. A difficulty in discerning the effectiveness of various locally adaptive or maladaptive coping strategies may result from methodological issues surrounding the nature of the questions posed regarding coping. For example, one question asked participants to identify how often they remind themselves that they are a good person and that people like them just the way they are. However,
this coping response could be carried out in many different ways. For example, one person may take time to look in a mirror and tell themselves that they are a good person, while another may write these positive self statements in a journal, while yet another person may quickly tell him or herself in passing that they are a good person. Aldwin and Revenson (1987) argue that individual differences in coping likely explain why many studies have difficulty determining the effectiveness of a given coping response.

Omissions in identifying locally adaptive and maladaptive coping responses may also explain the null findings. This study utilized only one part of one measure of coping. It is possible that participants may have been using other locally adaptive or maladaptive coping responses that could have mediated the relationship between weight stigma and depression. For example distraction, seeking advice from others, and using physical exercise have all been presented as local coping mechanisms that were not examined in this study (Skinner, Edge, Altman, and Sherwood, 2003).

This investigation also hypothesized that gender would moderate the relationship between positive self-talk and depression and avoidance coping and depression. While there was no evidence of moderation, these results should be viewed with extreme caution, given that the study had an overwhelmingly female (79.6%) sample, and was greatly underpowered to detect such relationships. While not examined in the current study, previous research has shown that sources of stigma for men and women may affect their self-esteem and level of distress differently, with women who experience weight stigma from loved ones, and men who experience weight stigma from their sons, having decreased self esteem as a result (Puhl and Brownell, 2006). It may be important to understand the source of the stigma when attempting to determine whether gender moderates coping on psychological outcomes.
It was also hypothesized that optimism would moderate the relationship between weight stigma and depression, such that greater optimism would minimize the impact of weight stigma on depressive symptoms. Again, optimism did not moderate this relationship. This finding is surprising, considering the array of research suggesting that individuals who experience distressing events (such as weight stigma) and are optimistic, are less likely to experience negative mental and physical health consequences (Chen & Matthews 2003; Scheier et al. 2001). Perhaps, there are limits to the palliative effects of optimism on psychological outcomes in response to personally sensitive harms, such as comments about one’s weight, etc..

In addition, social desirability may have influenced the findings in this investigation. Research suggests that individuals view pessimism as socially unacceptable (Helweg-Larsen, Sadeghian, & Webb, 2002). Therefore, some participants in this study may have overestimated their optimism. For example, individuals in this study were slightly more optimistic than overweight or obese persons in other studies ($M=21.71, SD=7.17$ versus $M=14.7, SD=4.8$). Whether the null findings are a function of this samples naturally high level of optimism, or of a social desirability bias, is unknown. Also, it is possible that while this study assessed dispositional optimism, situational variations exist (e.g., some people while generally optimistic, are not optimistic about overcoming the effects of weight stigma), and for some people, optimism does not buffer the effects stigmatizing situations on depression. Alternatively, while viewed as an adaptive trait, it is possible that trait optimism is not locally adaptive at ameliorating the effects of stigma on depression.

**Limitations**

Despite the significant findings with regard to weight stigma, depression, and coping, several limitations in the current study should be addressed. The small and relatively
A homogenous sample (e.g. primarily female and Caucasian) inhibits generalizability of this study’s results to more widespread populations. The nature of the participants, being overweight and obese treatment seeking adults, makes generalizability of results to non-treatment seeking persons difficult. Relationships between weight stigma, depression, and coping should be examined with more diverse samples, including those not attempting to lose weight.

Participants in this study reported experiencing a smaller amount of stigma than previously reported (Myers and Rosen, 1999, Puhl & Brownell, 1996). However, some participants in this study were overweight, not obese, and therefore likely experienced less weight stigma. The amount of stigma experienced by these individuals may make results less generalizable to individuals who report more frequent experiences of weight stigma.

Finally, several subscales of adaptive and maladaptive coping evidenced poor internal consistency. Self love, being visible, using negative self-talk, and negative responses were all excluded from mediation analyses due to low alpha levels. Despite having adequate internal consistencies in other studies (Myers & Rosen, 1999), it appears that participants did not endorse items within the subscale similarly. Had these subscales evidenced appropriate internal consistency, additional relationships between stigma, coping, and depression may have been uncovered.

Implications

Results from this study show the importance of identifying what factors can mitigate the negative consequences of experiencing bias and discrimination because of one’s weight. With a majority of the U.S. population being overweight or obese, it is important to learn more about the negative effects these attitudes and biases may have on individuals. Research on coping with weight stigma will likely be beneficial to the great number of individuals who experience bias
and discrimination because of their size. Designing interventions that target individual coping strategies with weight stigma may help individuals to avoid depression, poor body image, and low self-esteem. Future research would benefit from an examination of adaptive and maladaptive coping over time, in order to determine more appropriately what responses are beneficial to individuals experiencing weight stigma. Studying locally adaptive and maladaptive coping responses using other validated measures that examine situation specific coping mechanisms would also further the existing research on weight stigma and coping. Finally examining other types of coping as mediators in the relationship between weight stigma and depression would also help further our understanding of the complex relationship between one’s coping responses and their level of distress a result.

Weight stigma has been called the last acceptable form of discrimination in the U.S. Researchers are beginning to bring to light the negative effects that overweight and obese individuals are experiencing as a result of being stigmatized, as well as the mediating effects that coping responses can have on ones experience of depression resulting from weight stigma. Continued study in this area is greatly needed in order to provide more information on how to counteract the negative effects of weight stigma, as well as to begin to form interventions directed at people who hold these negative beliefs about overweight and obese individuals.
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Table 1: 
*Demographic Characteristics*

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<td>Value</td>
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<td>75,000+</td>
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**Race**

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<td>3.6</td>
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Table 2: Stigmatizing Situations, Coping Responses, Depression, Optimism

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<td>Coping Responses (total)</td>
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<td>2.44</td>
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<td>.87</td>
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<td>.23</td>
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<td>.54</td>
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Note: * = not used in analyses due to low alpha level
Table 3: 
*Correlations among Coping Responses*

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<th>PST</th>
<th>PR</th>
<th>OPP</th>
<th>ST</th>
<th>MC</th>
<th>Avoid</th>
<th>Cry</th>
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<td>AC</td>
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<td>PST</td>
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<td>PR</td>
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<td>1.00</td>
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<td>ST</td>
<td>.41*</td>
<td>.30*</td>
<td>.23</td>
<td>.29*</td>
<td>.06</td>
<td>1.00</td>
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<td>AV</td>
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<td>-.06</td>
<td>.37**</td>
<td>.59**</td>
<td>.61**</td>
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</table>

*Note. AC= Adaptive Coping, PST= Positive Self-talk, PR= Positive Responses, SL= Self love, OPP= Seeing the situation as the other persons’ problem, ST= Seeking therapy, BV= Being visible, MC= Maladaptive Coping, NR= Negative Responses, NST= Negative Self-talk, AV= Avoid; * = p≤.05; ** = p≤.01*
<table>
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<th>Stigmatizing Experiences</th>
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<td>Positive Self-talk</td>
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<tr>
<td>Positive Responses</td>
<td>.33*</td>
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<tr>
<td>See Situation as Others Problem</td>
<td>.05</td>
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<td>Seeking Therapy</td>
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</tr>
<tr>
<td>Maladaptive Coping</td>
<td>.68**</td>
</tr>
<tr>
<td>Avoidance</td>
<td>.71**</td>
</tr>
<tr>
<td>Crying/Isolating</td>
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</table>

*Note. * = p≤.05; ** = p≤.01*
Table 5: 
*Correlations between Potential Mediators and Depression*

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<td>See Situation as Others Problem</td>
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<td>Seeking Therapy</td>
<td>.34*</td>
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<td>.45**</td>
</tr>
<tr>
<td>Avoidance</td>
<td>.43**</td>
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<tr>
<td>Crying/Isolating</td>
<td>.33*</td>
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</tbody>
</table>

*Note. * = p ≤ .05; ** = p ≤ .01*
Table 6:
Effect of Stigmatizing Experiences on Depression when Coping is Included as a Mediator

<table>
<thead>
<tr>
<th></th>
<th>β&lt;sup&gt;a&lt;/sup&gt;</th>
<th>t</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stigmatizing experiences</td>
<td>.18&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.29</td>
<td>.10</td>
</tr>
<tr>
<td>Coping</td>
<td>.38&lt;sup&gt;**&lt;/sup&gt;</td>
<td>2.66</td>
<td>.01</td>
</tr>
<tr>
<td>Stigmatizing experiences</td>
<td>.29&lt;sup&gt;b*&lt;/sup&gt;</td>
<td>2.24</td>
<td>.02</td>
</tr>
<tr>
<td>Adaptive Coping</td>
<td>.29&lt;sup&gt;*&lt;/sup&gt;</td>
<td>2.21</td>
<td>.02</td>
</tr>
<tr>
<td>Stigmatizing experiences</td>
<td>.30&lt;sup&gt;b*&lt;/sup&gt;</td>
<td>2.34</td>
<td>.01</td>
</tr>
<tr>
<td>Positive Self-talk</td>
<td>.30&lt;sup&gt;*&lt;/sup&gt;</td>
<td>2.36</td>
<td>.02</td>
</tr>
<tr>
<td>Stigmatizing experiences</td>
<td>.32&lt;sup&gt;b*&lt;/sup&gt;</td>
<td>2.37</td>
<td>.01</td>
</tr>
<tr>
<td>Positive Responses</td>
<td>.20</td>
<td>1.49</td>
<td>.07</td>
</tr>
<tr>
<td>Stigmatizing experiences</td>
<td>.38&lt;sup&gt;**&lt;/sup&gt;</td>
<td>2.96</td>
<td>.01</td>
</tr>
<tr>
<td>See Situations as Other’s Problem</td>
<td>.06</td>
<td>.47</td>
<td>.32</td>
</tr>
<tr>
<td>Stigmatizing experiences</td>
<td>.29&lt;sup&gt;b*&lt;/sup&gt;</td>
<td>2.01</td>
<td>.03</td>
</tr>
<tr>
<td>Seeking Therapy</td>
<td>.19</td>
<td>1.32</td>
<td>.10</td>
</tr>
<tr>
<td>Stigmatizing experiences</td>
<td>.15&lt;sup&gt;b&lt;/sup&gt;</td>
<td>.87</td>
<td>.20</td>
</tr>
<tr>
<td>Maladaptive Coping</td>
<td>.35&lt;sup&gt;*&lt;/sup&gt;</td>
<td>2.05</td>
<td>.03</td>
</tr>
<tr>
<td>Stigmatizing experiences</td>
<td>.17&lt;sup&gt;b&lt;/sup&gt;</td>
<td>.96</td>
<td>.09</td>
</tr>
<tr>
<td>Avoidance</td>
<td>.30</td>
<td>1.67</td>
<td>.05</td>
</tr>
<tr>
<td>Stigmatizing experiences</td>
<td>.29&lt;sup&gt;b*&lt;/sup&gt;</td>
<td>2.10</td>
<td>.03</td>
</tr>
<tr>
<td>Crying/Isolating</td>
<td>.23</td>
<td>1.63</td>
<td>.06</td>
</tr>
</tbody>
</table>

Note.
<sup>a</sup> Standardized
<sup>b</sup> relationship between IV and DV decreased when potential mediator was added
<sup>+</sup> = p<.10; <sup>*</sup> = p≤.05; <sup>**</sup> = p≤.01
Appendix A. Structure of Coping (Skinner, E., Edge, K., Altman, J., & Sherwood, H., 2003)

Note: The figure runs off both sizes of the page indicating that there is not a fixed number of adaptive processes, families of coping, ways of coping, or coping instances.
Appendix B. Stigmatizing Situations Inventory (Myers & Rosen, 1999)

Part A: Stigma Situations

Below is a list of situations that people encounter because of their weight. Indicate whether, and how often, each of these situations happens to you. In the spaces below, write the number which best describes how often you encounter each situation. Use the scale below:

Never --- 0 --- Once in your life --- 1 --- Several times in your life --- 2 --- About once per year --- 3 --- Several times per year --- 4 --- About once a month --- 5 --- Several times a month --- 6 --- About once per week --- 7 --- Several times a week --- 8 --- Daily --- 9

___ 1. A child coming up to you and saying something like, "You're fat!"
___ 2. A doctor blaming unrelated physical problems on your weight.
___ 3. A parent or other relative nagging you to lose weight.
___ 4. A spouse/partner calling you names because of your weight.
___ 5. A spouse/partner telling you to lose weight in order to be more attractive.
___ 6. As an adult, having a child make fun of you.
___ 7. Being called names, laughed at, or teased by other children when you were young.
___ 8. Being glared at or harassed by bus passengers for taking up "too much" room.
___ 9. Being hit, beaten up or physically attacked because of your weight.
___ 10. Being offered fashion advice from strangers.
___ 11. Being passed up for a promotion, given bad assignments, or otherwise discriminated against at work.
___ 12. Being sexually harassed (cat-calls, wolf-whistles, etc.) because of your weight.
___ 13. Being singled out as a child by a teacher, school nurse, etc. because of your size.
___ 15. Being the only heavy person, or the heaviest person, at a family gathering.
___ 16. A doctor saying that your weight is a health problem, even when you are in good health.
___ 17. Being told, "All you really need is a little willpower."
___ 18. Being unable to get a date because of your size.
___ 19. Children loudly making comments about your weight to others.
___ 20. Friends, acquaintances, co-workers, etc. making fun of your appearance.
___ 21. Groups of people pointing and laughing at you in public.
___ 22. Having a doctor make cruel remarks, ridicule you, or call you names.
___ 23. Having a doctor recommend a diet even if you did not come in to discuss weight loss.
___ 24. Having a romantic partner exploit you, because s/he assumed you were "desperate" and would put up with it.
25. Having a spouse or partner be ashamed to admit to being with you.
26. Having family members feel embarrassed by you or ashamed of you.
27. Having friends not notice weight loss, or not encourage your efforts to lose weight.
28. Having people assume that you overeat or binge-eat because you are overweight.
29. Having people assume you have emotional problems because you are overweight.
30. Having strangers suggest diets to you.
31. Having strangers take photographs of you, as if you were an exhibit.
32. Having your children tease or insult you because of your weight.
33. In the supermarket, having people criticize or make comments about your food choices.
34. Losing a job because of your size.
35. Not being able to find clothes that fit.
36. Not being able to find medical equipment in a size that works for you.
37. Not being able to find sports equipment in a size that fits you.
38. Not being able to fit into bus or airplane seats, into small cars, or into standard seatbelts.
39. Not being able to fit into seats at restaurants, theaters, and other public places.
40. Not being able to fit through turnstiles, on amusement park rides, or other places not already mentioned.
41. Not being hired because of your weight, shape, or size.
42. Other people having low expectations of you because of your weight.
43. Overhearing other people making rude remarks about you in public.
44. Parents or other relatives telling you how attractive you would be, if you lost weight.
45. People telling you that you will never find a partner if you don't lose weight.
46. Seeing bumper stickers, t-shirts, advertising, etc. that ridicules fat people.
47. Strangers asking intrusive, personal questions about your weight.
48. Strangers making abusive remarks to you (e.g. saying you are disgusting, or that you don't deserve to live).
49. When eating in public, being told “You really shouldn't be eating that.”
50. When walking outside, having people drive by and laugh or shout insults.
Appendix C. Coping Responses Inventory (Myers & Rosen, 1999)

**Part B: Responses to Stigma Situations**

The following are some strategies people use in order to deal with negative situations related to their weight. For example, someone who hears an insult about her appearance may make herself feel better by insulting the person back.

Using the scale below, please indicate whether, and how often, you have used each of the following strategies to cope with the sorts of situations listed above. (If none of the situations listed in Part A has ever happened to you, please do not complete this section.)

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Once in your life</th>
<th>Several times/yr.</th>
<th>About once/month</th>
<th>Several times/mo.</th>
<th>About once/wk.</th>
<th>Several times/wk.</th>
<th>Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I act polite to everyone, even if they are not polite to me.</td>
<td></td>
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<tr>
<td>2</td>
<td>I avoid going out in public because I am afraid people will make comments about my size.</td>
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<tr>
<td>3</td>
<td>I avoid looking in the mirror so that I don’t have to think about my weight.</td>
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<tr>
<td>4</td>
<td>I avoid places where I might have a hard time finding a place to sit because of my size.</td>
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<tr>
<td>5</td>
<td>I challenge negative thoughts that I have about myself.</td>
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<tr>
<td>6</td>
<td>I change doctors in order to find one who is more sensitive about my weight.</td>
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<tr>
<td>7</td>
<td>I cry about it, then get over it.</td>
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<tr>
<td>8</td>
<td>I divorce/break up with spouses/partners who are critical of my size.</td>
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<tr>
<td>9</td>
<td>I do physical activity in order to feel more comfortable in my body.</td>
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<tr>
<td>10</td>
<td>I do something nice for myself to make me feel better.</td>
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<td>11</td>
<td>I feel really bad about myself.</td>
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<tr>
<td>12</td>
<td>I get depressed and isolate myself.</td>
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<tr>
<td>13</td>
<td>I get rid of clothing that I have outgrown.</td>
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<tr>
<td>14</td>
<td>I go to therapy to get help dealing with these situations.</td>
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<tr>
<td>15</td>
<td>I hang up on people who are being rude on the telephone.</td>
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<td>16</td>
<td>I just say hello and am friendly.</td>
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<td>17</td>
<td>I let people know that I am a good person who does not deserve their unkind remarks.</td>
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<tr>
<td>18</td>
<td>I love myself, even when it seems like other people don't.</td>
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<td></td>
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<tr>
<td>19</td>
<td>I make a point of not hiding my body.</td>
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<tr>
<td>20</td>
<td>I politely tell people when they hurt my feelings.</td>
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<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
Never | Once in | Several times | About | Several | About once | Several | About | Several | Daily

your life. | in your life | once/yr. | times/yr. | a month | times/mo. | once/wk. | times/wk.

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21. I do something to prove to people that I am just as worthy and capable as they are.
22. I put myself and my needs before other people's.
23. I quit jobs where I encounter stigma or discrimination.
24. I refuse to restrict my activities just because I might not fit in or might attract attention.
25. I regard people who have problems with overweight as small-minded and childish.
26. I remind myself that I am a good person and people like me just the way I am.
27. I remind myself that I am trying to lose weight, and better days are ahead.
28. I think, "I don't care what others think of me; it only matters that I like myself."
29. I remind myself that I have not done anything wrong; my size is not my fault.
30. I remind these people that I am a human being.
31. I try to shame them with a statement like, "Do you have a staring problem?"
32. I stop associating with people who put me down because of my size.
33. I swear at people or give them "the finger".
34. I talk to a counselor or social worker.
35. I tell people it's not right to make remarks about my size.
36. I tell the other person off.
37. I think that the situation proves I am really unattractive.
38. I think that no one has the right to judge me.
39. I think that no one will ever love me because of my weight.
40. I think these other people are very insecure about themselves if they need to insult me.
41. I think to myself that it is my fault that I am fat.
42. I think to myself: "It's who I am on the inside that matters."
43. I treat myself to new clothes that look good on me.
44. I try to make friends with people who are making fun of me.
45. I try to think about good things that have happened to me.
46. I work at home or out of public view in order to avoid people who might be critical.
47. I yell at people who try to humiliate me.
48. If my spouse/partner is being critical, I ask him/her, "Then why don't you leave?"
49. If people do not like me because of my size, I see it as their loss, not mine.
50. If someone has a problem with how I look, I see it as their problem, not mine.
51. If someone is staring at me, I stare back.
___ 52.a If someone tries to make me feel inferior, I remind myself that I do not deserve this.
___ 53.c I shock people by doing things “Fat people shouldn't do.”
___ 54.a When I feel hurt or down, I tell myself it won't last forever.

Note:  a = Positive Self-Talk, b = Positive Responses, c = Being Visible, d = Self-Love,
       e = Seeing Situation as Other Persons’ Problem, f = Seeking Therapy,
       g = Negative Self-Talk, h = Negative Responses, i = Avoiding, j = Crying
Appendix D. The Life Orientation Test- Revised (LOT-R) (Scheier, Carver, Bridges, 1994)

Please be as honest and accurate as you can throughout. Try not to let your response to one statement influence your responses to other statements. There are no "correct" or "incorrect" answers. Answer according to your own feelings, rather than how you think "most people" would answer.

A = I agree a lot  
B = I agree a little  
C = I neither agree nor disagree  
D = I DISagree a little  
E = I DISagree a lot

1. In uncertain times, I usually expect the best.  
2. It's easy for me to relax.  
3. If something can go wrong for me, it will.  
4. I'm always optimistic about my future.  
5. I enjoy my friends a love  
6. It's important for me to keep busy.  
7. I hardly ever expect things to go my way.  
8. I don't get upset too easily.  
9. I rarely count on good things happening to me.  
10. Overall, I expect more good things to happen to me than bad.
Appendix E. Center for Epidemiological Studies Depression Scale (Radloff, 1977).

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

### During the Past Week

<table>
<thead>
<tr>
<th></th>
<th>Rarely or none of the time (less than 1 day)</th>
<th>Some or a little of the time (1-2 days)</th>
<th>Occasionally or a moderate amount of time (3-4 days)</th>
<th>Most or all of the time (5-7 days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I was bothered by things that usually don’t bother me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>I did not feel like eating; my appetite was poor.</td>
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<tr>
<td>3.</td>
<td>I felt that I could not shake off the blues even with help from my family or friends.</td>
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<tr>
<td>4.</td>
<td>I felt I was just as good as other people.</td>
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<tr>
<td>5.</td>
<td>I had trouble keeping my mind on what I was doing.</td>
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<tr>
<td>6.</td>
<td>I felt depressed.</td>
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<tr>
<td>7.</td>
<td>I felt that everything I did was an effort.</td>
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<tr>
<td>8.</td>
<td>I felt hopeful about the future.</td>
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<tr>
<td>9.</td>
<td>I thought my life had been a failure.</td>
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<tr>
<td>10.</td>
<td>I felt fearful.</td>
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<tr>
<td>11.</td>
<td>My sleep was restless.</td>
<td></td>
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<tr>
<td>12.</td>
<td>I was happy.</td>
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<tr>
<td>13.</td>
<td>I talked less than usual.</td>
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<td>15.</td>
<td>People were unfriendly.</td>
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<tr>
<td>16.</td>
<td>I enjoyed life.</td>
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<tr>
<td>17.</td>
<td>I had crying spells.</td>
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<tr>
<td>18.</td>
<td>I felt sad.</td>
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<tr>
<td>19.</td>
<td>I felt that people dislike me.</td>
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<tr>
<td>20.</td>
<td>I could not get “going.”</td>
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<td></td>
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</tbody>
</table>