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WEIGHT TEASING AMONG OBESE YOUTH: SOCIAL FUNCTIONING OUTCOMES
FOLLOWING A PEDIATRIC WEIGHT MANAGEMENT INTERVENTION

A Dissertation
presented in partial fulfillment of requirements
for the degree of Doctor of Philosophy
in the Department of Psychology
The University of Mississippi

by

JOSEPH MITCHELL MAGNESS

December 2018

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ABSTRACT

The prevalence of excess weight and obesity among children and adolescents in the United States continues to increase. Aside from the different effects weight has on a person's physical and psychological well-being, obese youth often experience poorer social functioning than normal weight peers. Weight teasing is among those highlighted social difficulties. Pediatric weight management program interventions have been shown to improve health-related quality of life (HRQoL) across domains for obese youth. However, few studies have examined the impact of weight management interventions on social quality of life for those with a history of weight teasing. The present study aimed to determine social functioning and weight improvements obese youth with and without a history of weight teasing following a weight management intervention. Baseline differences in teasing and social functioning were also highlighted. Results of this study indicated that treatment-seeking obese youth with a history of weight teasing exhibited poorer social quality of life at baseline compared to those who denied teasing. Results also indicated that a weight management intervention can be effective for improving social functioning and weight status among obese youth. Social functioning and weight status improvements from baseline to 1-year follow-up did not differ between those enrolled in individual-based and group-based interventions. Improvements in social functioning and weight status between obese youth who denied or endorsed weight teasing and were either enrolled in the group-based or individual-based track did not differ significantly between groups. Overall, this study demonstrates that pediatric weight management is effective for improving quality of life and weight among obese youth, specifically obese youth who report a history of being teased

for their weight. While they do not improve significantly more than their counterparts, intervention can be effective for improving their weight status and social functioning. Implications for these data are discussed.

DEDICATION

This work is dedicated to any person who has ever been treated poorly because of their weight. I hope that it can be a release from the wounds of painful rejection and avoidance. I also dedicate this work to anyone who has ever mistreated others for their weight. I hope that these words will ultimately change your thoughts and actions. Finally, this work is an open letter to a larger community. As it endeavors to highlight biases and unfair treatment against people deemed undesirable to the world, I hope these words are a small step toward change. While we fight to improve health and excess weight, we must acknowledge that weight teasing plays a role in its progression. We must work together as a community and cannot let judgements and unfair treatment divide us and deter our possible advances.

LIST OF ABBREVIATIONS AND SYMBOLS

HRQoL Health-related Quality of Life

BMI Body Mass Index

PedsQL Pediatric Quality of Life Inventory

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I. INTRODUCTION

Over the past two decades, the incidence of overweight and obese children continues to increase (Hedley, Ogden, Johnson, Carroll, Curtin, & Flegal, 2004). The prevalence of pediatric obesity has nearly tripled for youth between the ages of 12 to 19 years and more than tripled for children between 6 and 11 years of age (Hales, Carroll, Fryar, & Ogden, 2017; Wang & Beydoun, 2007). The most recent estimated prevalence of obesity among children ages 2 to 19-years-old ranges between 18.5% to 31.8% (Hales et al., 2017). Additionally, roughly 5.9% of children are considered severely obese, or have a body mass index (BMI) greater than the 99th percentile. Given the current trend, research estimates predict that more than 70 million children worldwide will be classified as obese by 2025 (Ng et al., 2014). Additionally, racial and ethnic differences in excess weight have been observed among children and adolescents. Youth from racial and ethnic minority groups represent a larger percentage of overweight and obese youth (Kumanyika & Grier, 2006). Economic attainment may also be a contributing factor given that lower socioeconomic status is associated with higher BMI (Ball & Crawford, 2005; Gordon-Larsen, Adair, & Popkin, 2003).

As a result of excess weight, obese youth experience an array of medical sequelae, including cardiovascular and respiratory difficulties, such as asthma and obstructive sleep apnea, (Calderon, Yucha, & Schaffer, 2005; Gidding, Nehgme, Heise, Muscar, Linton, & Hassink, 2004), insulin resistance and other endocrine disorders, including Type II diabetes, (Quattrin, Liu, Shaw, Shine, & Chiang, 2005; Young-Hyman, Schlundt, Herman, De Luca, & Counts,

2001) and chronic pain (Marcus, 2004). Intervention is essential during childhood and early adolescence given that the rate for developing chronic medical conditions at an earlier age is increasing and due to the fact that there is a higher risk for adult morbidity and mortality (Heinberg & Thompson, 2009; Jelalian & Hart, 2009; Must & Strauss, 1999). In addition to the variety of medical and physical difficulties, poorer mental health, such as higher incidence of depression and anxiety and lower self-esteem, is seen among those with excess weight (Pulgaron, 2013). Children who are obese are also more likely to be found to have symptoms of Attention-Deficit/Hyperactivity Disorder compared to normal weight peers as a result of their behavioral dysregulation extending into their eating habits (Agranat-Meged et al., 2005; Kim et al., 2011).

As a result of the various medical and psychological complications obese youth experience, they have also been shown to have an overall decreased health-related quality of life (HRQoL; Schwimmer, Burwinkle, & Varni, 2003). HRQoL is a subjective appraisal of one's functioning across multiple domains, including physical, emotional, and social aspects and can be used a measurement of individual functioning (Naughton & Shumaker, 2003). Children and adolescents who are obese or overweight demonstrate impaired overall functioning compared to normal weight peers from community samples (Tsiros et al., 2009). Obese youth also report poorer physical, emotional, and social functioning compared to normal weight peers (Pinhas-Hamiel, Singer, Pilpel, Fradkin, Modan, and Reichman, 2006). One particular factor that may influence a diminished quality of life is weight teasing, which specifically impacts emotional and social functioning (Latner & Schwartz, 2005). Therefore, it is important to understand how obese youth are affected by weight teasing and its impact on their quality of life.

Origins of Weight Teasing

Teasing is broadly defined as personal communication by an agent to a target that combines elements of aggression, humor, and ambiguity (Shapiro, Baumeister, & Kessler, 1991). With regards to teasing against children and adolescents who are overweight and obese, teasing is frequently directed at one's appearance, specifically one's weight status (Cash, 1995; Mooney, Creeser, & Blatchford, 1991; Thompson, Cattarin, Fowler, & Fisher, 1995). For many individuals, teasing based on weight often involves comments or jokes, name calling, or statements about incompetence and can come from family members, close friends, peers, or strangers (Hayden-Wade et al., 2005).

Weight teasing often involves and is commonly viewed as a behavioral derivative of weight bias. Overall, weight bias is defined as any negative attitude or belief about obesity and/or obese persons that has a detrimental effect on one's relationships with all individuals, regardless of weight (Puhl & Brownell, 2007). Weight bias is a broad concept made up of smaller, distinct components: 1) prejudice, or negative affect, 2) stereotyping, or erroneous cognitions, and 3) discrimination, or unfair treatment. (Lee, Rheanna, & Brannick, 2014). While separate, these ideas are also closely related to one another. *Weight prejudice* is characterized by a negative affect and displayed through the ascription of negative qualities, such as laziness, incompetency, and sloppiness (Crandall, 1994; Crandall & Eshleman, 2003). While prejudice relates to negative emotion, *weight stereotyping* is more reflective of inaccurate beliefs about obesity, such as the etiology and maintenance of the condition (Allison, Basile, & Yucker, 1991). For example, individuals who exhibit more bias believe that obesity is caused by behaviors (e.g., emotional eating, lack of exercise, etc.) rather than a combination of factors involving genetics, environment, and behavior (Allison et al., 1991). Given that bias presents as both false ideas

about obesity (e.g., not being physically active) and negative emotion (e.g., fat people are lazy), the two become hard to differentiate and ultimately impact one's behavior. Therefore, *weight discrimination*, as a product of both affect and cognition, directly refers to the negative actions toward overweight and obese individuals (Allon, 1982). Negative treatment based on weight has been substantially documented from multiple sources including the media, education, employment, healthcare, and even friends and family members (Puhl & Brownell, 2001). Weight teasing is an example of this negative treatment (e.g., saying someone should not eat another piece of pizza, should change clothing because their stomach is showing, using a nickname such as "cheeseburger" because it is a favorite food, etc.) and is an example of discrimination because it is based on a characteristic that is mostly outside of the control of the person. Given the interaction between these constructs and their pervasive nature, it is important to understand how obese individuals, specifically youth, are impacted by weight discrimination in the form of teasing.

Numerous theories proposing the origins of weight-based maltreatment exist in the current literature, and likely extend to understanding weight teasing. While all theoretical positions are relevant in the discussion of weight bias, only the most researched and apparent in the literature will be addressed in detail.

Attributional theory posits that people seek out information as a justification for, or cause of, a behavior or an event (e.g., Heider, 1958), while ignoring contradictory information. Attributions mostly operate off negative beliefs about obesity and result in negative attitudes toward obese individuals (Crandall, 1994). Specifically, attributional theory reinforces the belief that weight is largely under the control of the individual (Weiner, Perry, & Magnusson, 1988). Unfortunately, bias holders tend to use the behaviors of bias targets to justify their beliefs

(Lerner, 1989). For example, if an obese child is seen taking an elevator rather than taking the stairs, the observer might attribute this choice to laziness rather than an inability to take the stairs due to joint pain. As such, attributions allow alternative information to be ignored (Allison et al., 1991). The child's behavior, in addition to the negative attribution, justifies the belief. In another example, if a teenage youth observes an obese peer being teased in the school hallway and, in turn, begins crying, the observer is likely to justify the teasing because it operates off the beliefs that obesity is caused by behavior alone, the obese individual is lazy and has poor social relationships, and therefore deserves the mistreatment due to his or her choices, and that ultimately, teasing will result in motivation to lose weight.

While attributions largely posit the formation of negative beliefs and attitudes, less attention is given to how weight bias is spread. Social consensus theories add to the literature on this issue. Social consensus, as a proposed theory of weight bias, is relatively new and, therefore, has been limitedly tested. Allport (1935) suggested that our personal beliefs are often influenced by our perceptions of the attitudes, beliefs, and behaviors of those from our ingroups. Other researchers have suggested that social consensus is important to understanding biases and stereotyping because their existence is contingent upon agreement of the stereotyped content (Devine, 1989; Gardner, 1994). This means that, without social reinforcement, stereotypes would lose their power. Also central to social consensus is group-norm theory (Sherif & Sherif, 1953). Prejudices that individuals hold are dependent on group socialization processes, such as group identity (e.g., affiliation, cohesion, etc.) and continuous interaction with the stigmatized target (Sechrist & Stangor, 2001). Most importantly, social consensus highlights how norms are communicated. For example, there is a strong correlation between parent and child attitudes based on the high degree of cohesion and affiliation shared in families (Epstein & Komorita,

1966). Social consensus is also important when considering how one perceives beliefs of media and advertisements (Sechrist & Stangor, 2001). Lastly, social conformity plays an equally important role in social consensus because it serves to validate beliefs in terms of social acceptance, group functioning, and social identity (Festinger, 1954; Hardin & Higgins, 1996). For example, the social pressure to conform might lead a peer to join in on teasing rather than standing up to the bullies.

Individual Experiences with Weight Teasing

Weight discrimination and weight teasing in particular has been documented across multiple life domains (e.g., workplace, education, interpersonal relationships, healthcare, etc.) (Puhl & Brownell, 2003). The nature of stigma can be direct/overt, or can take on an indirect form, which encompasses structural, or systematic stigma, such as public policies (e.g., public transportation, travel, eating and entertainment, insurance coverage and benefits, etc.) (Link & Phelan, 2001; O'Hara, 1996). While indirect stigma and discrimination has a significant impact on individuals, direct discrimination can result in more negative consequences.

Media. It is commonly known that the media perpetuates negative views of obesity and may be a viable source for bias reduction interventions. Negative attention and messages about obesity are two possible areas for change. The attention the media devotes to obesity has more than quadrupled since the early 2000s (cf. Cohen, Perales, & Steadman, 2005). Further, this attention, specifically an emphasis on diet and weight, has been shown to increase weight concern in nonobese individuals (Greenberg & Worrell, 2005). Another common problem is that the media also reinforces society's thin ideal through images and message content. The media's role in perpetuating the thin ideal has been demonstrated in ads emphasizing diet and weight loss and often unfairly target women (Silverstein Perdue, Peterson, & Kelly, 1986). Further, media

frequently upholds the views of personal responsibility for weight and often cites personal-level factors, such as poor food choice and lack of exercise, as causes (Boero, 2007; Bonfiglioli, Smith, King, Chapman, & Holding, 2007).

Overweight and obese individuals are underrepresented in television and movie roles, despite making up 80% of the general population (Kaufman, 1980). While this may be more covert, obese individuals are also overtly stigmatized on-screen. Obese individuals, and more often females, are portrayed as physically unattractive and having undesirable personality characteristics (Greenberg, Eastin, Hofschire, Lachlan, & Brownell, 2003; Greenberg & Worrell, 2005). This negative image of obese individuals often conveys negative attitudes such as that being fat makes one unhappy or less intelligent (Harrison, 2000; Klein & Shiffman, 2005; Latner & Schwartz, 2005). Social consensus, again, plays a role indirectly in this situation. Those exposed to weight bias through media were more likely to endorse higher rates of weight bias (Puhl, Schwartz, & Brownell, 2005). Children, both boys and girls, who consumed more mass media were more likely to show bias against obese children compared other disabled and normal weight children (Latner, Rosewall, & Simmonds, 2007). Because of the exposure children have to negative messages about weight and obese individuals, children may be more likely to endorse negative views of obese or overweight peers but to also tease them (Latner, Rosewall, & Simmonds, 2007). Thus, one source of psychological difficulty in obese and overweight youth could involve both peer victimization and internalization of the negative views reinforced by the media.

Education. Weight stigmatization has also been documented in education. Obese student are frequent targets of negative treatment in schools from many individuals (e.g., teachers, nurses, principals, peers, etc.) (Neumark-Sztainer, Story, & Faibisch, 1998). Also, obese students

often report being teased or bullied at school by peers (Neumark-Sztainer, Story, Faibisch, Ohlson, & Adamiak, 1999). This is partially attributable to the fact that obese students may have few protections from these bullies at school due to the fact that there is a high degree of contact between agents of teasing and targets and that teachers and other school officials have also endorsed negative views about obesity and often cite single factors, such as an individual's behavior and choices, as causes of obesity rather than factors that are less controllable (e.g., genetic, environmental, etc.) (Neumark-Sztainer, Story, & Harris, 1999). Shockingly, obese students have even reported receiving less financial support from their parents (Puhl & Brownell, 2003).

Medical. Sadly, bias against obese individuals is seen consistently among medical professionals. Medical physicians have endorsed views that obesity is more detrimental toward health than heavy smoking (Harvey & Hill, 2001). Physician beliefs toward the obese and found that doctors viewed obese patients as lazy and likely to be noncompliant with medical treatment (Hebl & Xu, 2001). Medical providers have also endorsed negative beliefs about the causes of obesity, including citing overeating as a compensation for attention (Maiman, Wang, Becker, & Simonson, 1979). Negative attitudes often translate into negative behaviors. Obese individuals are given more medical diagnoses compared to nonobese individuals (Sansone, Sansone, & Wiederman, 1998). Physicians and nurses touch obese patients less than normal weight individuals (Bagley, Conklin, Isherwood, Pechiulis, & Watson, 1989). They have endorsed that they prefer to spend less time with obese patients (Hebl & Xu, 2001). Physicians more often used scare tactics to inspire losing weight and often blame parents for their child's weight (Anderson & Wadden, 2004). While fortunately there is no research of direct weight teasing by physicians, there can be indirect forms. Physician and other healthcare professionals who are holders of

more weight bias have been shown to use language when working with obese patients that is offensive and stigmatizing (Puhl, Peterson, & Luedicke, 2013). This type of language may fall into the category of teasing that is ambiguous and may cause patients to avoid medical visits as a result.

Interpersonal Experiences. Similar to obese and overweight adults, children with excess weight are also targets of weight bias by other individuals. The seminal study that investigated biased beliefs about children found that children who were obese were rated as least likeable compared to average weight youth and children depicted with physical disabilities (Richardson, Goodman, Hastorf & Dornbusch, 1961). Additionally, obese and overweight youth are frequently ascribed negative labels by peers that include being lazy, sloppy, dirty, cheaters, lairs, mean, ugly, and stupid (Staffieri, 1967, 1972).

Negative attitudes have also been shown to have an impact on the relationships of obese individuals. Overweight and obese children are targets of frequent teasing and peer victimization (Janssen, Craig, Boyce, & Pickens, 2004). Further, bullying appears to differ by sex. Females are frequent targets of relational victimization (e.g., exclusion or hurtful treatment by friends), while obese boys more often experienced overt victimization in the form of teasing and physical aggression (Pearce, Boegers, & Prinstein, 2002). Obese adolescents report negative comments and teasing about weight from peers and family members and include jokes about weight or comments about diet choices and fit of clothing (Neumark-Sztainer, Falkner, Story, Perry, Hannan, & Mulert, 2002). This form of teasing has a greater impact on adolescents because of the various physical changes experienced during the developmental process and, in relation, an adolescent's sensitivity to appearance (Neumark-Sztainer & Eisenberg, 2005). While it is more

difficult to identify direct victimization in adulthood, teasing at this age appears to have a negative impact on relationships and can present in many forms.

Regardless of direct teasing or reprimand, these negative interactions have been shown to decrease one's quality of life (e.g., physically, socially, etc.) (Kolotkin, Crosby, Kosloski, & Williams, 2001). Weight teasing, regardless of age when first experienced, has been shown to lead to negative psychological adjustment and poorer coping with distress and stigma (Eisenberg, Neumark-Sztainer, & Story, 2003). Compared to normal weight peers, overweight and obese teens are more likely to report maladaptive coping strategies and ineffective weight-loss strategies (e.g., use of diet pills and laxatives and disordered eating) in response to weight teasing (Neumark-Sztainer et al., 2002). Further, these methods rarely result in effective weight-loss and can have an inverse effect where individuals actually gain weight (Field et al., 2003).

Psychological effects of weight teasing. Obese individuals experience an increased amount of psychological difficulties, including higher rates of depression, stress, anxiety, and poor self-esteem and body image (Annis, Cash, & Hrabosky, 2004; Carr & Friedman, 2005; Crocker & Garcia, 2005; Friedman et al., 2005; Puhl & Heuer, 2009). While most people believe that these negative psychological states are related to weight alone, weight stigmatizing experiences have been shown to mediate the relationship between weight and mental health (Puhl & Brownell, 2001). In fact, Major and colleagues (2014) identified perceived identity threat during stigmatizing situations to be the key factor in negative emotional reactivity and psychological disturbances. While many believe that weight status is a predictor of poor body image, weight teasing is a better predictor of body dissatisfaction than BMI (Puhl & Brownell, 2001). Youth endorse more depressive symptoms and increased suicidal ideation and suicide

attempts when teased by peers and/or family members (Eisenberg, Neumark-Sztainer, & Story, 2003).

Coping with weight teasing. Coping in particular plays a unique role in experienced weight bias and teasing. Obese individuals frequently use emotion-focused, rather than problem-focused, coping following an experience of weight bias (Lazarus & Folkman, 1984). For example, binge eating in response to stigma is frequently seen among obese individuals (Durso & Latner, 2008). Binge eating stems from internalized bias and can be problematic because it leads to weight gain, which perpetuates the experience and internalization of weight bias (Puhl, Moss-Racusin, & Schwartz, 2007). As a form of coping, internalized bias is detrimental to the obese individual because it reinforces negative emotional coping strategies and beliefs and attitudes about obesity and can negatively impact mental health (Gumble & Carels, 2012; Lewis et al., 2011). Individuals who are teased also engage in avoidance strategies in order to cope with negative interpersonal experiences and include avoiding stigmatizers and situations in which teasing is likely to occur (e.g., exercise, eating in public, grocery shopping, wearing tight clothes, etc.) (Puhl & Brownell, 2003). However, in terms of mental health impact, Puhl and Brownell (2006) have suggested that psychological health is influenced more by coping strategies rather than frequency of stigmatizing events. Positive coping (e.g., positive self-talk, religious coping, social support, etc.) is more indicative of better psychological functioning than negative strategies (e.g., social isolation/avoidance, binge eating, etc.) (Puhl & Brownell, 2006; Sobal, 2004). Given the health risks associated with increased weight status, as well as the psychological comorbidities that result from both physical and social difficulties, it is essential to intervene on weight in order to improve overall quality of life.

Childhood Obesity Interventions

Multiple approaches to pediatric weight management exist and include individual, nutrition, physical activity, behavioral, and multidisciplinary teams (Expert Committee, 2007; Jefferson, 2005; Zimetkin, Zoon, Klein, Munson, & Fitzgibbon, 2004). Those with the most evidentiary support are ones that emphasize a multidisciplinary approach, which integrates medicine, nutrition, physical therapy, and psychological specialists (Delamater, Jent, Moine, & Rios, 2008). When considering appropriate weight interventions, essential targets for success include 1) making the treatment family centered, 2) ensuring that the interventions are developmentally appropriate, 3) avoiding specific weight goals, and 4) avoiding malnutrition that may interfere with the linear growth trajectory and health of the child (Barlow & Dietz, 1998; American Academy of Pediatrics, 2003; Expert Committee 2007). Among the first steps for treatment, professionals intervene on rapid weight gain while also identifying sources of maladaptive eating patterns (e.g., nocturnal, boredom, emotional, and binge eating), meal skipping, consuming large portion sizes and second helpings, and incorporating education and behavioral intervention for changing these eating patterns (Young, 2005). However, weight maintenance, rather than weight loss, is appropriate for those youth who will continue to grow in height (Dietz and Robinson, 2005).

Medical interventions. Pharmacotherapy for weight loss is largely controversial. It is widely accepted that only adolescents who have a BMI that falls at the 95th percentile for obesity, or greater, should be considered appropriate candidates for this particular treatment (Yanovski & Yanovski, 2002). The three most common pharmacological therapies include sibutramine, orlistat, and metformin (Delamater et al., 2008). These medication interventions are reportedly successful for reductions in BMI status but also improvements in other biological

factors (e.g., lipoprotein cholesterol, triglyceride levels, etc.) (Berkowitz et al., 2006). Surgical procedures are also included with medical interventions. While bariatric surgery has been a generally effective weight loss method for adults over multiple decades, this medical treatment option for children and adolescents remains controversial (Myers & Barbera, 2009). One benefit is that surgery can offer an alternative treatment to adolescents who have repeated failures with other formal weight loss interventions (Inge et al., 2004).

Dietary interventions. With regards to dietary changes in pediatric weight management setting, the focus of interventions is on decreasing caloric intake and modifying foods consumed (Raynor, 2008). One approach within this area is to give families education and nutrition guidelines that recommend fewer high fat foods and more nutrient-dense foods (Golan, Weizman, Apter, & Fainaru, 1998; Graves, Meyers, & Clark, 1988; Senediak & Spense, 1985). Other studies have suggested that recommending caloric restriction alone is equally beneficial (Golan et al., 1998).

However, dietary interventions that recommended a combination of the two methods detailed above have more evidence (Becque, Katch, Rocchini, Marks, & Moorhead, 1988; Epstein, Paluch, Gordy, & Dorn, 2000; Epstein, Paluch, Gordy, Saelens, et al., 2000; Epstein, Paluch, & Raynor, 2001; Epstein, Valoski, Vara, et al., 1995; Epstein, Wing, Koeske, et al., 1985; Goldfield, Epstein, Kilanowski, Paluch, & Kogut-Bossler, 2001). The Traffic Light Diet (cf Raynor, 2008) is the most commonly used dietary intervention within pediatric weight management. This dietary intervention suggests a reduced energy intake, targeting 800 to 1,500 kcals/day, while also breaking foods down categorically for families into three classifications: 1) green foods, which can be consumed in unlimited amounts because they are low in fat and nutrient dense, 2) yellow foods that are moderate in fat or sugar and have average nutrient

quality and, therefore, should be eaten in moderation, and 3) red foods, which are highest in fat and added sugar and have poor nutrient quality, and should be limited in consumption. The Traffic Light Diet has been widely used in family-based interventions and is most effective for children between 8 to 12 years of age because food classifications are easily identified and can be taught to all members of the family, regardless of age (Raynor, 2009). Additional benefits of using this dietary guideline is that it can lead to more variety in diet, even over longer periods, by shaping food preferences (Epstein et al., 1998). The dietary modifications followed in the Traffic Light Diet result in reductions in weight status and long-term maintenance over 5- to 10-year periods (Epstein et al., 1990, 1994; Epstein, Valoski, Kalarchian, et al., 1995).

Other alternative dietary changes exist outside of the Traffic Light Diet and have been used as supplemental changes, or as standalone interventions. Targeting specific foods (e.g., foods higher in fat or added sugar) that are associated with overweight status may be one approach. Reducing intake of these foods results in weight loss and better adherence because they are more easily tracked or logged, their elimination results in more satiation from more nutrient dense foods, and it may be more appropriate for families with younger children because of the easy of compliance (Raynor, 2009). An example of this approach is the reduction of sugary drinks (e.g., juices, flavored milk, soda, etc.), which results in weight loss due to lower caloric intake (Ludwig, Peterson, & Gortmaker, 2001). Eliminating unhealthy snacking between meals is also another way to balance energy intake but can also increase opportunities for overeating by influencing hunger (Raynor, 2009). While not decreasing caloric intake by targeting specific foods, but rather quantity consumed, portion-controlled food has been used as a dietary intervention for weight loss and is effective because of its ability to help parents and children adhere to dietary recommendations while also improving their ability to monitor food

intake (Wing & Jeffery, 2001). This approach may be more successful for families with low motivation or difficulties making changes to types of foods they eat and for youth with food selectivity.

Dietary interventions should also be sensitive to development of the child and focus on educating parents about appropriate diet changes for their children. For young children, diets in general should avoid caloric restriction and instead focus on introducing healthy foods while shaping food preferences (Birch, 1999; Birch & Fisher, 1998). While there is some controversy toward this approach, implementing a low-fat/low carbohydrate diet for children has shown more weight reduction over a 6-month period of time, compared to a traditional weight management diet, and indicated no serious effect for blood lipids or renal functioning (Foster et al., 2003; Sondike, Copperman, & Jacobson, 2003).

Leisure-time and physical activity. Within a childhood obesity treatment paradigm, level of activity is one area that can be considered. Activity is separated into two main components: 1) sedentary behavior, which includes time spent watching a screen and 2) physical activity (Raynor, 2009). Activity interventions may provide an essential role in weight management through a hypothesized impact on energy balance. Increases in physical activity, as well as decreases in sedentary behavior, lead in higher energy expenditure and decrease possible energy intake that occurs with physical inactivity, such as snacking while watching television (Raynor, 2009). While limited weight reduction is seen with physical activity interventions alone, success has been reported when reducing screen time (i.e., decreased sedentary behavior) is one targeted mechanism to shift the energy intake versus expenditure balance (Epstein et al., 1998; Robinson, 1999).

For physical activity interventions, the evidence for efficacy remains mixed. One added treatment component that may contribute to weight reduction within physical activity interventions is adding dietary changes. Use of the Traffic Light Diet in combination with increased exercise lead to greater weight reductions in youth (ages 8 to 12) at six months compared to the Traffic Light Diet alone (Epstein, Wing, Penner, & Kress 1985). Due to the observed benefit of incorporating diet interventions, most pediatric weight management interventions currently include increasing physical activity in combination with changes in diet (Becque et al., 1988; Epstein, Paluch, Gordy, & Dorn, 2000; Epstein, Paluch, Gordy, Saelens, et al., 2000; Epstein, Paluch, & Raynor, 2001; Epstein, Valoski, Vara, et al., 1995; Epstein, Wing, Koeske, et al., 1985; Goldfield et al., 2001; Senediak & Spense, 1985).

Sociocultural barriers to interventions. When assessing outcomes from pediatric weight management interventions, careful consideration of sociocultural factors that can impede success is necessary. Among low income areas, specifically those in urban settings, limited abilities to engage in proper physical activity are barriers to successful weight loss due to high crime rates that result in unsafe neighborhoods, inadequate community spaces, and limited recreational facilities (Lumeng, 2005). Parents typically report increased anxiety related to the safety of their children while playing in unsafe areas in larger cities (Weir, Etelson, & Brand, 2006). Due to their concern for child safety, parents who endorse increased anxiety about neighborhood more often rely on screens to entertain their children rather than physical activity, resulting in a more sedentary lifestyle (Burdette & Whitaker, 2005). As a function of increased sedentary behavior, there is a direct relationship between higher rates of screen time and BMI (Anderson et al., 1988; Proctor et al., 2003; Salmon, Campbell, & Crawford, 2006). Access to healthy food options in low income neighborhoods is an additional concern for success in weight

reduction in youth. Fresh fruits and vegetables are largely scarce in lower income areas, leading to many of these places being labeled as “food deserts” (Sallis & Glanz, 2006). Further, many parents believe higher costs accompany healthier, more nutritious foods (Omar, Coleman, & Hoerr, 2001). For many low-income families, parent work schedules and childcare options may also contribute to increased weight and are barriers to losing weight. Low-cost foods that have a lower nutritional content are not only more readily available but also are easier to prepare and are often more palatable to children compared to fresh, more nutrient-dense foods (Drewnowski & Darmon, 2005; Drewnowski & Specter, 2004). Youth more often prefer these high-energy, low-cost foods because they contain more carbohydrates, sugars, and fats (Nicklas, Yang, Baranowski, Zakeri, & Berenson, 2003; Nielsen, Bjornsbo, Tetens, & Heitmann, 2005; Troiano, Briefel, Carroll, & Bialostosky, 2000).

Behavioral interventions and psychological support. As an adjunctive intervention to diet and physical activity changes, behavioral support can be beneficial for helping families adhere to treatment recommendations and meet individual weight goals. In general, weight management goals focusing on behavior change (e.g., reducing sedentary behaviors, increasing physical activity, etc.) rather than weight loss are more productive because novel behaviors and success can be seen more immediately as opposed to weight loss and often result in greater immediate health benefits (Dietz, 1983; Franz et al., 2002). Stimulus control techniques have also been found to be effective in weight management strategies (Ward-Begnoche et al., 2009). Specific control techniques related to healthy habits include eating at a table and not in front of the television or making sedentary behaviors, such as screen time, contingent upon meeting a physical activity goal (Faith et al., 2001; Goldfield, Kalakanis, Ernst, & Epstein, 2000). Teaching this principle to parents and children may be difficult due to resistance to change, and emotional

reactions to change can be a barrier to success. It is important that weight management interventions within multidisciplinary programs also include psychology providers to support behavior modification and to emphasize a family-centered treatment approach (Flodmark, Lissau, Moreno, Pietrobelli, & Widhalm, 2004). Overall, parents may be resistant to overweight and obese classifications due to perceptions of parenting, often believing that increased weight is an indicator of adequate parenting (Adams, Quinn, & Prince, 2005; Baughcum, Chamberlin, Powers, & Whitaker, 2000). Their resistance to weight status can be seen in their description of their child, including using terminology such as “big boned” or “solid” (Ward et al., 2009). In fact, mothers tend to ignore their child’s weight status until he or she begins to be teased by peers (Jain et al., 2001). Parental involvement is important to successful weight maintenance or loss. Research suggests that parental behaviors regarding nutrition and physical activity influence a child’s attitude toward any lifestyle changes (Levine, Ringham, Kalarchian, Wisniewski, & Marcus, 2001; Zimetkin et al., 2004). In order to see success in implementing healthy lifestyle changes, parental support and involvement may be critical to treatment adherence.

Psychosocial difficulties are also implicated in poor treatment adherence and unsuccessful weight loss. Given that obese youth frequently exhibit greater psychological difficulties (e.g. anxiety, depression, low self-esteem, etc.) compared to their normal weight peers, poorer mental health has been implicated as a barrier to success (Zimetkin et al., 2004; Strauss, 2000). However, peer relations have been shown to impede physical activity in obese youth due to peer ostracization and weight teasing, and in turn, bullying (Bell & Morgan, 2000). It has become increasingly more important not only to understand the impact weight teasing has on overweight and obese youth but to also identify the impact weight management interventions can provide to those who experience these negative peer interactions.

As previously mentioned, weight management interventions within a multidisciplinary approach offer more empirical supported that those that focus on any one specific intervention (Delamater et al., 2008). The addition of behavioral supports through psychology staff to diet and physical activity interventions are an important factor to successful interventions (Epstein et al., 1994). Given the difficulties presented with motivation and structure needed to make adequate lifestyle changes, family- and group-based programs may offer more benefit to youth and their families wanting to lose weight because of the consistent support they provide while also emphasizing dietary and physical activity changes. Several studies (Coates, Killen, & Slinkard, 1982; Jelalian, Mehlenbeck, Lloyd-Richardson, Birmaher, & Wing, 2006; Nemet et al., 2005) have found these group-based interventions to be more successful for weight reduction and long-term maintenance compared to individual-based interventions. However, for youth with impaired social functioning as a result of weight teasing, social interaction with other peers may be as beneficial of an intervention as the weight management component.

Present Study

This study aims to identify changes in social functioning and weight status in obese youth following a pediatric weight management intervention. The present study used archival data previously collected in a retrospective chart study. Social functioning outcomes were identified by examining reported levels of social functioning in youth who report a history of weight teasing. Baseline levels of social functioning were assessed using an established measure of pediatric health-related quality of life. History of weight teasing was determined by clinical interview by trained mental health professionals. Participants in the study either took part in an individual or a family-based weekly group intervention. Treatment components used in these two interventions were designed following published expert recommendations and evidence-based

research for pediatric weight management. While neither of the two interventions included in this study were designed to specifically target social functioning and do not include topics that directly address weight teasing, social engagement through peer interaction and changes to sedentary behavior may be one possible result of these interventions. The aim of this study was to determine if changes in social functioning and weight status differ post-intervention for youth who report weight teasing compared to those who denied it. The hypotheses to be examined are as follows:

1. Obese youth who report a history of weight teasing will exhibit significantly lower social functioning quality of life at baseline compared to those without a history of teasing.
2. The effect of the intervention on social functioning will be dependent on history of weight teasing. Specifically, the group-based intervention will be most effective for obese youth who have been teased for their weight, followed by those in the group-based intervention without weight teasing, then those in the individual intervention without teasing, and with those in the individual intervention with teasing seeing the least benefit.
3. The effect of the intervention on weight status will be dependent on history of weight teasing. Specifically, the group-based intervention will be most effective for obese youth without a history of weight teasing, followed by those in group-based intervention with a history of weight teasing, then those in the individual intervention without a history of teasing and with those in the individual intervention with teasing seeing the least benefit.

II. METHOD

Participants

Participants in this study consisted of 133 youth ($M_{\text{age}} = 12.29$, $SD_{\text{age}} = 2.66$), ranging from 6.37 to 17.80 years old, who were seen in a weight management outpatient clinic at an urban pediatric rehabilitation hospital. Individuals seen in the clinic were either self-referred or were referred by their primary health care providers or pediatricians. Most of the sample included individuals who were in the middle school ($M_{\text{grade}} = 6.37$, $SD_{\text{grade}} = 2.71$). No single academic grade was more representative of the sample than another. Youth in the 6th and 8th grades comprised 12.0 % ($n = 16$) of the sample respectively. Those in the 3rd, 5th, 7th, and 10th each made up 11.3 % ($n = 15$) the next largest percentage of individuals in the sample. Those in the 4th grade comprised 9.0 % ($n = 12$) of the group, followed by those in the 2nd and 9th grades making up 4.5% ($n = 6$) each of the sample. Only 7 individuals were in the 11th ($n = 4$, 3.0 %) and 12th ($n = 3$, 2.3 %) grades and only 1.5% ($n = 2$) were in the 1st grade. The majority of the sample was female ($n = 82$, 61.7 %), with males comprising only 38.3% of the sample ($n = 51$). The sample was predominantly African American ($n = 78$, 58.6 %). Caucasian/Non-Hispanic individuals comprised 23.3 % of the sample ($n = 31$), while the remainder of the sample was comprised of Hispanic/Latino individuals ($n = 13$, 9.8 %), Asian individuals ($n = 1$, 0.8%), or individuals who identified as “other” ($n = 7$, 5.3 %) or “multiracial” ($n = 3$, 2.3 %). Additionally, a majority of the sample were from lower socioeconomic backgrounds, with 55.6 % ($n = 74$) of the sample receiving government medical assistance for their healthcare. Those families with commercial insurance made up 44.4 % ($n = 59$) of the sample, while there were no families in

the sample considered to be “self-pay.” Most of the participants in this study had a body mass index (BMI) that fell in the morbidly obese range ($M_{\text{BMI}} = 36.26$, $SD_{\text{BMI}} = 7.18$), and BMI z-scores that reflected this range as well ($M_{\text{BMIZ}} = 2.51$, $SD_{\text{BMIZ}} = 0.28$). With regards to a history of weight teasing, the sample was relatively evenly divided with 48.1 % ($n = 64$) denying being teased by peers and family members, while 51.9% ($n = 69$) endorsing it.

Measures

Demographic information. Demographic information was obtained from intake paperwork completed prior to the family’s initial clinic visit and included age, race/ethnicity, insurance coverage, relevant personal history (e.g., birth and developmental, medical, psychological, family, social, and academic), and current nutrition behaviors and physical activity. Additional current social, emotional, and behavioral functioning information was obtained through interview with clinic psychology staff. A history of weight teasing was determined through intake interview with youth and their families by asking questions about current and past social functioning, including whether they had been teased for their weight by individuals.

Biometric data. As a part of each clinic appointment, participants had their height and weight collected by clinic nursing staff, including registered nurses and medical assistants. Height was measured in centimeters; weight in kilograms. Participant numbers were entered into software to calculate BMI score, percentiles, and z-scores based on normative data for both age and sex. For the purpose of this study, only BMI z-score will be used. Given the variations in body composition by age and sex in children, current literature in pediatric weight management suggests the use of BMI z-score rather than BMI score (Must & Anderson, 2006). Bio-electrical Impedance Analysis of body fat composition was also collected on a majority of patients;

however, it was not used in this study as an outcome measure due to the fact that it could not be collected on all participants because of individual differences (e.g., age, metal in body, pacemakers, etc.).

Health-related quality of life. The Pediatric Quality of Life Inventory (PedsQL; Varni, Seid, & Rode, 1999) is one of the most widely used index for measuring health related quality of life among youth with chronic medical conditions. The benefit of the measure is that it is a generic index for overall quality of life, as well as physical, social, emotional, and academic, functioning, and has self-report (for ages 5 to 18 years) and parent proxy report (for ages 2 to 18) forms (Varni, Burwinkle, Seid, & Skarr, 2003; Varni, Seid, & Kurtin, 2001). The scale is comprised of 23 items that translate into standardized scores for the various scales 1) physical functioning (8 items), 2) emotional functioning (5 items), 3) social functioning (5 items), and 4) school functioning (5 items). Each item utilizes a 5-point Likert-type response across both child- and parent-report forms (0 = never a problem, 1 = almost never a problem, 2 = sometimes a problem, 3 = often a problem, 4 = almost always a problem). Items in the index are reverse scored and linearly transformed (e.g., 0 = 100, 4 = 0). Scores obtained from the measure range from 0 to 100, with higher scores reflecting better functioning. (Schwimmer et al., 2003). The PedsQL has been found to have strong internal consistency reliability (Chronbach's $\alpha = 0.90$) and validity (Varni et al., 2003).

Procedure

Data that was assessed in the current study is a part of a larger project tracking clinic outcomes including medical improvements in clinic patients (Demule et al., 2014). The data was collected as a part of a Western Institutional Review Board approved retrospective chart review of children 8 to 18 years of age enrolled in the weight management program since 2005. Clinic

patients were either self-referred to the program or were referred by their primary care providers or pediatricians. Prior to their clinic appointment, families completed an extensive intake questionnaire covering medical, developmental, feeding, academic, and social histories, as well as other demographic information. Both medical and psychology providers evaluated each child in clinic and obtained additional anthropomorphic and body fat measurements. Additional medical information, such as laboratory data, was collected but is not reviewed in this study. Written informed consent was obtained from parents or legal guardians and assent was obtained from youth by trained program staff at the initial clinic visit, and families had the opportunity to decline or withdraw from the study at any point. At the end of their initial clinic visit, patients and their families were given treatment recommendations by medical and psychology providers and were assigned to two different treatment groups, either individual services track or the intensive group-based track. It is important to note that treatment assignment was not randomized. In addition to their initial intake visit, patients and their families attended follow-up clinic visits at 3-, 6-, 9-, and 12-month timepoints, regardless of treatment group. At each appointment, families met with clinic medical providers, including a pediatric gastroenterologist and a certified nurse practitioner with subspecialties in feeding disorders and weight management, and psychology providers. Height and weight were collected at each clinic visit; however, psychosocial data from questionnaires were only collected at the initial and 12-month follow-up visits. Medical providers made individualized recommendations for continued weight maintenance or loss based on individual age and developmental trajectory (e.g., puberty status), and psychology staff provided recommendations for behavioral support and adherence to medical advice.

Patients were referred to the individual program track based on various reasons, including severe psychological or cognitive difficulties (i.e., profound developmental or cognitive delays, severe thought disorders, etc.) and severe behavioral dysregulation, including violent physical or verbal aggression toward family members or peers. Families who reported difficulties with attending twice weekly, such as transportation issues, distance to the hospital, or conflicting parent work schedules or child school/practice schedules, were also enrolled in the individual track and were given the option to enroll in the group-based intervention, if these barriers were resolved in the future. Individualized services included either individual appointments with the clinic dietician, physical therapist, or psychology provider, or a combination of those services. Appointments with these providers ranged from monthly (e.g., nutrition visits) to weekly (e.g., either psychology and/or physical therapy sessions). Typically, all patient families met the clinic dietician for individual nutrition sessions; however, the frequency and intervals between appointments was not consistent and mostly based on need. Individual sessions with psychology providers addressed implementation of healthy lifestyle habits (e.g., adhering to medical recommendations, motivation to change, etc.) and could include psychological intervention for other social, emotional, or behavioral issues. Despite being offered or recommended, families were not required to participate in therapy or to transfer current services to the hospital where the clinic is based. Additionally, within the individual track, patients were typically referred physical therapy services if they were considered unable to exercise due to a physical limitation (e.g., resting joint or back pain, oxygen desaturation with walking, etc.). As with the nutrition services, there was a high degree of variability in appointment frequency and duration.

Alternatively, the intensive group-based program provided families with evening sessions meeting once per week with all clinic services (i.e., psychology providers and the clinic dietician

and physical therapist) and 1-hour workout sessions occurring twice weekly. This group intervention was implemented over a 12-week time period. Topics covered in educational sessions included psychological concepts related to weight (e.g., environmental and behavioral cues for overeating, barriers to physical activity, sleep hygiene, daily schedules, successful goal setting, etc.), nutrition education (e.g., portion sizes, reading food labels, healthy snack and meal alternatives, etc.), and education classes about physical activity. Every education session concluded with families setting weekly goals based on content covered in class (e.g., eating at least 3 family meals without any electronic screens throughout the next week). Parents of youth enrolled in the group were involved in all sessions and also benefited from specific parent education sessions for supervising proper exercise and parent feedback sessions with psychology providers for limit setting, increasing child motivation to make healthy lifestyle habits, and managing negative emotions related to weight (e.g., peer teasing, weight-loss expectations, etc.).

Statistical Analyses

Because all of the data scored by trained clinic staff and volunteers and was entered by hand, errors in data entry were examined by searching for duplicate cases and using methods for identifying outliers. For univariate outliers, standardized scores were calculated and used to identify cases that are more than three standard deviations away from the mean. Scores of identified cases were examined to determine if scores fell into acceptable ranges. One individual with a BMI z-score that was more than three standard deviations from the mean was dropped from the analysis. One individual who had a PedsQL score that was more than three standard deviations beyond the mean was also dropped from the analysis. The case was determined to be entered in error given that the score was 660, given that the maximum possible score on the subscale is 100.

For missing data, participants who had not yet been seen for their 1-year follow-up appointment were dropped from the analyses. Also, participants who did not return for their 1-year clinic visit were also dropped from final analyses. Participants who completed their last clinic visit but had missing data for BMI z-score were excluded from the analyses as well as those who had missing data for BMI z-scores and history of weight teasing variables collected from the initial visit. While there have been inconsistencies in collecting psychosocial measures throughout the years, participants having at least one complete set of child- or parent-reported outcomes at the twelve-month visit timepoint were kept in the final analyses. For example, regarding children whose parents only speak Spanish, measures were not available in that language. Therefore, those cases only had one complete set of child-reported social functioning scores and were included in the final dataset. Within each analysis, pairwise exclusion was used for these missing data.

Descriptive statistics were calculated for participant age, grade, sex, race, family socioeconomic status based on insurance type, BMI, and history of weight-based teasing. To evaluate Aim 1: an independent sample t-test was used to determine if those who reported a history of weight teasing had significantly lower social functioning at baseline compared to participants who denied teasing. The PedsQL social scale score was the dependent variable while history of weight teasing was the independent variable with two levels (e.g., endorsed vs. denied).

Two separate repeated measures analyses of variance were conducted to determine if social functioning and weight (e.g., BMI z-score) improve in youth who report a history of weight teasing based on differences in treatment interventions. The first repeated measures analysis of variance examined parent ratings of child social functioning, while the second

analysis examined child ratings of their own social functioning. In both analyses, history of teasing (e.g., endorsed vs. denied) and program track (e.g., individual vs. group) were entered into the model as between-subjects variables. PedsQL scores (e.g., parent- and child-rated scores) and child BMI z-score at the baseline visit and at the one-year follow-up clinic visit were entered into the model as within-subjects variables. To evaluate Aim 2: the repeated measures analysis was conducted to examine the interaction effect between history of being teased and BMI z-score from baseline to 1-year follow-up. To evaluate aim 2: the repeated analysis interaction effects between history of being teased, program track (e.g., group vs. individual), and social functioning (e.g., parent and child PedsOL scores for each separate analysis) from baseline to 1-year follow-up were analyzed to determine differences between participants. To evaluate aim 3: the repeated analysis interaction effect between history of being teased, program track (e.g., group vs. individual), were examined to determine differences in BMI z-score between participants.

III. RESULTS

In order to provide background information about the effectiveness of the intervention, a repeated measures analysis of variance was conducted in order to determine differences in social functioning and weight outcomes among obese youth following a pediatric weight-management intervention. The dependent variables for this analysis were social functioning, using baseline and 1-year follow-up parent- and child-reported PedsQL social functioning scores, and BMI z-scores, between baseline and 1-year follow-up. For social functioning, higher scores on the PedsQL were indicative of better social functioning. The independent variable within these analyses was program track enrollment, which had two levels (e.g., intensive group-based and individual-based program).

Results suggested a difference in weight and parent ratings social functioning from baseline to post intervention, Wilks' Lamda = .27, $F(2, 106) = 19.54$, $p < .01$. When looking at change in social and weight over time separately, results suggested a significant difference in social functioning following intervention, $F(1, 107) = 8.90$, $p < .01$. Parent ratings of social functioning improved for obese youth from baseline ($M = 61.96$, $SD = 24.60$) to 1-year follow-up ($M = 69.50$, $SD = 22.86$). Results also suggested an effect for intervention for weight and child ratings of social functioning, Wilks' Lamda = .31, $F(2, 102) = 22.76$, $p < .01$. When looking at change in social and weight over time separately, results suggested a significant difference in social functioning following intervention, $F(1, 103) = 17.59$, $p < .01$. Child ratings

of social functioning improved for obese youth from baseline ($M = 69.86$, $SD = 23.10$) to 1-year follow-up ($M = 79.77$, $SD = 18.01$; See Figure 1).

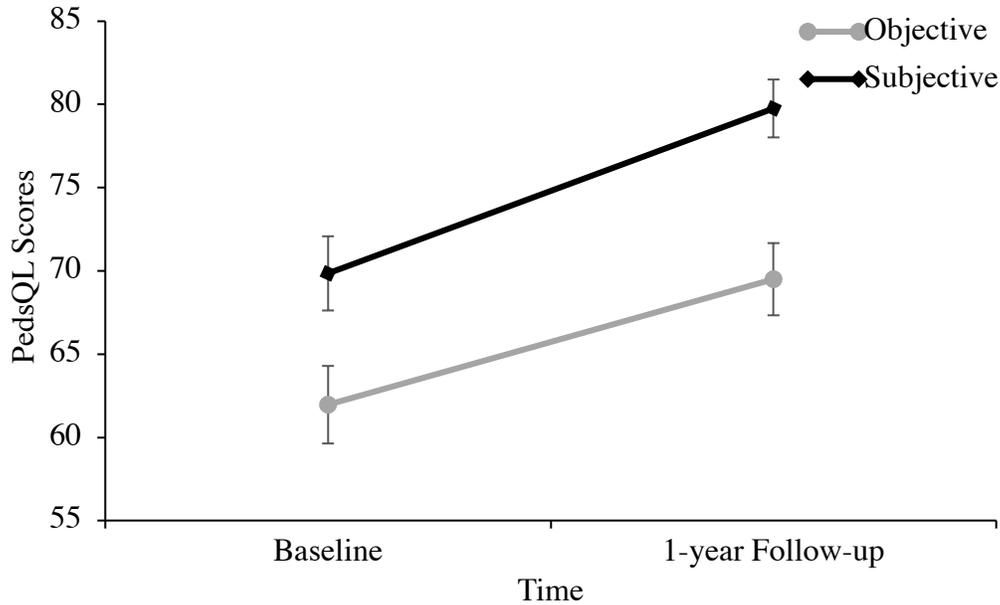


Figure 1. Objective and Subjective Social Functioning from Baseline to Follow-up.

As mentioned above, results indicated an effect of time on social functioning and weight from baseline to 1-year follow-up between the two analyses. Within the parent model, weight also differed significantly over time from baseline to 1-year follow-up, $F(1, 107) = 33.01$, $p < .01$. Child BMI z-score decreased over time for youth from baseline ($M = 2.50$, $SD = .27$) to 1-year follow-up ($M = 2.38$, $SD = .36$). Within the child model, weight also differed significantly over time from baseline to 1-year follow-up, $F(1, 103) = 31.18$, $p < .01$. Child BMI z-score in this model also improved for youth from baseline ($M = 2.48$, $SD = .23$) to 1-year follow-up ($M = 2.37$, $SD = .35$; See Figure 2).

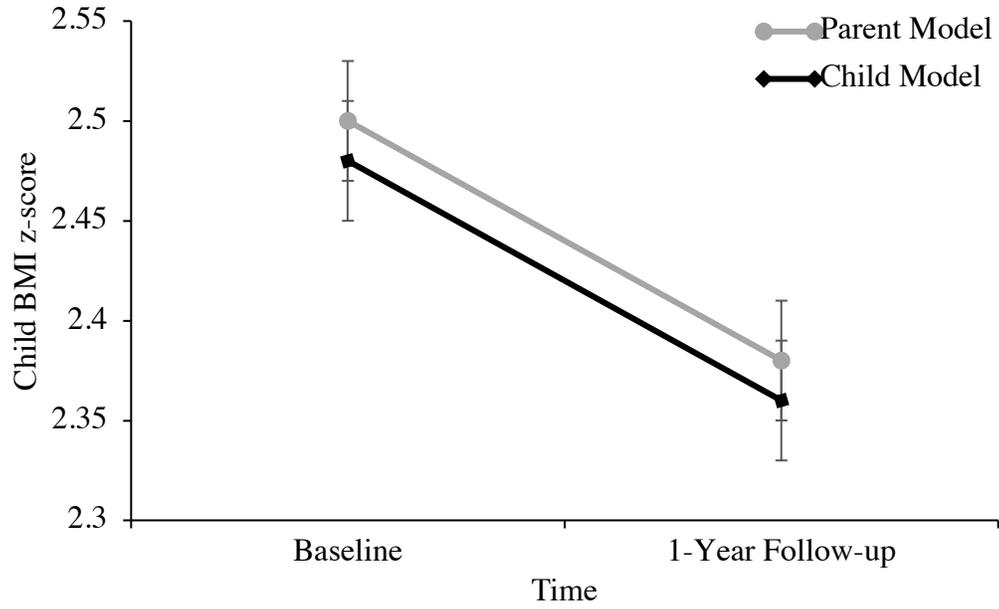


Figure 2. Child BMI z-score Changes from Baseline to Follow-up.

There was also no observed interaction effect for parent-reported social functioning and weight based on program track, Wilks' Lamda = .02, $F(2, 106) = 1.13, p = .33$. Parent ratings of social functioning for obese youth in the group track increased from baseline ($M = 67.47, SD = 26.48$) to 1-year follow-up ($M = 71.69, SD = 23.69$), while those in the individual track improved from baseline ($M = 55.00, SD = 20.18$) to 1-year follow-up ($M = 66.73, SD = 21.69$; See Figure 3).

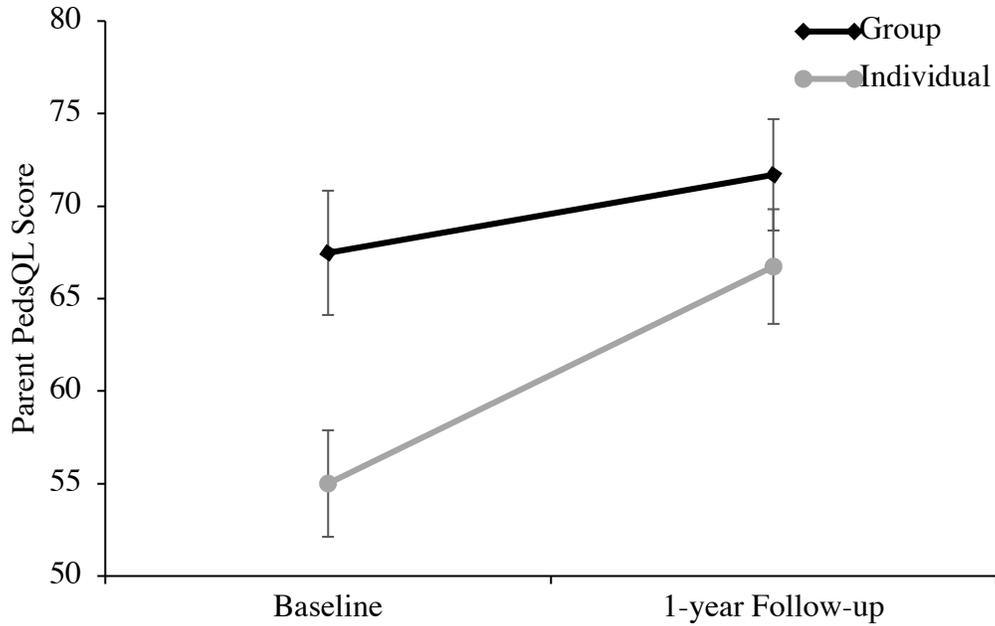


Figure 3. Changes in Objective Social Functioning between Intervention Type.

Similarly, a significant interaction effect for weight and child-reported social functioning differences between baseline and post-intervention and program track was not observed, Wilks' $\Lambda = .02$, $F(2, 102) = .85$, $p = .43$. Child ratings of social functioning for those in the intensive group-based program improved between baseline ($M = 72.50$, $SD = 23.00$) and 1-year follow-up ($M = 82.07$, $SD = 18.02$), while those in the individual group also had improved social functioning from their initial appointment ($M = 66.73$, $SD = 23.06$) to 1-year follow-up ($M = 77.04$, $SD = 17.79$; See Figure 4).

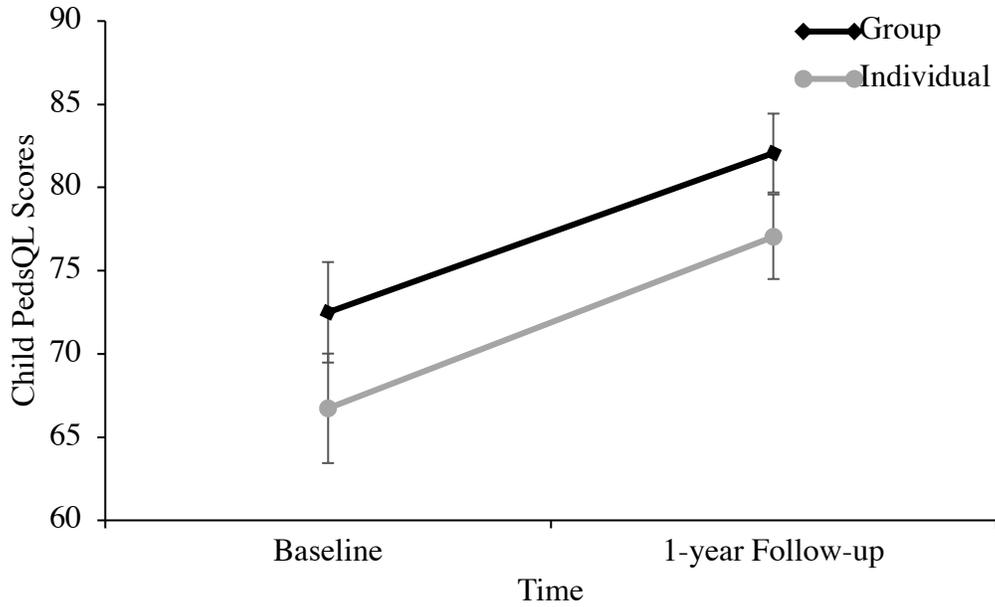


Figure 4. Changes in Subjective Social Functioning between Intervention Type.

In terms of weight within both models, no significant differences in BMI z-score over time were observed between the individual and group-based track. Within the parent model, weights of youth in the intensive group-based program decreased from baseline ($M = 2.49, SD = .25$) to 1-year follow-up ($M = 2.36, SD = .36$), while those in the individual group also improved from the initial visit ($M = 2.52, SD = .30$) to the 1-year follow-up visit ($M = 2.40, SD = .37$; See Figure 5).

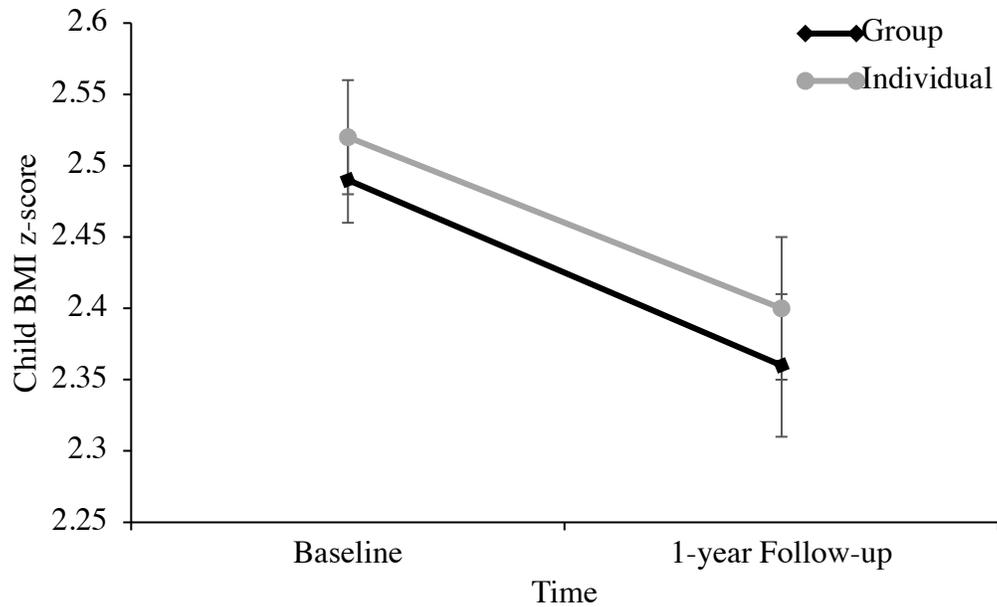


Figure 5. Child (Parent Model) BMI z-score Changes between Intervention Type.

BMI z-score within the child model also improved over time for both treatment groups. Individuals in the group-based program improved between their initial clinic appointment ($M = 2.48$, $SD = .22$) and 1-year follow-up ($M = 2.33$, $SD = .34$), while BMI z-scores for those in the individual track also improved between their first clinic visit ($M = 2.49$, $SD = .25$) and their 1-year follow-up visit ($M = 2.41$, $SD = .36$). These results indicated that there was not a significant difference in improvements in weight and social functioning between obese youth in the individual and group-based tracks (See Figure 6).

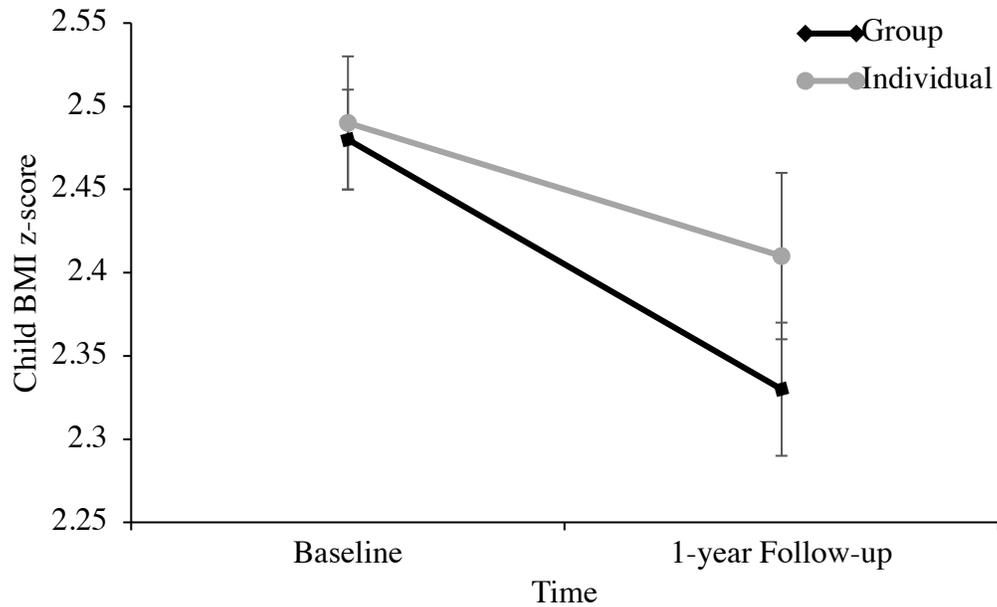


Figure 6. Child (Child Model) BMI z-score Changes by Intervention Type.

Hypothesis testing. An independent samples t-test was conducted to compare social functioning at baseline in youth who endorsed and those who denied a history of weight teasing. There was a significant difference in parent-reported PedsQL social scores for those who had been teased for their weight ($M = 56.40, SD = 22.61$) and those who denied weight teasing ($M = 70.54, SD = 23.45$); $t(127) = -3.49, p = .001$. For subjective ratings of social functioning, there was also a significant difference in child-reported PedsQL social scores for those who reported having experienced weight teasing ($M = 62.70, SD = 23.89$) and those who denied teasing ($M = 76.53, SD = 20.38$). These results suggested that weight teasing impacts social functioning in youth who are obese. Specifically, it suggested that obese youth who were teased for their weight reported significantly lower social quality of life compared to obese youth who denied teasing. These findings supported Hypothesis 1.

As mentioned above, two repeated measures analyses of variance were conducted to determine whether parent- and child-rated social functioning and weight after intervention differed significantly for obese youth by history of weight teasing and by type of intervention. Within both analyses, the factor, history of weight teasing, had two levels (endorsed and denied), while the factor, program track, also had two levels (individual and group). The dependent variables included parent- and child-reported social functioning for obese youth and weight (e.g., BMI z-score) between baseline clinic visit and 1-year follow-up visit in each respective analysis.

An interaction effect for changes in weight and objective social functioning over time based on history of weight teasing and program track was not observed, Wilks' Lambda = .01, $F(2, 106) = .31, p = .74$. For parent ratings of social functioning, baseline scores were highest for those enrolled in the group program and who denied weight teasing ($M = 75.09, SD = 24.26$), followed by those in the individual track and who denied weight teasing ($M = 65.00, SD = 23.07$), followed by those in the group program who reported weight teasing ($M = 59.33, SD = 26.71$), and lastly by those who reported weight teasing and were enrolled in the individual track ($M = 59.33, SD = 26.71$). After 1-year follow-up, those who were enrolled in the individual track and denied being teased for their weight exhibited the highest parent-rated PedsQL scores of social functioning ($M = 74.44, SD = 23.88$), followed by those who were in the group-based program and denied weight teasing ($M = 73.59, SD = 22.44$), followed by those in group-based program with a history of weight teasing ($M = 69.67, SD = 25.19$), and lastly by those who were enrolled in the individual track with a history of weight teasing ($M = 62.26, SD = 19.31$; See Figure 7). These findings did not support Hypothesis 2.

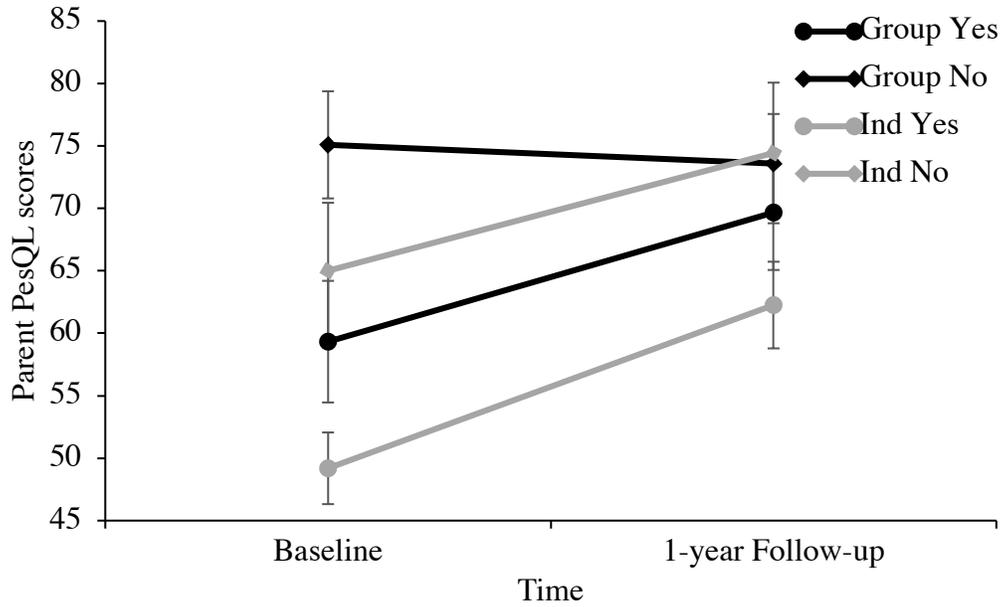


Figure 7. Objective Social Functioning Changes between Intervention Type and History of Weight Teasing.

When looking at child-reported changes in social functioning and weight over time based on history of weight teasing and program track, an interaction effect was not observed, Wilks' Lambda = .01, $F(2, 102) = .31, p = .74$. Baseline ratings of social functioning were highest for those in the individual track without a history of weight teasing ($M = 78.50, SD = 19.41$), followed by those in the group-based program without a history of weight teasing ($M = 77.26, SD = 18.16$), followed by those in the group-based program with a history of weight teasing ($M = 67.04, SD = 26.83$), and lastly by those in the individual track with a history of weight teasing ($M = 58.62, SD = 22.12$). After intervention, child-ratings of social functioning were highest for those in the individual track without a history of weight teasing ($M = 88.25, SD = 12.28$), followed by those in the group-based program without a history of weight teasing ($M = 82.90, SD = 16.52$), followed by those in the group-based program who had been teased for their weight

($M = 81.11$, $SD = 19.87$), and lastly by those in the individual track with a history of weight teasing ($M = 69.31$, $SD = 16.99$; See Figure 8). These findings also did not support Hypothesis 2.

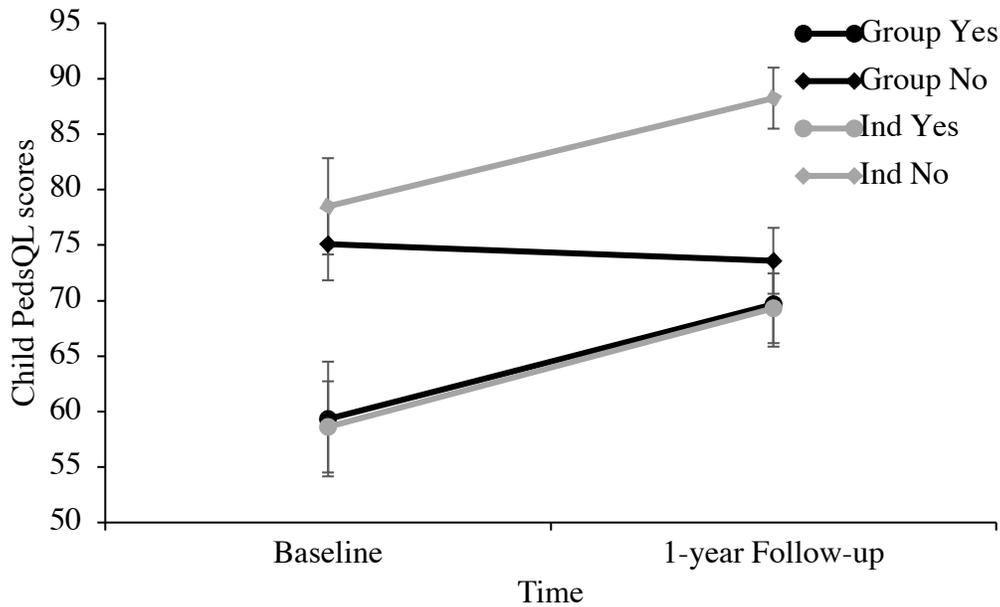


Figure 8. Subjective Social Functioning Changes between Intervention Type and History of Weight Teasing.

As mentioned above, an interaction effect for changes in weight and objective social functioning over time based on history of weight teasing and program track was not observed, Wilks' Lamda = .01, $F(2, 106) = .31$, $p = .74$. In terms of weight within the parent model, those in the individual track who endorsed weight teasing had the highest baseline BMI z-score ($M = 2.56$, $SD = .30$), followed by those in the group-based intervention with a history of weight teasing ($M = 2.53$, $SD = .24$), and lastly by those in the individual track ($M = 2.45$, $SD = .28$) and those in the group-based track ($M = 2.45$, $SD = .25$) who denied weight teasing being equal. After intervention, those who were in the individual track with teasing ($M = 2.40$, $SD = .41$) and without teasing ($M = 2.40$, $SD = .30$) had similar BMI z-scores, while those in the group-based

intervention had lower weight. For obese youth who were enrolled in the group-based program, BMI z-scores at 1-year follow-up for those who denied weight teasing ($M = 2.37$, $SD = .32$) were slightly higher than those who reported history of being teased for their weight ($M = 2.35$, $SD = .42$; See Figure 9). These findings did not support Hypothesis 3.

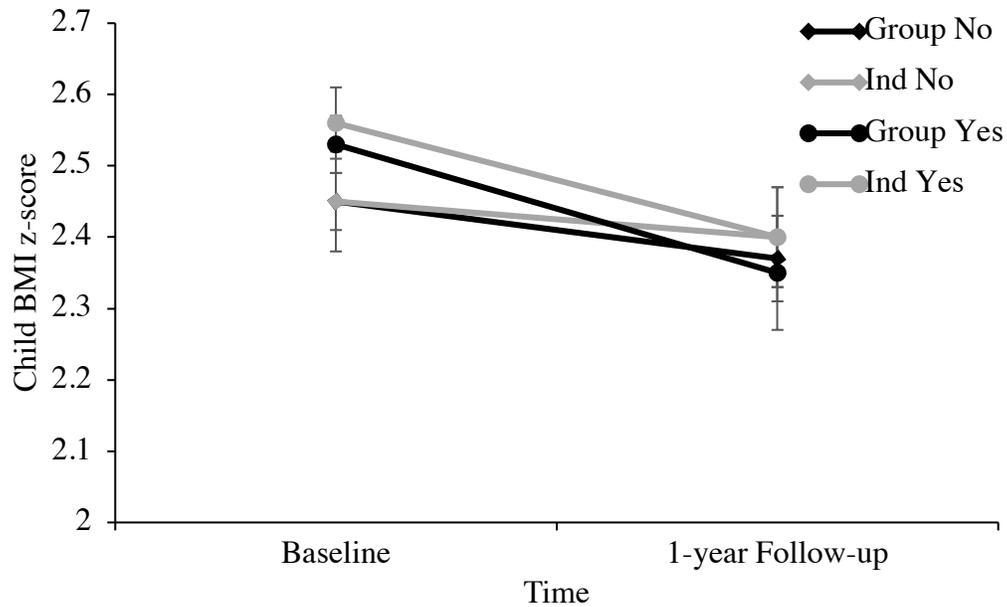


Figure 9. Child (Parent Model) BMI z-score Changes between Intervention Type and History of Weight Teasing.

An interaction effect for changes in weight and subjective social functioning over time based on history of weight teasing and program track was also not observed, Wilks' Lamda = .01, $F(2, 102) = .31$, $p = .74$. For weight status within the child model, baseline BMI z-scores were highest among those who were enrolled in the individual track who had been teased for their weight ($M = 2.55$, $SD = .28$), followed by those who were participants in the group-based program who had also been teased ($M = 2.49$, $SD = .23$), followed by those in the group intervention without weight teasing ($M = 2.47$, $SD = .21$), and lastly by those in the individual

track who also had not been teased for their weight ($M = 2.38, SD = .21$). After intervention, obese youth who reported weight teasing and were in the individual track demonstrated the highest BMI z-score ($M = 2.46, SD = .43$), followed by those in the individual track without a history of weight teasing ($M = 2.38, SD = .21$), followed by those in the group-based intervention without a history of weight teasing ($M = 2.36, SD = .26$), and lastly by those in the group-based program with a history of weight teasing ($M = 2.30, SD = .42$; See Figure 10). These findings also did not support Hypothesis 3.

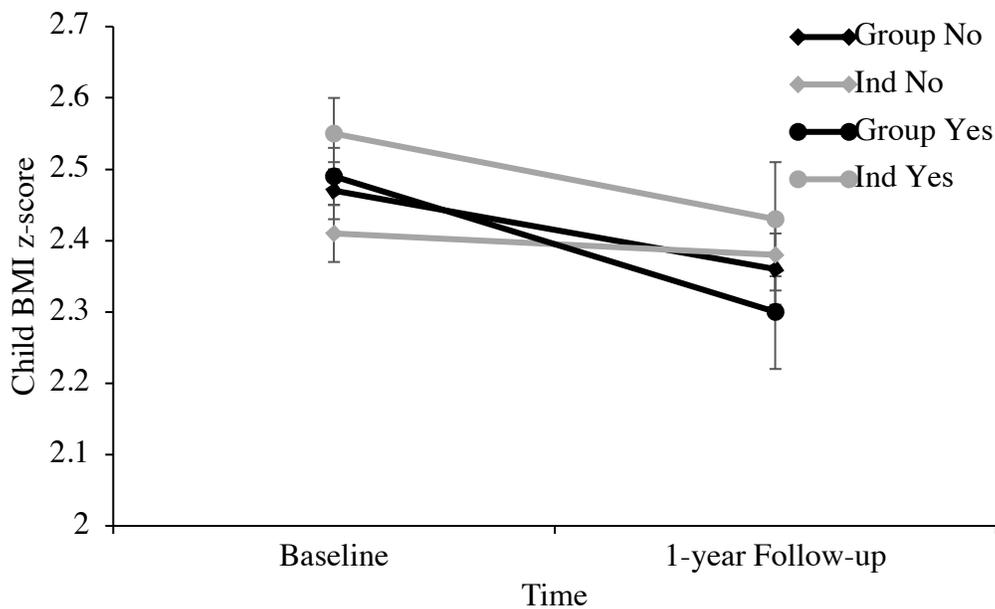


Figure 10. Child (Child Model) BMI z-score Changes between Intervention Type and History of Weight Teasing.

As mentioned previously, there was a main effect of time within both analyses, which indicated that the intervention was effective changes in social functioning, both objective and subjective (See Figure 1), and weight status (See Figure 2) for all individuals enrolled in intervention. However, there was no observed between-subjects effect for program track, Wilks'

Lamda = .03, $F(2, 106) = 1.77, p = .18$, which indicated that the individual outcomes in parent-rated social functioning (See Figure 3) and child BMI z-score (See Figure 5) did not differ significantly between groups. Similarly, there was no observed main effect for weight and child-rated social functioning based on track enrollment, Wilks' Lamda = .02, $F(2, 102) = .85, p = .43$. These results indicated that the intervention was effective for improving subjective social functioning (See Figure 4) and weight status (See Figure 6) among individuals in the intervention, regardless of track enrollment.

A significant main effect for history of teasing was observed, Wilks' Lamda = .10, $F(2, 106) = 5.58, p = .01$, which indicated that the groups differed significantly on objective social functioning and weight. When examining weight and social functioning separately, objective social functioning alone appeared to differ significantly between those who endorsed and those who denied a history of weight teasing, $F(1, 107) = 11.21, p < .01$, while weight status did not significantly differ between the same groups, $F(1, 107) = .52, p = .47$. Individuals who endorsed a history of weight teasing had lower social functioning at baseline ($M = 54.18, SD = 22.33$) compared to those who denied a history of weight teasing ($M = 71.46, SD = 24.10$). After intervention, both groups had improved social functioning, but those who denied teasing only improved slightly ($M = 73.90, SD = 22.73$), while those who endorsed weight teasing had greater improvement ($M = 65.90, SD = 22.52$), but at a level that was still below those without teasing (See Figure 11).

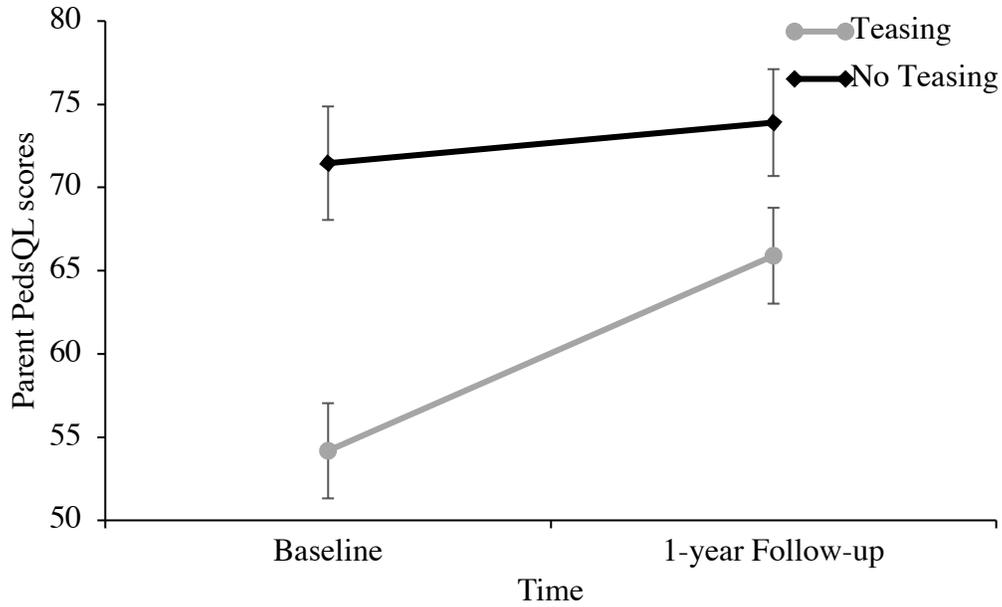


Figure 11. Objective Social Functioning between Obese Youth with and without Weight Teasing.

For child ratings, a significant main effect for history of teasing was also observed, Wilks' Lamda = .15, $F(2, 102) = 9.24, p < .01$, which indicated that the groups differed significantly on subject social functioning and weight. When looking at weight status and social functioning separately, subjective social functioning alone appeared to differ significantly between the groups, $F(1, 103) = 17.95, p < .01$, while weight status did not significantly differ between the same groups, $F(1, 103) = .48, p = .49$. Similar to parent ratings, individuals who endorsed a history of weight teasing reported a lower subjective rating of social functioning at baseline ($M = 62.68, SD = 24.66$) compared to obese youth who denied being teased for their weight ($M = 77.75, SD = 18.47$). After intervention, both groups reported improved social functioning, but those who denied weight teasing improved slightly ($M = 85.00, SD = 15.10$),

while those who endorsed weight teasing had greater improvement ($M = 75.00, SD = 19.21$), but at a level that was still below those who had not been teased (See Figure 12).

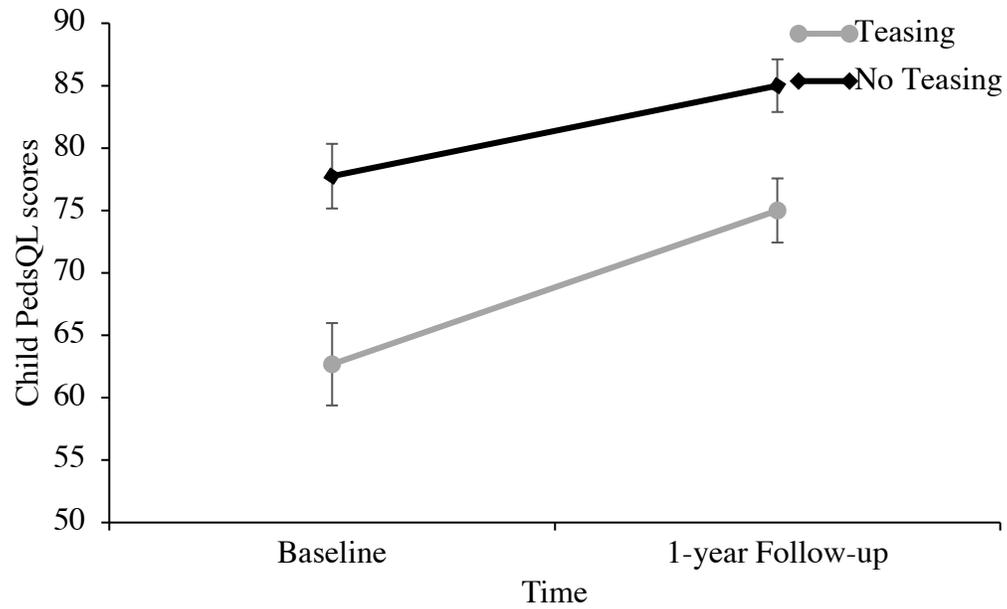


Figure 12. Subjective Social Functioning between Obese Youth with and without Weight Teasing.

IV. DISCUSSION

The current study aimed to identify changes in social functioning and weight status in obese youth following a pediatric weight management intervention. Overall, the results of the analyses suggested that participation intervention, regardless of participation in group-based or individual-based services, was associated with increased objective and subjective social functioning ratings and decreases in weight status. These findings are consistent with previous literature suggesting that intervention within multidisciplinary settings is effective (Delamater et al., 2008). Interestingly, there was no observed differences in changes over time for either child- or parent-reported and weight status between program tracks. These results indicated that regardless of track enrollment, the intervention was effective for improvements in social functioning and weight status. This finding conflicted with current literature that suggests that a group-based intervention may be more effective for pediatric weight management given the consistency of treatment and support (Goldfield et al., 2001; Savoye et al., 2007). In terms of group differences in social functioning, it would also be expected that those enrolled in the group-based intervention would demonstrate a higher level of social functioning compared to those in the individual intervention, given that group programs have the added benefit of peer support.

In terms of specific hypotheses for this study, it was hypothesized that baseline levels of social functioning would be significantly lower for obese youth who reported a history of weight teasing compared to obese youth who did not. As hypothesized, obese youth who endorsed

weight teasing had lower objective and subjective levels of social functioning at baseline compared to those who denied being teased based on their weight. While these findings are consistent with the current literature (Latner & Swartz, 2005), they also add unique approach given that the sample in this study was from a predominantly low socioeconomic, urban background. Studies of weight teasing largely focus on non-treatment seeking individuals (e.g., school-based studies) and usually do not include individuals who are representative of a diverse background.

It was also hypothesized that obese youth who denied a history of weight teasing would have an overall lower BMI z-score at 1-year follow-up compared to those who reported being teased for their weight. Contrary to what was hypothesized, individuals who endorsed weight teasing exhibited higher BMI z-scores prior to the start of the intervention and a lower BMI z-score post-intervention. While not statistically significant, there is clinical relevance to this finding given that the current literature has suggested weight teasing as a barrier to successful weight management and has been associated with maladaptive coping strategies (Eisenberg, Neumark-Sztainer, & Story, 2003; Neumark-Sztainer et al., 2002).

It was hypothesized that social functioning for those who were teased would improve significantly from baseline to 1-year follow-up, with PedsQL social functioning scores being higher than those who denied being teased for their weight. While results of the study suggested that social functioning improved for all individuals, this was not observed for between obese youth who were teased and their counterparts. It is possible that weight teasing may have contributed to lower social functioning at baseline, and while social functioning improved for these individuals between the two timepoints, social functioning for participants who denied weight teasing also improved, resulting in no interaction effect.

In terms of differences in social functioning between history of teasing and program track, it was hypothesized that obese youth who reported a history of weight teasing and participated in the group-based program would have the highest level of social functioning after intervention, followed by those in the group-based program who denied teasing, followed by obese youth in the individual track who denied weight teasing, and lastly those who reported weight teasing and were enrolled in the individual track. For parent ratings, it was observed that those without a history of weight teasing, whether enrolled in the individual track or group-based track, had higher levels of social functioning at baseline compared to obese youth who reported being teased for their weight. After intervention, the same trend in scores was seen, indicating that, while individuals improved throughout the intervention, those with a history of weight teasing started at a lower point and did not improve more over those without a history of weight teasing. The same trend in social functioning score were seen for child ratings of social functioning between baseline and 1-year follow-up.

In terms of changes in weight status between history of weight teasing and program track enrollment, it was hypothesized that individuals without a history of weight teasing who were in the group-based intervention would have the lowest BMI out of all groups given the consistency and support in the group-based intervention and the absence of weight teasing as a barrier to treatment success. When considering weight status at baseline, between both the parent and child models of social functioning and weight, obese youth who endorsed a history of weight teasing, regardless of program track enrollment, exhibited higher BMI z-scores at the initial clinic visit, compared to those who denied being teased for their weight. When examining outcomes from the parent model, it appeared that participants who were enrolled in the group-based intervention had a lower BMI z-score at the 1-year follow-up, and that those who endorsed a history of

weight teasing and participated in the intensive group program had the lowest BMI z-score. When looking at the child model, the same trends were seen at baseline; however, at their 1-year follow-up appointment, those who endorsed weight teasing, both from the individual and intensive group program, exhibited lower BMI z-scores compared to those without a history of weight teasing, and those in the group-based program who endorsed being teased for their weight had the lowest BMI z-score out of all groups. This finding is interesting given that, as previously mentioned, weight may be impacted by teasing through avoidance of social interactions and exercise, or other potential maladaptive coping strategies.

Overall, the results of this study suggested that participation in a pediatric weight management intervention is associated with improved social functioning and weight status for obese youth and that neither intervention, whether individually or group-based, is inherently better. This study also aimed to determine if a weight management intervention was more beneficial for those with or without a history of weight teasing, and whether different types of intervention were more effective based on social experiences. The results of this study indicated that a history of weight teasing is related to impaired social functioning prior to intervention. The results generally indicated that social functioning improved for most groups; however, those with a history being teased due to their weight started a lower level of social functioning and could not pass the level of social functioning of those who had not been teased. Most interestingly, weight status for youth who were teased appeared to decrease more than those who denied weight teasing, suggesting that a weight management intervention may be a protective factor against the maladaptive coping strategies that have been previously reported. These findings are important contributions to the existing literature. Implications for intervention efforts are discussed below.

Strengths, Limitations, and Future Directions

The current study has a number of strengths. While the obesity epidemic continues to rise in the United States and globally, the results of this study add to the literature within pediatric obesity and multidisciplinary weight management interventions. This study is likely the first of its kind in that previous have not specifically examined outcomes of social functioning for obese youth with or without a history of weight teasing, including assessing group differences by intervention type. Another strength of this study is that it has a unique sample of participants, who are treatment-seeking obese youth that are representative of diverse backgrounds. The data used in this study was also collected over several years within one pediatric weight management clinic, and the study itself has longitudinal design. In terms of changes in weight status and social functioning, the study indicated improvement in both social functioning and weight for participants. However, the improvements in social functioning are interesting, especially for youth who reported impaired functioning resulting from weight teasing, given that post-intervention weight status remained in the morbidly obese category.

Although this study adds to the literature addressing weight teasing and social functioning outcomes from weight management interventions, various limitations should be discussed. These limitations may have partially contributed to unexpected findings. While important to highlight the detrimental effects weight teasing can have on individuals and their outcomes in a pediatric weight management intervention, participants in this study were treatment seeking individuals, and likely exhibited overall lower quality of life compared to non-treatment seeking individuals (Brtiz et al., 2000), and therefore, results may not be generalizable to the general population of obese youth. This study would benefit from a comparison of obese youth who are non-treatment seeking to determine differences in social functioning between

clinic and community samples. Further, discrepancies between parent- and child-rated PedsQL scores were observed. While this difference may be indicative of limited child insight, research suggests that parent reported outcomes tend to suggest poorer functioning than child reports (Ghandi, Revicki, & Huang, 2015; Ul-Haq, Mackay, Fenwick, & Pell, 2012). With regards to functioning related to weight, a standardized measure (Kolotkin et al., 2001) of quality of life impairment specifically among obese youth may be beneficial to reduce inconsistencies between parent and child-reported scores. This study could also benefit from collateral data, such as other measures of child behavioral and emotional functioning, to corroborate the degree of social impairment for participants.

With regards to weight teasing, many past studies have relied on qualitative approaches to assess the various aspects of teasing among children and adolescents. Many obese children may be teased for other nonweight-related issues, such as being stupid or lazy, that are reflective of indirect weight bias and covert teasing. Assessment of this construct through clinical interview does not allow for consistent or thorough data collection. In this sample, patients were only asked if they had been teased about their weight. As a result, surveys often fail to include statements about weight made by family members or other subtle forms of teasing. Other studies have utilized standardized measures (Thompson, Cattarin, Fowler, & Fisher, 1995) for assessing this variable, such as examining degree of impact on weight teasing has on individuals and their level of social and emotional functioning. A continuation of this study would include standard measures of weight teasing to obtain consistent, reliable assessment of weight teasing. Another concern was the collection of the teasing variable over time. While the incidence of weight teasing was consistently assessed across years, the method for collecting this information had various iterations and resulted in missing data for many participants. Given that the data used in

the study was archival and based on a retrospective chart review, these missing data could not be collected from participants and, therefore, had to be dropped from the analyses.

In the databased used for this study, there was also a high attrition rate for patients and their families. Nearly 86% of the original sample did not return for their follow-up appointments. This phenomenon is consistently seen in pediatric weight management clinics (Rhodes et al., 2017). High attrition rate has been associated with factors, such as having a higher BMI, depression, low self-esteem, behavioral issues, high parental BMI, older age, and African American race. (Cote et al., 2004; Dhaliwal et al., 2014; Hampl, Paves, Laubscher, & Eneli, 2011; Hampl et al., 2013; Sallinen Gaffka, Frank, Hampl, Santos, & Rhodes, 2013; Skelton & Beech, 2011; Skelton, DeMattia, & Flores, 2008). In this study, the majority of participants met several off these criteria. For example, the sample predominantly consisted of adolescent, African American females and individuals whose BMI fell at, or above, the 99th percentile for age and sex. Other logistical factors (e.g., lack of insurance coverage) and patient experiences (e.g., dissatisfaction with program recommendations or staff) have also been found to be associated with dropout (Cote et al., 2004; Dhaliwal et al., 2014; Skelton et al., 2011; Skelton et al., 2008). Additionally, high attrition rates may be related to parent-child relationships and a failure to manage patient and family expectations for weight loss (Rhodes et al., 2017).

It is important to note that treatment assignment was not randomized, and therefore, this is not a true experiment. Future studies can improve on this work by ensuring that assignment to treatment is randomized, thereby minimizing potential confounding variables. It is also important to mention that, while the results of this study indicated improvements in weight status and social functioning, causality should not be assumed. There was a clear association between excess

weight and social functioning; however, the bidirectional relationship between the two should be considered.

Aside from the numerous improvements to this specific research already mentioned within the study limitations, other possible applications of this method of weight bias assessment should be discussed. Future studies could improve upon this work by determining any racial and gender differences in weight teasing and social functioning, as well as outcomes following a pediatric weight management intervention. Additionally, future studies should examine the relationship between BMI class and degree of weight teasing that results in impaired functioning and the effectiveness of a weight management intervention for weight teasing among youth with varying degrees of overweight and obesity.

Given the maladaptive coping strategies that accompany weight teasing, future studies should also examine the presence of avoidance behaviors and maladaptive eating patterns among obese youth who report weight teasing compared to their counterparts. Along with these difficulties, future research should also determine if externalizing or internalizing behaviors are comorbid with impaired social functioning among those with a history of weight teasing. The presence of externalizing behaviors and other maladaptive strategies for coping with weight teasing may provide additional opportunity for incorporating treatment into current interventions. While the intervention in this study did not include a treatment component for psychological difficulty as a result of weight teasing, improvements in social functioning were observed. Future studies could improve on this work by directly targeting these self-esteem issues and other maladaptive strategies used to cope with weight teasing and intervene in order to improve quality of life for obese youth. For example, mindfulness-based skills have been shown to mediate the impact of weight teasing on social functioning (Moreira & Canavarro, 2017).

Conclusions

The current study hypothesized that a pediatric weight management intervention would be effective for improving social functioning and weight status among obese youth. It was also hypothesized that obese youth who were teased would demonstrate impaired social functioning at initial clinic visits compared to those who denied any history of weight teasing. It was also posited that a weight management intervention would be effective for improving social functioning, specifically for obese youth who exhibited lower functioning due to weight teasing. It was also hypothesized that there would be differences in weight loss based on history of weight teasing as a result of impairment and avoidance. The intervention was effective overall for improving social functioning and weight status, but no variation of intervention was observed to be significantly more effective for improving social functioning for those who were teased. Interestingly, it was found that, in some cases, weight teasing was related to lower weight status after intervention, which is a unique addition to the current literature within weight teasing and individual responses to difficult social interactions. This study further highlights the need for additional research within weight teasing and pediatric weight management intervention to determine best practices for improving quality of life. These attempts should be made in efforts to improve current and future interventions for remedying the impact negative social interactions can have on obese and overweight youth.

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VITA

Joseph M. Magness, M.A.

Education

Doctor of Philosophy (Anticipated December 2018)

University of Mississippi, Oxford, Mississippi

Clinical Psychology

Dissertation: Weight teasing among obese youth: Social functioning outcomes following a pediatric weight management intervention

Advisors: Karen A. Christoff, Ph.D. & Stephanie E. Miller, Ph.D.

GPA 3.7

Master of Arts (received May 2016)

University of Mississippi, Oxford, Mississippi

Clinical Psychology

Thesis: Figure Rating Scales: A Novel Measure of Weight Bias

Advisor: Karen A. Christoff, Ph.D.

GPA 3.7

Bachelor of Arts (received December 2011)

Harding University, Searcy, Arkansas

Majors: Psychology & Spanish

Minor: Religious Studies

Advisors: Katherine Howard, Ed.D. & Ava M. Conley, M.A.

GPA 3.9

Clinical Experience

August 2018 – **Mt. Washington Pediatric Hospital**

Baltimore, Maryland

Present

Division of Psychology & Neuropsychology

Position: Psychology Fellow

Supervisors: Elizabeth Getzoff, Ph.D.

Weigh Smart Pediatric Weight Management Program:

- Duties include conducting consultation interviews with medical staff that focused on healthy lifestyle habits related to nutrition and physical activity as well as emotional, behavioral, and social functioning, providing vertical supervision to predoctoral interns and extern and volunteer students, overseeing scoring and entering of clinical data, co-facilitating weekly family-based group intervention for overweight and obesity, conducting medical chart review, attending weekly multidisciplinary team rounds, attending weekly group and individual supervisions, and providing outpatient individual and family therapy services to clinic patients.

August 2017 – **Mt. Washington Pediatric Hospital**
August 2018 *Division of Psychology & Neuropsychology*

Baltimore, Maryland

Position: Psychology Predoctoral Intern

Directors: Kenneth Gelfand, Ph.D. & Bradley Schwimmer, Psy.D.

Supervisors: Elizabeth Getzoff, Ph.D., Stephanie Terracciano, Psy.D., & Stacey LeFevre, Psy.D.

Outpatient Psychology Services:

- Duties include conducting consultation intake interviews and psychological evaluations, reviewing and updating patient paperwork, providing outpatient individual and family therapy, co-facilitating mindfulness groups for children and adolescents, attending weekly supervisions, and participating in weekly didactic lectures and therapy seminars.

Weigh Smart Pediatric Weight Management Program:

- Duties include conducting consultation interviews with medical staff that focused on healthy lifestyle habits related to nutrition and physical activity as well as emotional, behavioral, and social functioning, providing vertical supervision to extern and volunteer students, overseeing scoring and entering of clinical data, co-facilitating weekly family-based group intervention for overweight and obesity, conducting medical chart review, attending weekly multidisciplinary team rounds, attending weekly group supervisions, and providing outpatient individual and family therapy services to clinic patients.

Pediatric Diabetes Clinic:

- Duties include conducting consultation interviews with medical staff that focused on medical adherence as well as emotional, behavioral, and social functioning, conducting medical chart review, attending weekly group supervisions, and providing outpatient individual and family therapy services to clinic patients.

Inpatient Psychology Services:

- Duties include conducting consultation interviews with families and patients admitted to hospital for acute medical conditions and pediatric rehabilitation, providing weekly family and individual therapy services, co-facilitating process groups for children and adolescents, maintaining token economy behavior system for patients, attending weekly individual and group supervisions, participating in family discharge and treatment planning sessions with medical team, and attending weekly medical rounding on patients by medical staff.

Feeding Day Treatment Program:

- Duties include conducting consultation interviews with medical staff that focused on developmental and oral motor delays resulting in pediatric feeding disorders, tailoring and implementing individualized treatment protocols for patients, updating patient medical records and documentation of sessions, attending weekly feeding team rounds, and attending weekly individual supervisions.

August 2016 – **St. Jude Children’s Research Hospital** Memphis, Tennessee
July 2017 *Department of Epidemiology & Cancer Control*

Position: Psychological examiner for the After Completion of Care Clinic

Supervisors: Pia Banerjee, Ph.D. & Kevin R. Krull, Ph.D.

- Duties include conducting neuropsychological evaluations, scoring and interpreting test data, writing integrated neuropsychological reports, reviewing and updating patient paperwork, entering data from neuropsychological evaluations, attending weekly psychological examiners supervision and didactics, and attending weekly cognitive neuroscience laboratory meetings.

May 2013 – **University of Mississippi** Oxford, Mississippi
July 2017 *Psychological Services Center*

Position: Graduate Therapist

Supervisors: Karen A. Christoff, Ph.D., Todd A. Smitherman, Ph.D., Stefan E. Schulenberg, Ph.D., Scott A. Gustafson, Ph.D., & Laura J. Dixon, Ph.D.

- Duties include conducting intake assessments, developing treatment plans, providing therapy, and preparing client process notes and reports.

May 2014 – **University of Mississippi** Oxford, Mississippi
July 2017 *Psychological Assessment Clinic*

Position: Graduate Examiner

Supervisors: Scott A. Gustafson, Ph.D. & Todd A. Smitherman, Ph.D.

- Duties include providing comprehensive psychological evaluations to assess for learning disabilities, Attention-Deficit/Hyperactivity Disorder, mood/anxiety disorders, and personality disorders. Specific assessment experience includes pre-surgical evaluations for bariatric surgery and fitness for duty evaluation for University of Mississippi Police Department.

August 2015 – **Mississippi Action for Progress Inc.** Oxford, Mississippi
May 2017 *Head Start Program*

Position: Mental Health Specialist

Supervisor: Alan M. Gross, Ph.D.

- Duties include conducting functional assessments, implementing brief behavioral interventions, conducting psychoeducation and parent training, preparing client progress notes and reports, providing consultation services and medication referrals, and providing professional development for classroom behavioral management with center staff.

June 2013 – **North Mississippi Regional Center** Oxford, Mississippi
July 2014 *Department of Psychology & Behavioral Services*

Position: Graduate Therapist for adults with intellectual and developmental disabilities

Supervisor: J. Scott Bethay, Ph.D.

- Duties included providing individual and group therapy, functional assessments, social skills training, comprehensive intellectual assessments for determination of ICF/IID and HCBS services, composing behavior plans, and updating and composing yearly treatment plans.

August 2013 – **University of Mississippi** Oxford, Mississippi
May 2015 *Office of International Programs*

Position: Co-leader of Cultural Connections Club (C3)

Supervisor: Laura R. Johnson, Ph.D.

- Conducted a weekly group for international students to meet to connect with other international students, discuss issues transitioning to the United States, and learn about cultures and diversity. The focus of the group depended on the needs of the members from week to week and it was a hybrid of support group and group therapy.

May 2009 – **Arkansas Counseling Associates, Inc.** Harrison, Arkansas
August 2011

Position: Mental Health Paraprofessional

Supervisor: Sherry R. Levy, Ed.D

- Duties included assisting a licensed counselor in the implementation of treatment plans in a day camp setting for children with internalizing and externalizing disorders, completing Medicaid billing for psychological technician services on a weekly basis, and attending clinical staffing meetings on a monthly basis.

Research Experience

August 2015 – **University of Mississippi** Oxford, Mississippi
Present *Cognition Underlying Behavior (CUB) Lab*

Position: Graduate Research Assistant/Perspectives About Weight (PAW) Group Supervisor

Supervisor: Stephanie E. Miller, Ph.D.

- Duties include entering, analyzing, and interpreting data collected from projects pertaining to developing cognitive control in infants, toddlers, and children and cognitive processes underlying biases present in weight stigmatization, supervising undergraduate research assistants and honor's theses students, recruiting participants for research studies, and providing ad hoc reviews of literature including journal articles in the field of developmental and cognitive psychology.

August 2012 – **University of Mississippi** Oxford, Mississippi
Present *Get Fit! (Child Health Behavior) Lab*

Position: Graduate Research Assistant

Supervisor: Karen A. Christoff, Ph.D.

- Duties include entering, analyzing, and interpreting data collected from projects pertaining to behavioral reinforcement of physical activity in preschool age-children, hope and resilience of adolescents in the Mississippi Delta, body dissatisfaction in college-age students, and individual differences in weight stigmatization, supervising honor's theses students, and consulting peers on research projects.

August 2013 – **University of Mississippi** Oxford, Mississippi
May 2014 *Cardiovascular Research Lab*

Position: Graduate Research Assistant for Cardiovascular Health/Heartrate Variability

Supervisor: Michael T. Allen, Ph.D.

- Duties include recruiting participants from a local, rural medical clinic, collecting measures of heartrate variability and cardiovascular reactivity to stress including electrocardiogram, pulse, blood pressure, and cortisol levels from saliva samples, and data entry and cleaning.

June 2011 – **University of Arkansas for Medical Sciences** Little Rock, Arkansas
August 2012 *Division of Pediatrics, Department of Psychology*

Position: Senior Research Assistant

Supervisor: Wendy L. Ward, Ph.D.

- Duties included writing manuscripts for publications based on research in fitness and obesity, ethical issues in pediatric psychology, and barriers to weight management treatment; designing educational modules for patients and physicians in specialty clinics within a hospital setting, including pain management, nutrition, and fitness; translating educational handouts for disordered eating (e.g., boredom, night, and binge eating) into Spanish for Spanish-speaking patients; collecting data through phone surveys with patients from a weight management clinic; assisting with data entry and cleaning; supervising undergraduate research students; and shadowing postdoctoral fellows in specialty clinics, including pediatric neuropsychology and weight management, and consultation liaison services.

Administrative Experience

Dec 2014 – **University of Mississippi** Oxford, Mississippi
June 2015 *Psychological Assessment Center*

Position: Psychological Assessment Center Coordinator

Supervisor: Scott A. Gustafson, Ph.D.

- Duties included developing and implementing assessment policies, managing assessment center budget, ordering psychological assessment materials, interacting with assessment clients from a university and community population, conducting initial interview for assessment needs, scheduling assessment cases, designing promotional marketing to students and community, coordinating electronic medical record system for assessment center, and serving as member of clinic executive committee and supervisor of graduate examiners.

July 2014 – **University of Mississippi** Oxford, Mississippi
 June 2015 *Psychological Services Center*

Position: Assistant to the Executive Director

Supervisor: Scott A. Gustafson, Ph.D.

- Duties included implementing clinic policies and procedures for graduate therapists, coordinating electronic medical record system for clinic, managing clinic financial records and budget, ordering treatment manuals and assessment measures for therapy services, marketing center services to community medical physicians and clinics, and serving as supervisor of graduate therapists and member of clinic executive committee.

Academic Experience

July 2014 – **University of Mississippi** Oxford, Mississippi
 May 2015 *Department of Psychology*

Position: Instructor of Record for Introductory Psychology

Supervisors: Michael T. Allen, Ph.D., Karen A. Christoff, Ph.D., & Stephanie E. Miller, Ph.D.

- Duties included preparing and giving lectures, preparing and giving exams, and meeting with and providing feedback to classes of over 100 students.

January 2015 – **University of Mississippi** Oxford, Mississippi
 May 2015 *Department of Psychology*

Position: Graduate Teaching Assistant for Psychology of Learning

Supervisor: Karen A. Christoff, Ph.D.

- Duties included preparing and giving lectures, preparing and giving exams, and grading student behavior change projects.

August 2012 – **University of Mississippi**
May 2013 *Department of Psychology*

Oxford, Mississippi

Position: Graduate Teaching Assistant for Introductory Psychology & Psychology of Instructional Technology

Supervisor: Karen A. Christoff, Ph.D.

- Duties included preparing and giving exams, grading student papers, supervising undergraduate teaching assistants, and facilitating weekly tutoring hours.

January 2012 – **Harding University**
June 2012 *Department of Foreign Languages*

Oxford, Mississippi

Position: Spanish Adjunct Professor

Supervisor: Ava M. Conley, M.A.

- Duties included teaching undergraduate Spanish conversation courses, writing and administering midterm and final comprehensive exams, evaluating annual oral proficiency examinations for undergraduate students.

Professional Publications

Buzenski, J., Cohen, L., Cobb, J., Seay, A., Griffin, N., **Magness, J. M.**, Ward, W. L. (under review). Measuring Child and Parent Readiness to Change in Obese Youth.

Miller, S. E., Avila, B. N., Florez, I. A., Hamer, J. D., **Magness, J. M.**, & Vandenbrink, T. (under review). Associations between executive function and social development: Evidence for a representational framework.

Magness, J. M., Phillips, B. A., McCracken, A., Tang, X., Gance-Cleveland, B., & Ward, W. (under review). A comparison of depression, social anxiety and HRQOL in early adolescence between clinic-based and school-based.

Mesman, G., **Magness, J.**, Ward, W. (2015). Educational handouts for Latino youth who are obese. *Journal of Pediatric Health Care*.

Manuscripts in Preparation

Magness, J. M. (in preparation). Treating weight stigma among medical professionals: A review of weight bias in healthcare settings.

Brown, C. C., Chesshir, B. C., **Magness, J.**, Ward, W. L. (in preparation). Comparing ethical codes: medicine and psychology.

Brown, C. C., **Magness, J. M.**, Chesshir, B. C., Ward, W. L. (in preparation). Statewide utilization of AMA and APA ethics codes by licensure agencies.

Grants Submitted

Miller, S. E. & **Magness, J. M.** (under review). Healthy decision makers! Training preschoolers on reflection-based health decisions. The Mississippi Center for Obesity Research (Foundation Grant, \$25,000).

Published Abstracts

- Mesman, G. R., Ward, W. L., & **Magness, J. M.** (2012, May). Binge eating disorder, boredom eating, emotional eating, and night eating syndrome in pediatric populations. International Society for Behavioral Nutrition and Physical Activity 2012 conference, Austin, TX.
- Magness, J. M.**, Mesman, G. R., Wildermuth, S. A., Ward, W. L. (2012, May). Spanish educational handouts for binge eating disorder, boredom eating, emotional eating, and night eating syndrome in pediatric populations. International Society for Behavioral Nutrition and Physical Activity 2012 conference, Austin, TX.
- Magness, J. M.**, Scheuter, C., Brown, C. C., Chessir, B. C., Ward, W. L. (2012, May). Computer learning modules on portion sizes and exercise. International Society for Behavioral Nutrition and Physical Activity 2012 conference, Austin, TX.

Presentations

- Bell, D., Christoff, K., Prinstein, M., **Magness, J.**, Veilleux, J., Hart, K., & Hansen, D. (2016, October). Getting in and succeeding in graduate school in psychology. Panel discussion at Association for Behavioral and Cognitive Therapies conference, New York, NY.
- Magness, J.**, Miller, S., & Christoff, K. (2016, October). Figure rating scales: A novel measure of weight bias. Poster presentation at Association for Behavioral and Cognitive Therapies conference, New York, NY.
- Magness, J.**, Miller, S., & Christoff, K. (2016, October). Hate me; hate you: Body dissatisfaction and fear of fat as predictors of weight bias. Poster presentation at Association for Behavioral and Cognitive Therapies conference, New York, NY.
- Magness, J.**, Miller, S., & Christoff, K. (2016, September). Weight bias: Is the issue beyond black and white? Poster presentation at Mississippi Psychological Association annual conference, Bay St. Louis, MS.
- Magness, J.**, Miller, S., & Christoff, K. (2016, May). Racial and gender differences in weight bias against individuals from minority populations. Poster presentation at Association for Psychological Science annual conference, Chicago, IL
- Magness, J.**, Miller, S., & Christoff, K. (2016, April). Rated-O for offensive: Using figure rating scales a novel measure of weight bias. Symposium presented at the 3rd Annual University of Mississippi Department of Psychology Research Festival, Oxford, MS.
- Magness, J.**, Christoff, K. (2013, November). True love weights: A comparison of body mass index, ethnicity, and satisfaction with self and significant others. Poster presentation at Association for Behavioral and Cognitive Therapies conference, Nashville, TN.
- Chessir, C., Brown, C., **Magness, J.**, Ward, W. (2012, August). Comparing ethical codes: Medicine and psychology. Poster presentation at American Psychological

Association conference, Orlando, FL.

Magness, J. M., Mesman, G. R., Wildermuth, S. A., Ward, W. L. (2012, May). Spanish educational handouts for binge eating disorder, boredom eating, emotional eating, and night eating syndrome in pediatric populations. Poster presentation at the International Society for Behavioral Nutrition and Physical Activity 2012 conference, Austin, TX.

Mesman, G., **Magness, J.M.**, Wildermuth, S., Ward, W.L. (2012, May). Binge eating disorder, boredom eating, emotional eating, and night eating syndrome in pediatric populations. Poster presentation at the International Society for Behavioral Nutrition and Physical Activity 2012 conference, Austin, TX.

Magness, J. M., Scheuter, C., Brown, C.C., Chessir, B. C., Ward, W. L. (2012, May). Computer learning modules on portion sizes and exercise. Poster presentation at the International Society for Behavioral Nutrition and Physical Activity 2012 conference, Austin, TX.

Magness, J. M. (2010, April). The effect of body dissatisfaction on friend selection among children. Symposium presented at the 27th annual Arkansas Symposium for Psychology Students, Monticello, AR.

Professional Activities

Student/Trainee Member at Large of Executive Committee for the Pediatric Obesity SIG; APA Division 54 (April 2015 – April 2017)

Student Representative to the Clinical Faculty, University of Mississippi Department of Psychology (August 2015 – August 2016)

Professional Affiliations

American Psychological Association Graduate Student Affiliate

Association for Behavioral and Cognitive Therapies Student Member

International Society for Behavioral Nutritional and Physical Activity Student Member

Society of Pediatric Psychology (Division 54) Student Member

Society of Pediatric Psychology Obesity Special Interest Group Member

Society for Teaching of Psychology (Division 2) Member

Service Work

American Foundation for Suicide Prevention Out of the Darkness Walk Committee Member, (Fall 2012)-Assisted in event planning, preparation, fundraising, and running the event on the day of the walk.

Special Skills

Language: Advanced Proficiency in Spanish

Proficiency with coding/scripting experimental tasks for RT programs (e.g., SuperLab)

Awards & Achievements

Best Graduate Research Presentation Award (2016) at 3rd Annual University of
Mississippi Department of Psychology Research Festival
Passed the EPPP at the Doctoral Level (August 2016)