

ARE SOME CHILDREN WEIGHT BLIND?
THE STIGMA OF OBESITY AND
ITS INFLUENCE ON 3RD- 6TH
GRADE CHILDREN

by

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ABSTRACT

ARE SOME CHILDREN WEIGHT BLIND? THE STIGMA OF OBESITY AND ITS INFLUENCE ON 3RD- 6TH GRADE CHILDREN

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The aim of this research was to examine when the buffering effects (if any) of ethnicity, sex, age difference, and personality of the perceiver affect the stigmatization of overweight children, and to determine if some children can indeed be *weight-blind*. A total of 315 3rd- 6th grade children (boys = 157) completed an online computer survey measuring their perceptions of thin, medium and heavy children of different ethnicities and sex. Children also provided measures of their personality and attitudes toward weight. Finally, height and weight were collected for each child. Results revealed an overwhelming weight bias, which was only weakened by higher levels of agreeableness

and conscientiousness. These personality dimensions only played a small part. In addition, young children were less biased than older children, but were not completely neutral in their perceptions of overweight peers. In other words, some children were weight *near-sighted* (i.e., exhibited less bias), but there was no evidence of weight-blindness (i.e., total lack of weight bias). In addition, there was no evidence that ethnic differences played a part in rendering children *weight-blind*.

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CHAPTER I

INTRODUCTION

“Now there are more overweight people in America than average-weight people. So overweight people are now average. Which means you've met your New Year's resolution.”

Jay Leno (*The Tonight Show, NBC*).

“.. For their own good and the good of the country, fat people should be locked up in prison camps...”

Dr. Kenneth Walker, (Solovay, 2000).

School bullies tortured Laura Rhodes, a thirteen-year-old British girl from Wales, daily. She left this note as she killed herself in September 2004, “I got fatter and fatter and sadder and sadder. Everyone got meaner and meaner...I wasn't too stubborn to ask for help, I did ask, but they did not pay any attention” (The Times, 2004). Recently, a sorority at DePauw University, Indiana, removed 23 members for allegedly not presenting the desired image for the Delta Zeta sorority. Included in the removed members were all the overweight young women and three of the four minorities represented in the sorority (DePauw University News, 2007).

While these cases may be extreme examples of what can happen when stigmatization related to being overweight reels out of control, many people can provide anecdotal examples of weight prejudice or discrimination with very little

encouragement. ‘Fat’ people are increasingly excluded, treated differently, and viewed as having “physical, emotional, and moral impairment” (Hebl & Xu, 2001), and are being discriminated against in many areas, such as education, health care, and employment (e.g, Hebl & Mannix, 2003; Kristeller & Hoerr, 1997).

The prevalence of overweight children is increasing rapidly in the United States and has many implications for Americans’ health. Overweight children will likely endure not only physical difficulties but also psychological obstacles (Clark & Tiggemann, 2007). Overweight people often feel undesirable, unattractive, and devalued by society’s standards (“Psychological,” 2003), and rejected by family, peers and strangers. Indeed, weight related mistreatment has been reported by over 40% of obese adults (Myers, & Rosen, 1999). As children reach adolescence, their self-perceived overweight has been associated with a reduction in self-esteem (Hill, 2005). Indeed, Tiggemann (2005) found adolescent girls with higher actual BMIs and perceived being overweight were more susceptible to experiencing low self-esteem. In addition, ‘Fat teasing’ has been reported in 1 in 7 adolescent boys and girls and has been linked with low-body satisfaction and low self-esteem (Hill, 2005).

Even young children can demonstrate negative attitudes and prejudiced behavior towards overweight children (Cramer & Stewart, 1998; Edmunds, 2002; Musher-Eizenman, Holub, Barnhart Miller, Goldstein & Edwards-Leeper, 2004; Turnbull, Heaslip, & McLeon, 2000). What is less understood are the individual differences in children, if any, when they might employ weight biases. It is possible that some children are more *weight-blind* than others in their perceptions of peers; this in turn may

buffer some children against weight stigma. That is, certain characteristics (e.g., personality and attitudes) may render some children more tolerant of weight differences in peers. This thesis examined children's reactions to other children's weight, and how these perceptions may be altered by the child's own actual or perceived weight, personality, and attitudes toward being overweight (e.g., controllability of weight, subcultural attitudes toward weight).

Definitions of Overweight and Obesity

Definitions of overweight and obesity can vary, although scientific and professional groups including pediatricians, health professionals, and researchers generally use a measurement called percentile of Body Mass Index (BMI; calculated as weight in kilograms divided by height in centimeters squared). The BMI is a single number determined by evaluating an individual's weight in relation to his/her height. It does not measure body fat directly, but research has shown that BMI correlates to direct measures of body fat (Mei, Grummer-Straun, Pietrobelli, Goulding, Goran & Dietz, 2002). The references for overweight can vary, but the most accepted figures state a BMI of 25 and above is defined as overweight and a BMI of 30 and above is defined as obese for adults.

For children, BMI is age and gender specific, and changes substantially between the ages of 2-20 years old. BMI-for-age is a percentile ranking that indicates the relative position of child's BMI among other children of the same sex and age. Both BMI and BMI-percentile were used in this study. The Centers for Disease Control (CDC) use different terms for children and adolescents and suggest two levels of

overweight: 1) Children in the 85th percentile are in the *at risk* level of being overweight, and correspond to the overweight reference point of a BMI of ≥ 25). Those over the 95th percentile are at the more severe level, and approximately correspond to a BMI of 30, which is the marker for obesity in adults.

National Obesity Prevalence

According to the CDC's Youth Risk Behavior Survey (2005), nationally 14% of children and adolescents are overweight (≥ 95 percentile for BMI by age and sex), and 15% are *at risk* of becoming overweight (≥ 85 percentile for BMI by age and sex ≤ 95). Rates of obesity vary from state to state. Texas metropolitan areas have some of the highest levels of obesity in the nation. From 2000-2004, Houston ranked in the top three cities for adults being overweight, determined by environmental factors (e.g., number of restaurants per capita), not genetics (American Obesity Association, (AOA) 2004). Statistics for 2004 show Houston ranked 2nd, Dallas 3rd, San Antonio 4th, Ft Worth 6th, and Arlington 8th in the nation (AOA, 2004). In Dallas, the prevalence of being overweight among children from 6 to 11 years of age has more than doubled in the last twenty years from 7% in 1980 to 18.8 % in 2004. For adolescents from 12-19 years old (Dallas), rates of overweight have more than tripled from 5% to 17.1% (21% overweight and 17% *at risk*). Additionally, overweight children and adolescents are at a much greater risk of becoming obese adults (CDC, 2006). Quite clearly, this problem is going to persist into the future and will have consequences at many levels, including physical and psychological (e.g., maladjustment associated with stigmatization, prejudice, and discrimination).

The Negative Consequences of Being Overweight

One might expect that as the number of overweight people increases nationally, being overweight should become more normalized in American society, but by all accounts, this is not the case. There have been numerous studies reporting the impact of negative attitudes of professionals towards overweight adults, including judgments by health care professionals and prospective employers. Physicians, who are trusted for looking out for the patient's interests, have been found to be some of the most prevalent offenders of ambivalent attitudes toward overweight patients. Kristeller, and Hoerr (1997) investigated over 1200 physicians in different specialties and found, for example, only 18% would discuss weight management with their overweight patients (42% for mildly obese patients). Hebl and Xu (2001) provided further support for this differential treatment in a study of 122 doctors. They found that the weight of patients significantly affected doctors' attitudes and treatment of their overweight patients (e.g. they spent less time with them), and perceived and treated them more negatively than normal weight patients.

This weight bias also extends to the workplace. Hebl and Mannix (2003) undertook two separate experiments and found that male job applicants were rated more negatively when seen with an overweight female versus a normal weight female. That is, simply being in the same proximity of an overweight female triggered stigmatization of the male applicant. Research on stigma by association has shown that heterosexuals are also derogated for socializing with homosexual friends (Neuberg, Smith, Hoffman, & Russell, 1994). Recently this "mere proximity" effect for anti-fat prejudice has been

replicated in 5-10 year old children (Penny & Haddock, 2007).

In sum, being overweight is among a long list of groups that have been or are treated with shame and indignity (i.e., stigmatized), including, the elderly, handicapped, homosexuals, ethnic minorities, and women (Crandall, 1994, Allon, 1982; Harris, Harris & Bochner, 1982; Rodin, & Langer, 1980). In opposition to unfair treatment of fat people, the National Association to Advance Fat Acceptance (NAAFA, 2007) actively protests against inappropriate products in stores and fraudulent dietary aids. They assist in litigation for employment discrimination, offer education about being overweight, and monitor 'fat jokes' in the media. For example, they helped a Los Angeles police officer who was dismissed for reporting a "No Fat Cops!" poster in a captain's office. However, in contrast to racism or sexism, being overweight is possibly the last acceptable prejudice in which it is still tolerable to openly (or covertly) ridicule, and denigrate overweight individuals.

Race Influences on Obesity

Although being overweight has increased for all children and adolescents, there are disparities among racial and ethnic groups. Compared with White Americans, African American and Hispanic Americans have the highest rates of overweight and obesity (AOA, 2007). During childhood, obesity is less common in African American than in White children, but this trend reverses in adolescence (National Center for Health Statistics (NCHS), 2002). A recent survey by the NCHS (2002), found African American girls and Latino boys are at especially high risk of being overweight during adolescence.

Data from the NHANES III (National Health and Nutrition Examination Survey, 1988-1994) through NHANES (2003-2004) show that adolescent non-Hispanic white and black boys experienced larger increases in the prevalence of overweight (7.5% and 7.8%), respectively. Among non-Hispanic white boys the prevalence of being overweight increased from 11.6-19.1%; for non-Hispanic black boys the prevalence of being overweight increased from 10.7-18.5% and for Mexican-American boys the prevalence of being overweight increased from 14.1-18.3 %.(CDC, 2007).

Adolescent girls' statistics produced a similar pattern. Data from the NHANES III (1988-1994) through NHANES (2003-2004) show that adolescent black girls experienced the largest increases in the prevalence of overweight (12.2%), compared to non-Hispanic white girls (8%) and Mexican-American (4.9%) girls, (CDC, 2007). Non-Hispanic black girls had the highest increase of overweight (from 12-19 years) of 13.2-25.4%, compared to non-Hispanic white girls (7.4- 15.4%) and Mexican American (9.2%-14.1%) girls.

Not to be ignored are the ethnic and cultural differences that may alter perceptions of what constitutes being "overweight". It is well known that ideals and values of weight vary greatly within cultures, (Crandall & Martinez, 1996: Crandall, D'Anello, Sakall, Lazarus, Nejtardt & Feather, 2001). Franko & Streigel-Moore (2002) suggest Black individuals have a more positive body image than other ethnic groups and have different standards of attractiveness than other ethnic groups. They further suggest that Black individuals use different criteria to judge attractiveness, placing less validity on thin ideals than are typical for Whites.

Hebl and Heatherton (1997) also examined cultural variations in obesity stigma between Black and White women. They found that White women rated overweight women, particularly other white women, as less attractive and less intelligent than *normal* weight (average-sized) women; whereas, Black women did not hold the same prejudices especially when rating heavy Black women. More recently, Hebl and Turchin (2005) assessed obesity stigma in Black and White men. The study found that men do indeed stigmatize obesity in men as well as women. However, differences emerged between Black and White males' *cut-off* levels of what they considered ideal. White males rated thin White females as more ideal, whereas Black males grouped together thin and medium Black females as more desirable than heavy Black females. Size did not influence men's evaluations of women of a different race. Also, within male obesity ratings, heavy Black men were rated more positively than heavy White men. This disparity may be due to different stereotypes evoked for large Black and White men. For example, large Black men are often seen as athletic, (e.g. William Perry "The Fridge", former defensive lineman for the Chicago Bears weighed 370lbs) whereas large White men conjure images of John Candy or Chris Farley (Saturday Night Live comedian, died age 33; obesity was a contributing factor).

Crandall and Martinez (1996) also assessed the impact of cultural beliefs and attitudes on the acceptance of overweight people in the United States (Florida and Kansas) compared to attitudes in Mexico City. They determined Mexicans had less anti-fat attitudes than Americans did. Mexicans were less likely than Americans to report overweight as being one's own fault, and less likely to believe that gaining weight was a

failure of ones own willpower.

In sum, the American ideology of the majority culture appears to contribute to prejudice against overweight people by making weight something that is controllable and due to personal responsibility – or lack thereof (Crandall, 1994). In the American individualistic culture, responsibility for the self is a key component – but this is not the case in all cultures (Brownell, Puhl, Schwartz, & Rudd, 2005). Being thin in the majority culture is seen as showing great restraint from eating too much food (or high caloric food). Conversely, being ‘fat’ is seen as involving lack of self-control.

Less clear is the influence of ethnicity on the weight stigmatization of children. There have been few studies examining whether different ethnicities and cultures endorse biased attitudes towards weight in children (Puhl & Latner, 2007). In 1991, Collins found a slight bias in favor of heavier weight in African American girls. A study of first through third grade students’ perceptions of body figures (line drawn figure arrays) showed Black girls chose a significantly larger body ideal for themselves as more preferable than did White girls. Moreover, although Crandall and Martinez (1996) found differences in Mexicans’ attitudes toward weight, very little is known about weight attitudes among Hispanic Americans, the fastest growing minority population with the United States.

Weight Stigmatization and Controllability

Another important individual difference that may influence how much individuals stigmatize persons who are overweight involves people’s attitudes toward how controllable weight is. For example, De Jong (1980) points out that controllability

is linked to responsibility; Decisions made regarding the self, are considered conscious choices (e.g., hairstyle, personal hygiene, and dress sense) under direct control of the individual. The stigma of being overweight has been clustered in with these types of physical attributes and the overweight individual is held responsible. This can lead some people to believe that the obese person can easily change his/her condition if he/she wants to. Unless they can provide a valid “excuse” for their condition, such as a thyroid imbalance, their character is denigrated, not based on their physical appearance alone, but in tandem with the perception that they are solely responsible for their behavior (De Jong, 1980). Sigelman and Begley, (1987) found children’s negative attitudes to overweight children were lower when controllability for their weight was perceived as low.

More recently, Bell and Morgan (2000) examined controllability of weight in children from third and sixth grade who were randomly assigned to watch a video tape of a peer of average weight, obese, or obese with medical explanation for the obesity. The obese children were rated most negatively. Although less blame was attributed to those with the medical explanation, negative attitudes towards obese children remained unchanged. Tiggemann and Anesbury, (2000) found children rated overweight children and overweight adults equally negatively when controllability was assigned to that individual. In contrast Musher-Eizenman, Holub, Barnhart Miller, Goldstein, and Edwards-Leeper (2004) reported more internal attributions of control were associated with less positive ratings for overweight pre-school children.

Individualistic cultures’ preoccupation with responsibility also allies with our

concepts of accomplishments and failures as being outcomes of personal motivation (Klaczynski, Goold & Mudry, 2004). This has strong implications for overweight children, as they may be viewed socially as failures in achieving the “thin ideals” (American beliefs and perceptions of the causes obesity and controllability of weight) (Crocker, 1999; Klaczynski et al., 2004). The more a person deviates from these ideals the more disliked they are likely to become denigrated as inferior beings (Crocker, 1999).

Do overweight children stigmatize other overweight children?

A classic study by Clark and Clark (1947) found that Black children had learned to reject their ethnic group because of pervasive stigmatization and prejudice. Years later in 1988 and 1992, Powell-Thompson and Hopson continued to replicate the original findings (also anecdotal evidence from a short film created by a high school student in 2006 [aired by ABC News, 2007]), and echoed the same enduring sentiments of sixty years ago. That is, Black children still overwhelmingly choose a White doll over a Black doll and label the Black doll as bad. It follows that other stigmatized groups may also internalize pervasive stigmas.

It is equally possible that overweight children will adopt a similar negative attitude toward other overweight children, in that they will assign negative characteristics to overweight peers even if they are overweight themselves. Blaine and Williams (2004) suggest the widespread belief of controllability of weight has become a social norm that justifies prejudice against heavy people. This norm has in turn been internalized by overweight people rendering them vulnerable to stigmatization from

other overweight individuals.

The self-fulfilling prophecy theory (Langlois & Stephan, 1977) also posits that differing physical characteristics (i.e., heavy versus normal weight) of children may lead to different expectations of how these children will behave. This in turn may lead to overweight children perceiving themselves in the same negative light as others do, and perpetuate different eating behaviors; thus creating a bidirectional effect of poor self perception mediating weight and stigmatization. If this is so, we might expect differential bias from overweight children toward other overweight peers.

A recent study by Schwartz (2006) examined the influence of one's own body weight on the strength of implicit and explicit anti-fat bias in a large adult sample. Thinner people were more likely to automatically associate negative attributes (e.g., lazy) with fat people, to prefer thin people, and to explicitly rate fat people as less motivated than thin people. Nonetheless, all weight groups exhibited significant anti-fat bias including the heaviest respondents, indicating how pervasive this fat bias was.

Sex Differences in Obesity Stigmatization

Another moderating influence that has been well documented in the literature involves sex differences associated with weight stigma. A recent study of maternal perceptions of weight status of their own children (labeling their child) highlighted that nearly one third of mothers failed to correctly classify their own overweight children as “overweight”. The results indicated mothers are nearly three times as likely to classify *at-risk* daughters as “overweight” compared to their *at-risk* sons, who are often simply referred to as “chunky” or “solid” (Maynard, Galuska, Blanck, & Serdula, 2003).

In a study by Cash (1995), young college-age women were tested for their recollection of childhood and adolescent teasing and criticism related to weight. Cash determined that their criticism and teasing came from one-third of their peers. Strikingly, over one third of the worst offenders were family members, especially mothers and brothers, but seldom fathers.

Finally, in three studies, Crandall (1991) found that girls were less likely to receive financial support from their parents for college education than were boys if they were more overweight than average. This effect was not related to parents' ability to pay for their daughters' college education. As college students, overweight women were more reliant on jobs, savings and/or financial support rather than family support. This could be a reflection of conservative ideals permeating parents' expectations and attitudes towards their own children, particularly, that overweight girls will be underachievers compared to overweight boys. New evidence also supports that White and non-White obese females (not males) are less likely to enter college than their non-obese peers, and thus obesity becomes a threat to academic success (Crosnoe, 2007).

Recently, in my own research, I found that parents identified their overweight daughters as more overweight and as eating too much, than their sons with similar or same BMIs (Rex-Lear, 2005). Girls with higher BMIs were also described by their parents as having poorer body images. It is of interest that stereotypes may be differentially applied to girls and boys, and is no surprise, given findings from past research of parental labeling (e.g. Maynard et al, 2003; Crandall, 1991), that parents are less motivated to support their overweight daughters.

Age Differences in Obesity Stigmatization

Another possible moderating influence is age. That is, adolescents or adults may be more focused on body image, which leads toward a greater fat phobia than in younger children, which I have labeled as the age intensification hypothesis. Operationally, the age intensification hypothesis posits that as children reach adolescence their ideas of weight acceptability become narrower and less tolerant of heavier individuals. Preschool children tend to define others in terms of their physical characteristics, and not surprisingly, 3-4 year olds can form racial categories. Black-Gutman and Hickson (1996) found that Australian children's prejudice toward black Aborigines although quite rigid around five-years old, declined between ages 5-9 and then intensified again at age 10-12.

More recently Baron and Banaji, (2006) found race bias in Black and White children significantly lessened with age. Eight-to-nine year olds generally exhibit more tolerance of others as they begin to cognitively reevaluate racial groups. As children develop, the latter ages tend to reflect the influence of adult attitudes. It is likely then, that a similar pattern with overweight stigmatization would emerge as some children may become *weight-blind* during those years where they exhibit more flexible thinking patterns. In other words, children may not recognize their own or others weight as a negative attribute, which might, in turn, contribute as a positive buffer against weight stigmatization. However, older children (e.g., 6th graders) will be more likely to exhibit weight bias that is more similar to adult attitudes about weight.

Often physical characteristics elicit expectations of behavior (Langlois & Stephan, 1977). It is possible that weight stigma could simply be due to a mismatch in perceived age and actual age/ability. For example, if an overweight child is perceived as older than he/she is, he/she may be expected to do more than he/she is capable of. This mismatch in expected ability and actual ability (due to age) may then lead to negative perceptions (e.g., lazy, stupid).

Conversely, even preschool children can demonstrate prejudiced behavior toward obese peers (Turnbull, Heaslip & Mc Leon, 2000). Recently, Musher-Eizenman, Holub, Edwards-Leeper, Person, and Goldstein (2003) identified (White) mothers of preschoolers (4-6 years old) heavily influenced weight ideals (often unrealistic ideals of thinness) of what is acceptable. These children were already beginning to adopt an anti-fat bias of what weight is tolerable and acceptable before they even reach school. Thus, it is feasible that weight stigma will be well ingrained by 3rd grade (early- age bias hypothesis).

Personality Influences on Stigmatization

Although there is little research linking personality to childhood obesity stigmatization, there may be important individual differences in the way some children perceive themselves and others. Recent studies (e.g. Ekehammar & Akrami, 2003) posited that Agreeableness is negatively related to generalized prejudice. In addition, Graziano, Weischo Bruce, Sheese, and Tobin (2006) conducted a study assessing perceptions of similarity and prejudice in college students. Participants completed the Big Five personality inventory and were told they would be paired with a similar or

dissimilar partner based on their responses. They were shown randomly assigned photographs of typical weight or overweight females (under the impression that one of these was the person with whom they would be working). The participants were then given an option to choose another partner or remain with the one they were randomly assigned to work with. The results of the study showed the male participants higher in agreeableness chose to remain with the *similar* partner when she was overweight, but those low in agreeableness (males) chose to abandon an overweight partner, for a *dissimilar* partner. Although the magnitude of discrimination was low in this particular study, it is telling that low-agreeable men stigmatize weight more than agreeable men or women do. Thus, it is possible that an agreeable child will be less likely to stigmatize based on weight than a child who is disagreeable.

Present Study

Although evidence is beginning to emerge that being overweight influences relationships and adjustment, most research still focuses on adults or the physical effects of obesity. Indeed, little research to date has looked at the relationship of children's personalities, and their beliefs about controllability as moderators on their perceptions of themselves and other children based on weight. Using unique methods not previously used in children's studies, I addressed how individual differences (e.g., personality, subcultural attitudes) may influence 3rd-6th grade children's acceptance of other children who are overweight.

First, this study considered if, and how cultural and ethnic differences may attenuate those perceptions of the self and others, for young adolescents during middle

school. This was one of the first studies to examine Latino/Hispanic children in addition to Black/African American subgroups, in conjunction with Whites. Second, this study included children's attitudes toward the controllability of weight, and how these attitudes might later affect negative attitudes toward others (based solely on their weight). Third, actual height and weight data of each participant was recorded and cross-referenced with his/her own self-view, perceptions of other children, and adult researchers' assessments of the participants' weight. This allowed me to understand how the child's own weight (and potential denial about weight) may influence their negative attitudes toward overweight children.

Finally, the stimuli materials developed for use in this study are unique in that actual photographs of children were digitally altered to capture weight, sex and ethnic components of perception together, a technique not previously employed in studies with children in this context.

This study addressed several primary questions.

Hypothesis One: First, this study examined whether children stigmatize other children whom they perceive to be overweight. Many studies with adults have found an overweight bias in adults (Crandall, 1994, Cash 1995). However, fewer studies have examined this bias in younger children (e.g., Musher-Eizenman et al., 2003). It was predicted that overweight children would be characterized as lazy, unhappy, and as having lower levels of acceptance by others (i.e. less popular), than their average-weight peers do. In addition, it was expected that children would report liking the overweight children less than the thin or average weight children.

Hypothesis Two: Second, this study examined whether the effect of stigmatization is greater for White children than for African-American or Hispanic children. It was anticipated that African-American and Hispanic children would be less likely to stigmatize based on weight than would White children (i.e., the majority culture) (Hypothesis 2a). I also examined whether Hispanics are more similar to Blacks than Whites on their attitudes toward overweight individuals. In addition, I examined whether overweight White targets are judged more harshly than overweight minority targets (Hypothesis - 2b).

Hypothesis Three: Third, this study examined whether overweight children stigmatize other overweight children. It is possible that these children are accepting of other overweight children. Alternatively, overweight children may internalize negative beliefs about being overweight and rate overweight targets equally harsh.

Hypothesis Four: Fourth, this study looked for possible age trends. I posited the effects of stigmatization for weight would be greater for 5th and 6th graders versus 3rd and 4th grade children towards their overweight peers. That is, as children reach adolescence, when physical appearance becomes more important, they will exhibit greater weight biases than young children will (age intensification hypothesis). Conversely, weight biases could be so well-ingrained that even 3rd graders will exhibit such biases (early age bias hypothesis). .

Hypothesis Five: Fifth, it was hypothesized that being overweight would lead to greater stigmatization for girl targets than it would for boy targets. Prior research has demonstrated that overweight adolescent girls (and women) face greater stigmatization

than do boys, including name-calling and teasing, lower self-esteem and lower body satisfaction. (Eisenberg, Neumark Sztainer, & Story, 2003, Neumark-Sztainer, Story & Fabisch, 1998, Sweeting & West, 2001).

Hypothesis Six: Sixth, this study examined whether children who believe weight is controllable are more likely to hold greater biases against overweight peers than their normal weight counterparts. I posited that if children hold strong controllability views they may view accomplishments and failures as being outcomes of personal motivation (Klaczynski, Goold & Mudry, 2004). In turn, they are likely to consider overweight children as ‘lazy’, and exhibiting less self-control.

Hypothesis Seven: Finally, this study examined whether personality, namely agreeableness, is associated with less weight bias in children. Although the other dimensions of the Big Five (e.g., Extraversion, Conscientiousness, Emotional Stability, and Openness) have not been specifically linked to weight bias, it would also not be difficult to make predictions about their associations to weight bias. For example, recent research has found that conscientiousness is an important interpersonal relationship dimension that buffers against negative peer relationships (Jensen-Campbell & Malcolm, 2007). In addition, both agreeableness and conscientiousness are often highly correlated and involve adaptive coping in interpersonal relationships (Ahadi & Rothbart, 1994). Finally, neurotic individuals often have a negative view of others (Watson & Clark, 1984). Thus, it was expected that these children would express negative attitudes towards all targets.

CHAPTER II

METHODS

Participants

A total of 315 3rd - 6th grade (n=158 female), children participated by completing a survey that examines weight stigma in children. The ethnic composition included European-Americans/White, (n=149), Latino/Hispanic-Americans (n=41), and African-Americans/Blacks (n= 98), and children who labeled themselves as Other, (n = 27). It was desired to include equal numbers of Whites, Latinos/Hispanics, and Blacks; however, the Latino/Hispanic group of children was smaller than desired due to reasons beyond the control of the study. The number of participants was selected through power analysis, according to Cohen (1988) (See Table 2.1).

Letters and consent forms explaining the study were sent home to parents of all the children at the local public, private schools, and after school care centers in the Dallas/Fort Worth Metroplex who agreed to take part in the study. A flyer was posted on a University of Texas at Arlington website (www.uta.edu/lcampbell); (see attached flyer, Appendix B). Parents of children were asked to return consent forms to indicate whether they consented for their child to participate in this study or not. There was no monetary compensation for participating in the study.

Table 2.1: Actual Number of Participants per Ethnic and Gender Group

SCHOOL GRADES	White ♂	White ♀	Black ♂	Black ♀	Hispanic ♂	Hispanic ♀	Other ♂ ♀	TOTAL S
LATE CHILDHOOD 3 rd - 4 th Grade	35	51	27	34	12	10	14	183
EARLY ADOLESCENCE 5 th -6 th Grade	39	24	14	23	15	4	13	132
TOTALS								315

Materials

Stimulus Material Development. Using a digital camera, 36 boys and girls (African-American (N = 8), White (N = 17), Hispanic-American (N = 9), and Other (N = 2)) who had varying physiques (e.g., thin, medium, and heavy), were photographed. The parent(s) and each child signed a photograph release form prior to taking the photograph (see Appendix A). After taking the picture, each child was asked simple demographic questions including age, school grade, ethnicity, and birth date. In addition, each child's actual height was measured and weight recorded using a portable analog weigh scale. (This data was excluded from the final analyses as the photographs were later digitally altered to change weight appearance). Finally, children were paid \$5 for their participation.

To standardize the stimuli, the children in the photographs were asked to wear either a grey T-shirt or plain clothes with no logos or patterns visible. The children were required to face forward with a neutral expression against a plain background. The photographs were digitally altered to remove any background images and each individual appeared on a page alone. The actual pictures of the children were then digitally altered to separate the bodies and the heads. Consistent with Hebl and Turchin (2005) and Hebl and Heatherton (1997), the pictures of heads without bodies were individually presented to eighteen raters who were undergraduate psychology students from our Social and Personality Lab at the University of Texas at Arlington. The rating task was included as partial requirement for lab credit. The faces were rated for levels of physical attractiveness on a Likert-type scale from 1 (very unattractive) to 10 (very attractive).

Inter-rater reliability for all 36 pictures, was high ($ICC = .97$). The pictures were then rated on perceived weight based on the face alone using -1.00 (thin), 0.00 (average), and 1 (overweight). The same eighteen raters also estimated (by face) each child's age, grade, ethnicity, and weight ($ICC = .99$). A total of 18 faces that were *average* in attractiveness ($M_s = 5.29$, $SD = 1.03$, $ICC = .92$) and *average* weight ($M = -.03$, $SD = .56$) were chosen. The faces were also chosen to convincingly fit on different body types (or could be digitally manipulated to fit on different body types). That is, eighteen faces/heads were used in the final set of photographs. (See sample photographs, Appendix C). Next, the 36 bodies were cropped at or just below the knee to avoid sex biasing by footwear and socks, and the same procedure was followed for the bodies

alone, using the same eighteen raters. The raters used the same Likert-type scale of -1.00 (thin), 0.00 (average), and 1.00 (heavy) to determine a consensus of body types. The raters were consistently unable to identify sex and grade without the heads, which enabled gender neutral bodies to be chosen for re-matching to the chosen heads. Nine bodies were chosen to match to the heads of both sexes. The raters by default rated the majority of the bodies as male, as they were looking for feminine characteristics (e.g., chest, hips) to classify them. They failed to do so as the children at this age showed very few typical sex differences that are present after puberty. Table 2.2 shows the actual descriptions of the photograph and the sex, ethnicity, and grade ratings show the inconsistent ratings from our rater panel.

Table 2.2: Discrepancy between Raters for the Body Stimuli

		Rater Descriptions								
		SEX		ETHNICITY			GRADE			
Photo	Actual Photo Description			W	B	H	3	4	5	6
	Sex/Ethnicity/Grade	♂	♀							
4	Boy/White/3	17	1	15	0	3	1	13	3	1
7	Girl/Hispanic/5	16	2	0	16	2	1	8	6	1
10	Boy/Hispanic/3	16	2	0	4	14	2	11	4	0
13	Girl/Hispanic/3	18	0	9	1	8	3	7	7	0
14	Girl/Hispanic/3	17	0	1	7	8	1	3	10	4
15	Girl/Hispanic/3	18	0	3	3	12	6	8	4	0
24	Boy/White/8	1	17	15	0	3	3	3	10	2
28	Boy/Black/4	18	0	0	17	1	2	9	5	2
30	Girl/Hispanic/3	13	5	11	0	7	3	4	7	4

Interrater reliability for the weight status of the nine bodies used was .98. The average weight for the three thin bodies was $M = -.63$ ($SD = .22$); the average weight ratings for the three average bodies was $M = -.22$ ($SD = .43$); and the average weight for the overweight bodies was $M = .89$ ($SD = .25$). In addition, the bodies were further digitally manipulated to be thinner or heavier when creating the final picture set to assure clear visual differences between the weights.

Next, all photos were interchanged so that the original face was never shown with its original body. This was done to ensure a cropped photo was not judged differently than an uncropped photo. Where necessary, skin tones of the arms, neck and legs were color-matched with the faces.

The 18 heads, 9 male, 9 female were equally distributed among the three ethnicities (Black, White, Hispanic, and both sexes). They were then digitally reattached onto 9 bodies (3 each for thin, medium, and heavy weight), using Adobe Photoshop CS2. The final set of stimuli included 162 pictures. There were 81 pictures of females comprised of 3 White faces, 3 Black faces and 3 Hispanic faces pasted onto 9 different bodies. The same process was carried out for the males.

This enabled the final set of stimuli materials to include 18 full color photographs of children, where no two photographs had the same head. From this, two sets of nine photographs were counter-balanced across participants with the constraint that the same face would not appear twice to the same participant. That is, randomization allowed each participant to view a different selection of photographs to best control for the possible influence of facial attractiveness. Each participant viewed a subset of

photographs, either all males or all females, including each ethnicity and weight category. In other words, I created a crossed, between-subjects design, in which each child observed one target picture from each condition (i.e., sex (1) X ethnicity (3) X weight (3)) for a total of 9 pictures¹

Ratings of the Stimulus Pictures. I developed a Child Stigma Survey (CSS) that assessed the participants' impressions and attitudes toward the target-child in the stimulus pictures. In the first part of the survey, children rated each photograph from 1 (very negative) to 5 (very positive): on fifteen dimensions that were adapted from Hebl and Turchin (2005) and Musher-Eizenman et al. (2004). The survey included the following questions: (1) Do you think this kid is smart? (2) Do you think this kid is happy? (3) Do you think this kid is cute? (4) Do you think this kid is popular at school? (5) Is this kid good at sports? (6) Do you think you would like this kid? (7) Do you think this kid is picked on or teased at school? (8) Would you like to play with or do activities with this kid? (9) Do you think this kid is mean? (10) Do you think this kid is lazy (11) Do you think this kid remembers things easily? (12) Do you think this kid is sloppy? (13) How heavy do you think this person is? (14) How old do you think this person is? Question 13 was included as a manipulation to check participants were perceiving differences in weight. Question (14) was also used as a manipulation to check if participants viewed heavier targets as older than thin or medium targets (all photo targets were the same age). The children rated each target photograph on a Likert scale from 1 (very thin) to 5 (very heavy). For age, the Likert scale ranged from 1 (8 years or younger) to 5 (12 years or older).

Ratings of the Participant-Child. The second part of the survey comprised four sections: (1) demographic information about the participant; (2) a five-question weight locus of control (WLOC) scale to assess the participant's beliefs on how one's own weight is determined, including internal and external sources of control adapted from Robinson, Shaver, and Wrightsman (1991) (see appendix D); (3) a measure of the Big Five inventory adapted and expanded from Gosling, Rentfrow, and Swann (2003); and (4) three questions that assess the child's own perceptions of his/her body image. These three questions were presented along with figure arrays adapted from Collins (1991) (see Appendix D), and asked the child which body: (1) looks most like you now? (2) you would most like to look like? and, (3) you would most NOT like to look like? For this study, I adapted the Collins (1991) child silhouettes that have been used in many studies, because they are quick and simple to use. They are appealing because they require less verbal fluency than verbal questionnaires. These arrays have been shown to provide reliable and valid information in relation to body size. Truby and Paxton (2002) developed a similar diagnostic tool using digitally altered photographs of children in their underwear. However, due to the sensitivity of schools permitting the study to take part on their premises I felt this tool was inappropriate for this study.

I took the Collins figure arrays and digitally pixilated the faces to remove facial bias from the participant rater, only body dimensions varied. This prevented the children from being influenced by ethnic or attractiveness aspects of facial attributes when determining their body choices. Also, they are simple line drawings in black and white and any ethnicity can be inferred. The bodies corresponded to sex of the participants

(e.g. a male participant only viewed a body array of male figures). The thinnest figure (A) was coded with a value of 1; the heaviest figure (G) was coded with a value of 7. Figure (D) is equivalent to average weight (see Appendix D).

Procedure

Local DFW Metroplex schools and after-school care programs were asked if they would be willing to participate in this study concerning children's perceptions of each other. Permission was obtained from the Mansfield Independent School District (MISD), the Hurst/Euless/Bedford School District (HEB ISD), the Sylvan Learning Center (Waxahachie), and The Boys and Girls Clubs of Arlington, prior to research solicitation. Once these schools and organizations agreed to take part, I arranged to meet with parents, teachers, or caregivers to provide the consent forms and parent letters. The parents returned the consents to the principles, directors etc., or directly to me in a prepaid addressed envelope.

After parental consent was obtained, I arranged dates and times at the schools/programs' convenience to go in with research assistants and collect the data. We escorted small groups of children from their class/activity to a designated area with computer access for 15-20 minutes.

First, the study was explained to the children and the assent read to them. Assent forms were then signed and collected by research assistants. Next, each child completed the assessments independently. For all 3rd graders researchers read the questions to each child aloud (and to any child whose reading abilities were not sufficient, determined by the teachers/caregivers), while using a desktop computer with internet access, which

provided a direct link to the custom-designed computer program. The computer program allowed a self-paced format. Each child was randomly assigned to view and assess the digital photographs of either male or female children (see Table 2.3). The pictures were also counterbalanced across participants by the computer program.

Table 2.3: Sex of Target and Sex of Participant

Participant Gender	Target Sex		Totals
	Boy	Girl	
Male	54	103	157
Female	69	89	158
Totals	123	192	315

Next, the children completed the demographic questions and finally the personality questions pertaining to them; these questions were again read to third graders and to anyone with special needs. Upon completion of the task, research assistants collected the actual height and weight of each participant (for BMI, and BMI-for-age percentile calculations), and rated each participant on the same figure array scale the participants used to rate themselves (without the child's knowledge). This was included as a check for reliability of children's own weight perceptions, and cross-referenced with the child's own self-rating on the figure array. Each child was thanked and returned to the class/activity.

CHAPTER III

RESULTS

Manipulation Check of Target Weight

To examine whether child-participants perceived child-targets to be variant in weight, I conducted a repeated measures ANOVA with weight of the target as the repeated measure. It was anticipated that children would perceive the larger targets as heavier than the medium targets; children would also perceive the medium targets as heavier than the thin targets. There was an overall weight effect, $F(2, 628) = 548.70, p < .001, \eta^2 = .64$. Using paired-sample t-tests, I found that the heavy-weight targets were perceived as heavier than the medium-weight targets were, $t(314) = -22.56, p < .001$. In addition, medium-weight targets were perceived as heavier than the thin targets, $t(314) = -10.27, p < .001$. Thus, my manipulation of weight was successful (see Figure 3.1).

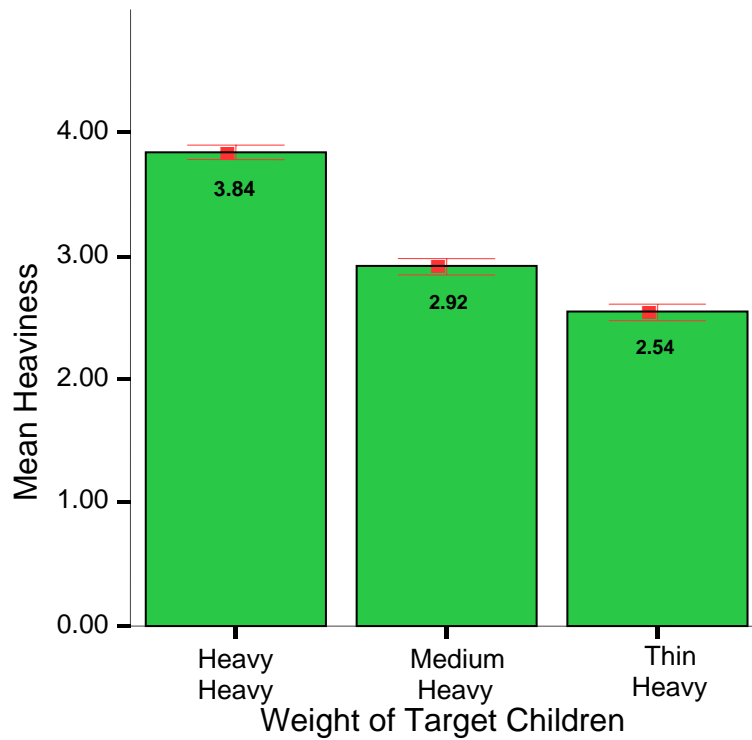


Figure 3.1 Mean Perceptions of Target Weights for Each Weight Group

Next, I examined whether overweight targets were rated as older than medium or thin targets using a one-way repeated measures ANOVA. There was an overall weight effect for age, $F(2, 628) = 11.54, p < .001, \eta^2 = .04$. Unexpectedly, thin children were rated as older ($M = 3.25, SD = .74$) than medium or heavy targets ($Ms = 3.10, 3.10, SDs = .79, .80$).

Reliabilities for Big Five Personality

I examined the reliabilities of the 15 questions in the Big Five personality inventory to determine their internal consistencies (Table 3.1). The Cronbachs alphas were low. It is possible the lack of internal consistency was a result of insufficient items

per Big Five dimension (due to time and attention constraints). Thus, there may be insufficient items to create reliable measures. However, there was an age trend, (see Table 3.1) with older children showing greater internal consistency in their ratings than did younger children.

Table 3.1. Reliabilities for Big Five Dimensions

<i>Big Five Dimension</i>	<i>Category Variables</i>	<i>Cronbachs alpha</i>				
		<i>Total</i>	<i>3rd</i>	<i>4th</i>	<i>5th</i>	<i>6th</i>
<i>Agreeableness</i>	<i>kind gets along r-argues</i>	.52	.38	.57	.66	.58
<i>Extroversion</i>	<i>talks a lot, gets excited, r-shy</i>	.33	.13	.28	.39	.60
<i>Neuroticism</i>	<i>gets nervous moody r-calm</i>	.29	.17	.46	.21	.44
<i>Openness</i>	<i>smart Imagination r-ideas</i>	.43	.43	.18	.48	.49
<i>Conscientious</i>	<i>careful r-gives-up r-lazy</i>	.43	.42	.28	.57	.35

r = reverse coded variables

Reliabilities for Weight Controllability

Next, I examined the 5-items I used to assess weight controllability. The Cronbach's alpha was very low, .37. Thus, I ran a principal components analysis with VARIMAX rotation to determine if there were multiple facets to the items. Indeed, two

factors accounted for 52.48% of the variance. One factor measured Weight Controllability and the other factor assessed Weight as Luck (or Weight Fortune). I then created factor scores (Table 3.2) based on the principal components analyses and used these factor scores to test my central hypotheses. There were no ethnic differences in weight controllability or weight fortune $F_s < 1.59$, *ns*.

Table 3.2. Factors Scores for Controllability Variables

<i>Factors</i>	<i>Weight Controllability</i>	<i>Weight Fortune</i>
<i>Kids control</i>	.793	.008
<i>Control Weight</i>	.783	.014
<i>Fat Fault</i>	.335	-.244
<i>Just Happen</i>	-.156	.782
<i>Lucky Weight</i>	.080	.753

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. A Rotation converged in 3 iterations.

Additionally I looked at the reliabilities for the control and luck factors separately. Both Cronbachs alphas were still very low, i.e., the controllability factor was .50, and the luck factor was .37.

Factor Analysis of Person Perception Items

I also conducted a factor analysis to determine whether the 12-item measures of person perception could be collapsed into fewer dimensions. I began by averaging responses across pictures for each participant. Using principal component analysis with VARIMAX rotation, I found two factors on my measure that accounted for 59.67% of the variance for the 12 items. The first factor assessed positive attributes and the second

factor measured negative attributes (see Table 3.3 for the factor loadings). The positivity dimension also had a Cronbach's alpha of .89. The negativity dimension has a Cronbach's alpha of .80. I then averaged the items to create a positivity² and negativity score for each picture.

Table 3.3: Factor Loadings for Principal Component Analysis

Factors	Positivity Factor	Negativity Factor
Liking the target	.85	-.11
Play with the target	.81	-.14
Cute	.77	-.11
Smart	.76	-.29
Popular	.73	-.02
Sports	.72	-.17
Happy	.66	-.22
Remembers	.56	-.19
Lazy	-.23	.84
Sloppy	-.24	.84
Mean	-.09	.83
Teased	-.08	.58

Weight Descriptives of Actual Participants

I examined the weight of my participants (e.g., means, standard deviations) by sex of participant, grade, and ethnicity using both the BMI and perceived measures of weight (Table 3.4). I ran a series of univariate ANOVAS to look for differences of BMI by sex of participant, ethnicity and grade. There were no main effects of BMI on sex of participant or ethnicity. There was a grade (age) effect, $F(3,311) = 6.95$, $p < .0001$. Post hoc Tukey-HSD tests showed that in terms of a grade effect on BMI, 3rd

graders were significantly lower on BMI scores ($M = 17.92$, $SD = 4.30$) than 5th or 6th graders ($Ms = 19.82$, $SD = 4.53$; 21.14 , $SD = 4.80$ respectively); no other differences were significant. Table 3.5 shows the actual breakdown of participants in each CDC weight category based on BMI percentile-for-age.

Table 3.4: Descriptive Statistics for Perceived Weight

	N	Actual BMI	Self Assessment	Rater Assessment	Least Like	Most Like
Sex of Participant						
Boys	157	19.38(4.32)	3.85(.88)	4.18(1.08)	6.32(1.86)	3.56(1.09)
Girls	158	18.99(4.74)	4.04(1.03)	3.99(1.14)	5.70(2.40)	3.53(1.17)
Ethnicity						
White	149	18.74(4.54)	3.95(.99)	4.01(1.04)	6.00(2.14)	3.50(1.12)
Black	98	19.66(4.80)	3.94(.95)	4.15(1.08)	5.84(2.38)	3.57(1.17)
Hispanic	41	20.07(5.70)	4.05(.87)	4.22(1.54)	6.12(2.04)	3.76(1.04)
Other	27	18.57(3.42)	3.85(1.06)	4.11(.80)	6.52(1.60)	3.37(1.15)
Grade						
3 rd Grade	129	17.92(4.30)	3.73(.97)	3.89(1.11)	6.18(1.95)	3.46(1.20)
4 th Grade	54	19.38(5.01)	4.02(.89)	4.17(1.24)	5.44(2.65)	3.52(1.11)
5 th Grade	80	19.82(4.53)	4.06(.88)	4.19(.98)	6.23(1.93)	3.53(1.01)
6 th Grade	52	21.14(4.80)	4.25(1.06)	4.35(1.1)	5.85(2.40)	3.83(1.13)

Table 3.5: Number of actual participants in each CDC weight category

CDC BMI Scale	Male <i>N</i>	Female <i>N</i>
Underweight	10	13
Healthy weight	88	85
At risk } $\geq 85\%$	27	29
Overweight } $\geq 95\%$	32	31
Total Participants	157	158

I then examined the figure arrays. It is worth noting that all children, regardless of age, sex, or ethnicity consistently rated the fatter figures in the figure array as the one they would least want to look like, (Figure 3.2.). Both boys and girls consistently chose the average targets as ideal to look like ($M = 3.56$, $SD = 1.09$, for boys; ($M = 3.53$, $SD = 1.17$) for girls). Of the thin and medium targets, boys chose the *average* figure (D) 43% of the time and *thin* figure (C) 38% of the time. Girls chose figure (D), 44% of the time, and figure (C), 29% of the time (Figure 3.3). (See Appendix D for figure arrays). Figure 3.4 below shows the targets that the children believed they currently look like ($M = 3.85$, $SD = .88$) for boys, and ($M = 4.04$, $SD = 1.03$) for girls.

Next, I examined the intercorrelations between the weight measures (Table 3.6). Several correlations are worth noting. First, the researchers' perceptions and actual BMI were significantly related to one another ($r = .81$). Second, the actual BMI and the child's self-reported weight (using the figure array) were related ($r = .51$). In addition, the researchers and children were in agreement on weight, although the magnitude of

the relationship was smaller, $r = .44$. These findings support the notion that the figure array may be a useful and valid tool for assessing weight in children of this age.

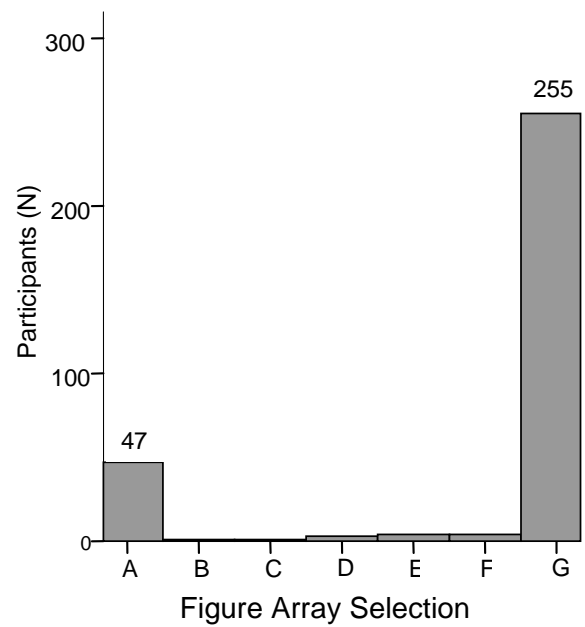


Figure 3.2. “Least Like to Look Like” from the Figure Array

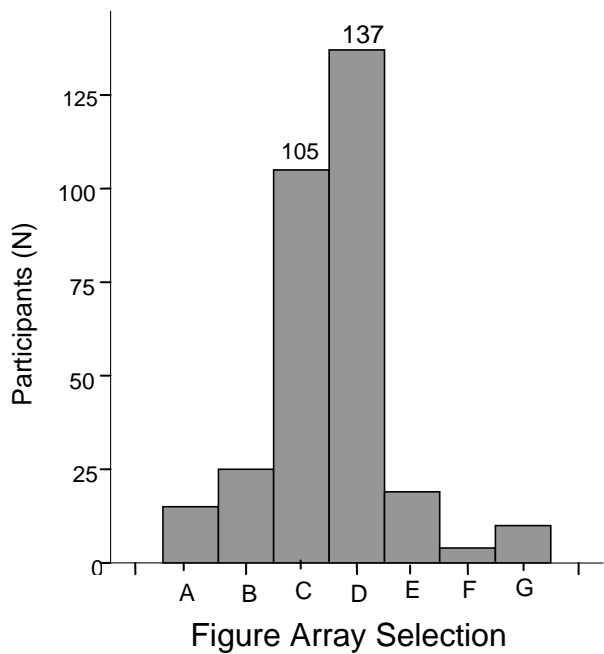


Figure 3.3 “Most Like to Look Like” from the Figure Array

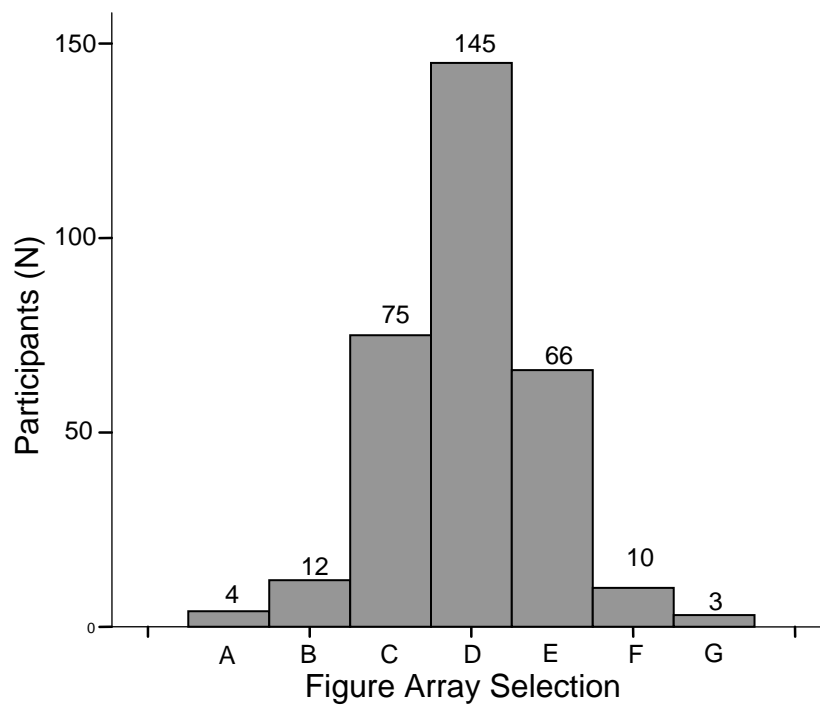


Figure 3.4 “Looks Like Now” from the Figure Array

Table 3.6: Intercorrelations between Weight Measures

	Actual BMI	CDC Weight	Observed Weight (Rater)
Actual BMI	-		
CDC Weight	.865**	-	
Observed Weight (Rater)	.805**	.763**	-
Self-Reported Weight	.506**	.455**	.442**

**Significant at $p < .01$

Hypotheses 1 and 2: Do Children Stigmatize Other Children They Perceive to Be Overweight, and Does Ethnicity Affect Stigmatization of Overweight Children?

To examine whether children stigmatize other children whom they perceive to be overweight I conducted a 3 (participant ethnicity: White, Black, Hispanic) X 3 (target ethnicity: White, Black, Hispanic) X 3 (target weight: Thin, Medium, Heavy) repeated measures ANOVA with target race and weight as repeated measures. While examining whether children stigmatize other children they perceive to be overweight, I simultaneously examined whether the effect of stigmatization is greater for White children (both as targets and perceivers) (Hypothesis 2a and 2b) than among other subcultures/ethnic groups. There was a computer glitch in the program that randomized pictures so that some participants initially did not receive one picture for each category. Of my overall sample, 202 participants had pictures in all groups. Of these participants, 50 were African American, 108 were White, and 25 were Hispanic.

Positivity of Target. There was overall effect for weight on the positivity items, $F(2, 720) = 42.81, p < .001, \eta^2 = .19$. Heavy target children were rated less positively ($M = 2.85, SD = .67$) than medium or thin targets ($M_s = 3.22, 3.24, SD = .64, .56$), $t_s(201) = 9.52, 9.63, p < .0001$. There was no difference in positivity ratings between the medium and thin targets, $t(201) = -.65, ns$.

There was also a main effect for ethnicity of the target, $F(2, 720) = 8.52, p < .001, \eta^2 = .05$. Black targets were rated more positively ($M = 3.22, SD = .62$) than Hispanic or White participants ($M_s = 3.02, 3.07; SD_s = .62, .63$) $t_s(201) = 5.74, 3.75, p < .001$. However, neither participant ethnicity nor target ethnicity interacted with weight

to influence positivity ratings, $F_s < 1.12$, ns.

To explain the differences in ethnicity positivity ratings, I had the faces re-rated for happiness by a group of 15 undergraduate judges from our Social and Personality lab at UTA. Happiness might affect children's perceptions of positivity or negativity when judging an unknown target. I then created a *happy* variable for each ethnicity and ran a repeated measure ANOVA for ethnicity. I found an overall ethnicity main effect $F(2, 28) = 206.31$, $p < .0001$, $\eta^2 = .94$. Paired sample t-tests between the ethnicities demonstrated significant differences between the Black, White and Hispanic targets. There were differences between Black and White targets $t(14) = -13.85$, $p < .0001$, Black and Hispanic targets $t(14) = 20.05$, $p < .0001$, and White and Hispanic targets $t(14) = 4.49$, $p < .001$.

In summary, these results suggest that children rated Black targets as happier ($M = 3.68$; $SD = .50$) than White or Hispanic targets ($M_s = 2.38, 2.01$, $SD_s = .47, .30$, respectively). However, this positivity bias did not increase the likelihood that overweight Black targets were treated as positively as medium or thin Black targets. Thus, even though Blacks were rated more positively than other ethnic groups, this did not prevent Black targets from being stigmatized by the participant children.

Negativity of Target. As anticipated, there was a weight main effect for negativity ratings, $F(2, 720) = 31.18$, $p < .001$, $\eta^2 = .15$. Heavy target children were rated more negatively ($M = 2.60$; $SD = .63$) than medium or thin targets ($M_s = 2.30, 2.25$; $SD_s = .56, .55$), $ts(201) = 7.40, 7.73$, $p < .0001$. There was no difference in negativity ratings for medium and thin targets, $t(201) = 1.11$, ns. Again, neither the

ethnicity of the participant nor the ethnicity of the target interacted with weight to influence negativity ratings, $F_s < 1.19$, *ns*.

Supplementary analyses. Next, I collapsed across ethnicity for targets and examined the possibility that the ethnicity of the participants influenced their ratings of the targets for the larger sample (with the Other Ethnicity Participant category excluded). In other words, I conducted a 3 (ethnicity of participant: White, Black, Hispanic) x 3 (Weight: Thin, Medium, Heavy) repeated measures ANOVA for the larger sample. Again, there was no participant ethnicity X weight interaction for positivity or negativity ratings, $F_s(4, 570) = .10, .15$, *ns*, $\eta^2 = .001, .001$. Overall, heavy target children were rated lower than thin or medium targets on positivity and higher on negativity ratings than thin or medium targets were. Unexpectedly, there were no moderating influences of ethnicity (as per Hebl & Turchin, 2005). Given the lack of influence for ethnicity, future analyses were collapsed across the ethnicity of the target and the entire sample was used ($N = 315$).

Next, I examined whether the weight bias held for each of the 12 items using repeated measures ANOVAs with both the smaller sub sample and the larger the sample (see Table 3.7 for larger sample results). Results suggest that the weight effect held for all individual items, except “Do you think this kid is mean?” For mean, there were no differences between the targets based on weight.

Table 3.7: Weight Bias for Individual Rating Items

Rating Items	Thin Target	Medium Target	Heavy Target	F-Value 2(626)	Partial Eta Squared
Liking of Target	3.20(.86) _a	3.17(.89) _a	2.85(.96) _b	37.41	.11
Play	3.37(.87) _a	3.38(.87) _a	3.07(.97) _b	27.54	.08
Cute	2.50(1.05) _a	2.51(1.08) _a	2.16(1.03) _b	36.39	.11
Smart	3.57(.74) _a	3.42(.82) _a	3.22(.83) _b	27.10	.08
Popular	2.97(.78) _a	2.93(.79) _a	2.40(.79) _b	95.41	.23
Sports	3.54(.69) _b	3.68(.79) _a	3.07(.90) _b	77.51	.20
Happy	3.50(.79) _a	5.22(.79) _a	3.28(.82) _b	10.65	.03
Remembers	3.25(.71) _a	3.23(.78) _a	3.01(.74) _b	17.50	.05
Lazy	2.07(.68) _a	2.15(.75) _a	2.59(.85) _b	59.17	.16
Sloppy	2.24(.73) _a	2.33(.78) _a	2.60(.84) _b	32.44	.09
Mean	2.08(.72) _a	2.14(.72) _a	2.13(.74) _a	.45ns	.005ns
Teased	2.63(.79) _a	2.59(.80) _a	3.09(.90) _b	57.93	.16

Note: Different subscripts indicate significant differences $p < .001$; $N = 315$

Paired sample t-tests between the group items demonstrated significant differences between the medium and heavy weight targets, but not the thin and medium targets (see Table 3.7 and Figures 3.5, 3.6 and 3.7), with three exceptions. There were differences for ratings of ‘*smart*’ between both the thin-medium targets $t(314) = 3.23$, $p < .001$, and medium-heavy targets, $t(314) = 4.09$, $p < .001$. The same occurred for ‘*sports*’ (thin-medium targets $t(314) = -2.96$, $p < .003$; medium heavy targets $t(314) = -11.96$, $p < .001$). The ‘*Mean*’ rating was not significant suggesting that weight did not

influence ratings of ‘mean’³. Interestingly, it is clear that children used body ratings and not simply facial qualities to determine attractiveness as the ratings for *cute* were significantly lower for overweight targets compared to medium weight targets, $t(314)=7.37, p < .001$ (Figure 3.5). There were no differences between medium and thin targets. This is fascinating given the same 18 faces were used for all ratings and were randomly assigned to thin, medium, or heavy targets.

It is also possible that age could be confounded with weight. For example, older children are often seen as more popular and likeable than are younger children. Given that thin children were perceived as older, it is possible that the observed bias has more to do with perceptions of age than with perceptions of weight. To rule out this plausible alternative explanation, I re-ran major analyses with perceived age covaried out of the individual positivity and negativity ratings. In other words, I examined perceived ratings by regressing age from positivity and negativity ratings. The unstandardized residuals were then used after controlling for the perceived age of the target.

Hypothesis 3: Do Overweight Children Stigmatize Other Overweight Children?

I conducted a participant weight (continuous) X 3 (target weight) general linear model to examine whether overweight children stigmatize other overweight children. BMI-percentile weight was used because this index of weight is viewed as the most accurate way to assess weight when varying ages and sexes are involved (CDC, 2004). Operationally, BMI-percentile was treated as a continuous variable and centered to avoid problems with unstandardized solutions (Aiken & West, 1991).

There was a main effect of weight for both positivity ratings $F(2, 626) = 68.38$, $p < .0001$, $\eta^2 = .18$, and negativity ratings, $F(2, 626) = 93.22$, $p < .0001$, $\eta^2 = .23$. However there were no interactions for positivity or negativity ratings with BMI-percentile, F s 1.09, 1.88 ns.

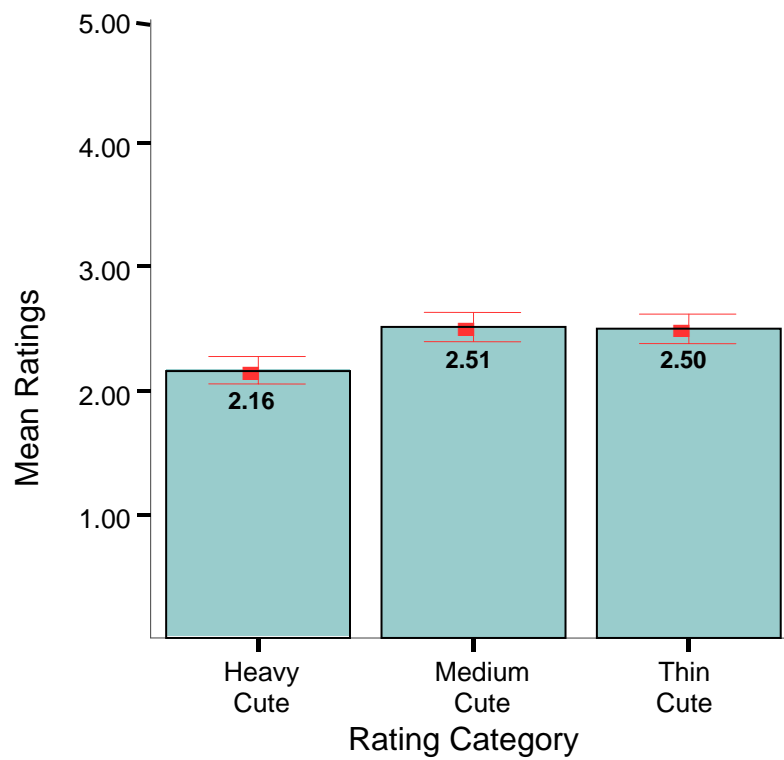


Figure 3.5. Rating for Cuteness of Target

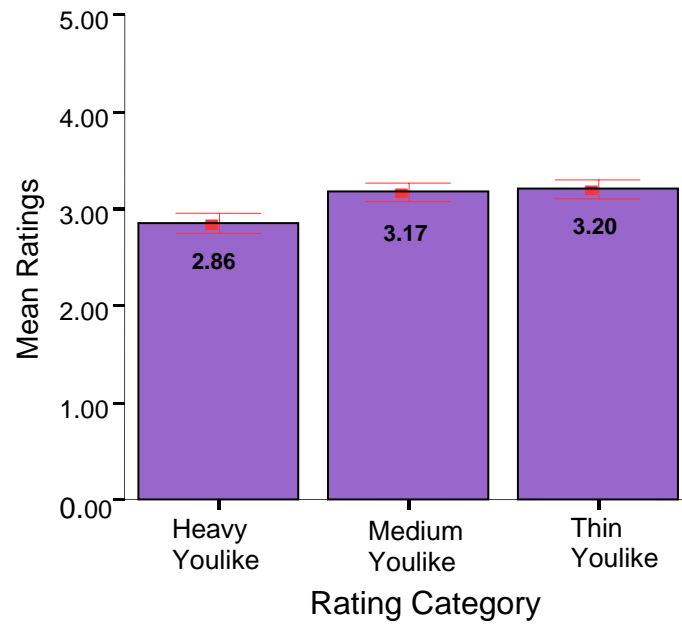


Figure 3.6. Rating for Liking the Target

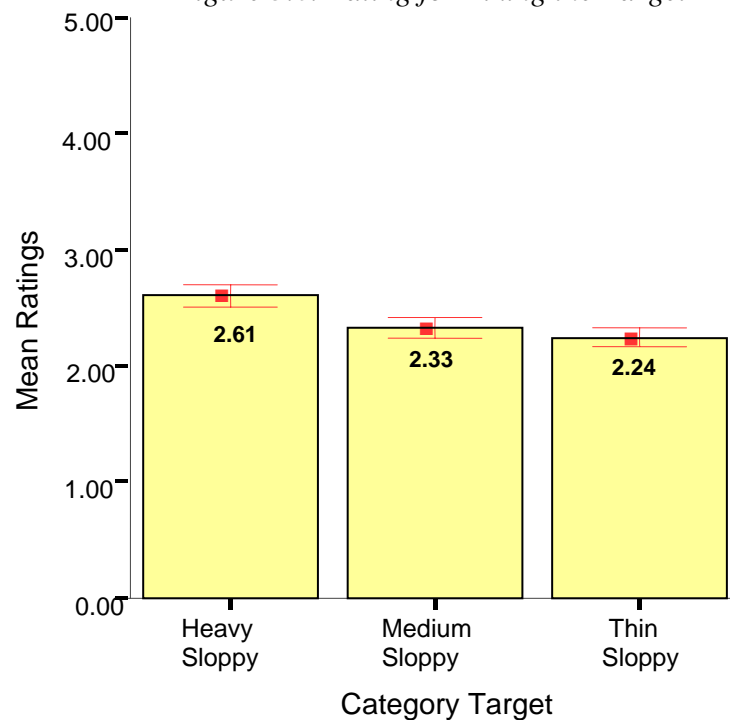


Figure 3.7. Rating for Sloppy Target

Hypothesis 4: Are There Age Differences in the Stigmatization of Overweight Children?

To examine whether older children stigmatize overweight targets more than do younger children, I conducted a 2 (participant grade: 3rd/4th vs. 5th/6th) X 3 (target weight: Thin, Medium, Heavy) repeated measures ANOVA with weight as repeated measures. There was an overall weight effect for positivity ratings, $F(2,626) = 90.08$, $p < .001$, $\eta^2 = .22$. Heavy targets were rated less positively than thin or medium targets. There was no significant grade X weight interaction for positivity and negativity ratings, $F_s(2,626) = .50, 1.02$, ns. In other words, there were no significant differences in younger versus older children's perceptions of overweight targets.

However, it is possible that very young children (e.g., 3rd graders) respond differently than children who are entering into puberty (e.g., 6th graders). Thus, I examined whether 6th graders stigmatized overweight targets more than 3rd graders did using a 2 (participant grade: 3rd vs. 6th) X 3 (target weight: Thin, Medium, Heavy) repeated measures ANOVA with weight as repeated measures (See Figure 3.8). There was no significant grade X weight interaction for positivity ratings, $F(2, 358) = .62$, ns. There was a significant grade X weight interaction for negativity ratings, $F(2, 358) = 5.01$, $p < .03^4$. For heavy targets, 6th graders rated them more negatively ($M = 2.86$, $SD = .56$) than did 3rd graders ($M = 2.51$, $SD = .66$), $t(179) = 3.23$, $p < .001$. There were no grade differences for thin and medium targets on negativity ratings, $t_s(179) = .69, 1.36$, ns (Table 3.8).

Table 3.8: Means and Standard Deviations by Target Weights

Positivity Ratings	Thin Targets	Medium Targets	Heavy Targets
3 rd	3.33(.57)	3.26 (.62)	2.30(.66)
4 th	3.26(.56)	3.32(.65)	2.87(.62)
5 th	3.16(.50)	3.23(.57)	2.89(.63)
6 th	3.11(.53)	3.07(.62)	2.68(.57)
Negativity Ratings			
3 rd	2.24(.57)	2.30(.60)	2.51(.66)
4 th	2.24(.57)	2.18(.50)	2.51(.66)
5 th	2.30(.56)	2.30(.57)	2.60(.57)
6 th	2.30(.42)	2.43(.49)	2.86(.56)

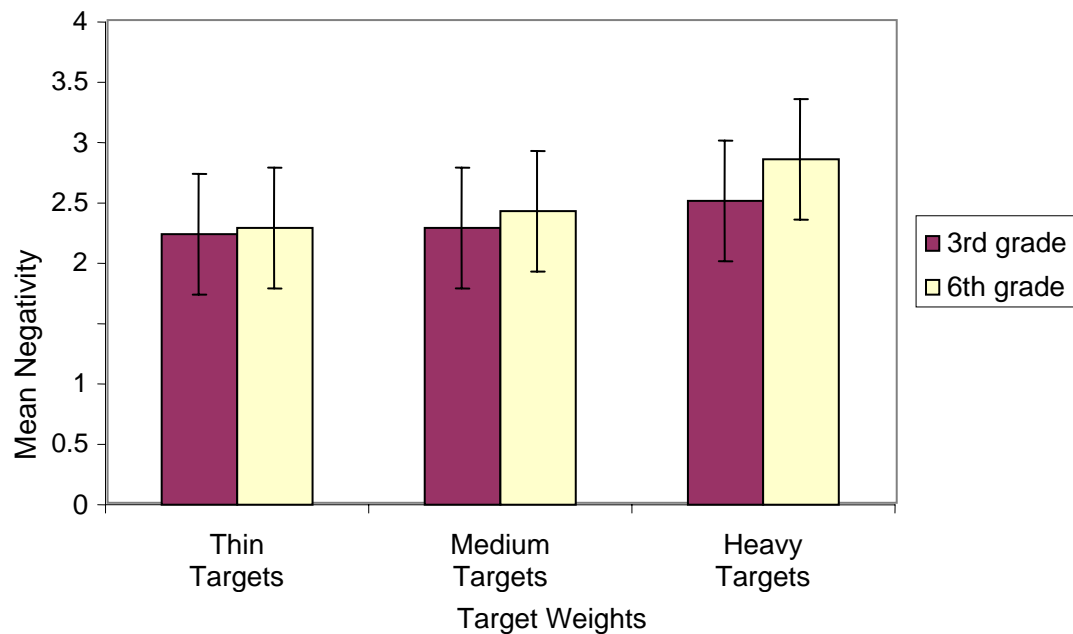


Figure 3.8: Mean Negativity Ratings for 3rd vs. 6th Grade Children Only

Hypothesis 5: Are There Sex Differences Influencing Weight Stigmatization?

To examine whether being overweight leads to greater stigmatization for girls (Latner & Schwartz, 2005), than for boys, I conducted a 2 (participant sex) X 2(target sex) X 3 (target weight) repeated measures ANOVA with weight as repeated measures. There was an overall weight effect for negativity ratings, $F(2, 622) = 68.71, p < .001, \eta^2 = .18$. There were no significant interactions for target sex or participant sex.

For positivity ratings, there was also a weight effect, $F(2, 622) = 91.78, p < .001, \eta^2 = .23$. In addition, there was a sex of participant X weight interaction, $F(2, 622) = 6.08, p < .002, \eta^2 = .02$. Weight influenced boys' positivity ratings, $F(2, 310) = 67.11, p < .0001, \eta^2 = .30$. Weight also influenced girls' positivity ratings of the targets, but the magnitude of the effect was smaller, $F(2, 312) = 27.90, p < .001, \eta^2 = .15$. In other words, both boys and girls were less positive about overweight targets, but the magnitude of the relationship was stronger for boys than it was for girls.

This was qualified by a sex of participant X weight X sex of target interaction for positivity, $F(2, 622) = 4.41, p < .01, \eta^2 = .014$. For boys, there was no weight X sex of target interaction, $F(2, 310) = .46, ns$. Boys rated target boys and target girls similarly. For girls, there was a weight X sex of target interaction, $F(2, 312) = 5.65, p < .004, \eta^2 = .04$. Weight influenced girls' ratings of boys, $F(2, 136) = 25.14, p < .001, \eta^2 = .27$. Girls rated overweight boys less positively than medium or thin weight boys $ts(68) = 5.13, 6.45 p < .0001$. Weight also influenced girls' ratings of girls, but the magnitude of the relation was much smaller, $F(2, 176) = 5.01, p < .008, \eta^2 = .05$. Girls rated heavy weight girls less positively than medium weight girls or thin girls $ts(88) =$

2.96, 2.72 $p < .008$ (see Table 3.9 for descriptive statistics by participant and target sexes). In sum, boys stigmatized more based on weight than did girls, regardless of the sex of the target. Girls also stigmatized based on weight, but were more likely to stigmatize boy targets than girl targets.

Table 3.9: Means and Standard Deviations for Positivity Target Ratings

	<i>Thin</i>	<i>Medium</i>	<i>Heavy</i>
<i>Boy Participants</i>	3.22(.55)	3.24(.63)	2.77(.60)
<i>Boy Targets</i>	3.21(.56)	3.22(.63)	2.81(.64)
<i>Girl Targets</i>	3.23(.54)	3.25(.63)	2.76(.58)
<i>Girl Participants</i>	3.26(.55)	3.23(.60)	2.99(.65)
<i>Boy Targets</i>	3.08(.52)	3.02(.55)	2.67(.56)
<i>Girl Targets</i>	3.39(.54)	3.38(.59)	3.24(.61)

Hypothesis 6: Are There Controllability Factors Influencing Weight Biases?

Operationally, attitudes toward weight controllability and weight fortune were treated as continuous variables and centered to avoid problems with unstandardized solutions (Aiken & West, 1991). To analyze participants' evaluations of weight, a weight controllability X weight luck X 3 (target weight) repeated measures factorial was conducted with weight as repeated measures. The dependent measures were again positivity and negativity toward the target children.

Positivity of Ratings. There was a main effect for weight, $F(2, 622) = 93.51, p < .001, \eta^2 = .23$. There was a controllability X weight interaction, $F(2, 622) = 3.05, p < .05, \eta^2 = .01$. When the target child's weight was thin or heavy, weight controllability was not related to positivity ratings, $r_s = -.02, ns$. When the target child's weight was

medium, there was a trend, although not significant, toward persons who thought weight was controllable rating them more positively, $r = .09$, $p = .12$. Thus, although the correlations were different from each other, none was significantly different from 0. As such, interpretation of this finding is not wise.

There was also an overall luck effect, $F(1, 311) = 16.87$, $p < .001$, $\eta^2 = .05$. Children who thought weight was due to luck rated everyone more positively than persons who rated weight as less due to luck ($r_s = .21, .26, .17$, $p_s < .01$, for thin, medium, and heavy targets). This effect even held for the overweight target children, $r = .17$, $p < .003$.

To examine this effect further, I ran a multiple regression with weight control, weight fortune and their cross-product as predictors; the positivity ratings for each target group served as the dependent measure. Children who believed weight is determined by luck rated overweight targets more positively than children who did not think weight is simply luck, $B = .16$, $t = 2.74$, $p < .007$. Weight controllability did not predict positivity ratings, $B = -.02$, $t = -.28$, *ns*. There was no evidence of a weight control X weight luck interaction, $B = .07$, $t = 1.22$, *ns*.

Children who think weight is luck rated medium targets more positively than children who did not think weight is luck, $B = .24$, $t = 4.41$, $p < .001$. Weight controllability did not predict positivity ratings, $B = .09$, $t = 1.67$, $p = .096$. There was no evidence of a weight control X weight luck interaction, $B = .06$, $t = 1.09$, *ns*. Finally, children who think weight is luck rated thin targets more positively than children who did not think weight is luck, $B = .19$, $t = 3.45$, $p < .001$. Weight controllability did not

predict positivity ratings $B = -.01$, $t = -.19$, ns. There was no evidence of a weight control X weight luck interaction, $B = .08$, $t = 1.43$, ns.

Negativity Ratings. There was a main effect for weight, $F(2, 622) = 68.79$, $p < .001$, $\eta^2 = .18$. There were no interactions with controllability or luck, $F_s < 2.35$, ns. There was a luck main effect, $F(1, 311) = 6.20$, $p < .013$, $\eta^2 = .02$. Children who thought weight was due to luck rated the targets less negatively overall. Examining the partial correlations (controlling for controllability) revealed that this effect held for medium and heavy child targets, $pr_s = -.18, -.12$, $p < .04$. The bivariate relation was not significant for thin targets, $r = -.08$, ns.

I again ran a series of multiple regressions with weight control, weight fortune as predictors, and their cross-product as predictors. The negativity ratings for each target group served as the dependent measure. There was no evidence that weight controllability or weight fortune predicted negativity ratings for thin target children, $t_s < -1.21$, ns. For medium weight targets, weight fortune was inversely related to negativity ratings, $t(311) = -3.07$, $p < .002$. For heavy targets, weight fortune was only marginally related to negativity ratings, $t(311) = -1.81$, $p = .07$.

Supplementary Analyses. Supplementary analyses examined control/luck items separately given the low reliabilities associated with the subscales. In other words, I ran a *weight fortune* X 3 (target weight) repeated measures ANOVA with weight as the repeated measure for each of the five items on the survey. For negativity ratings, there were no main effects or interactions for luck items. For positivity ratings there was a weight X luck interaction $F(2, 626) = 3.71$, $p < .03$ (using the *lucky weight* item). Luck

had less influence on ratings of positivity for thin targets ($r = -.13, p = .02$), than for medium and heavy targets ($r_s = -.25, -.15, p < .01$). That is, believing weight was simply luck increased positivity ratings more for medium and heavy targets. On the other hand, the weaker relationship for the thin targets could be due to a ceiling effect (i.e., everyone rated the targets more positively regardless of their attitudes towards weight luck). There were no other interactions for the other items.

Next, I examined the influence of BMI-percentile on the children's perceptions of weight/controllability. BMI-percentile was positively related to weight luck, $r = .13, p = .02$. Children who were heavier endorsed weight as being lucky more than did children who were thinner. There was no relation between BMI-percentile and control, $r = -.04$ ns.

I then examined whether the BMI-percentile of the children interacted with controllability and luck to influence ratings of the target. Using moderated multiple regression, I centered and entered BMI-percentile, and either controllability or luck on step 1. I then entered the two-way interaction terms on step 2. The dependent measures were positivity and negativity for each target child (thin, medium, heavy). Post hoc analyses of interactions followed procedures outlined by Aiken and West (1991). There were no interactions for any of the negativity ratings. There were also no interactions for BMI-percentile X luck.

For heavy targets there was a BMI-percentile X control interaction, $t(311) = -2.22, p < .03$. Weight control was negatively related to positivity ratings for heavy targets when the participant also had a high BMI-percentile (i.e., + 1 SD), $sr = -.11$,

$t = -1.86, p = .06$. In other words, heavy children who believed weight was controllable were less positive when rating heavy targets. There was no relation between control and positivity ratings for heavy targets if the participant had a medium or low BMI-percentile, $ts = -.63, 1.18, ns$. In sum, the weight of the children themselves did interact with their beliefs about weight control to influence ratings of positivity for heavy targets.

Hypothesis 7: Do Big Five Personality Factors Influence Weight Biases?

Finally, I examined whether children who are more agreeable are *less* likely to hold biases against overweight children using a multivariate general linear model. Operationally, agreeableness was treated as a continuous variable and centered to avoid problems with unstandardized solutions (Aiken & West, 1991). To analyze participants' evaluations of weight, agreeableness X 3 (target weight) repeated measures factorials were conducted with weight as repeated measures.

Positivity Ratings. There was an overall weight effect, $F(2, 626) = 92.73, p < .001, \eta^2 = .23$. There was no agreeableness X weight interaction, $F(2, 626) = .24, ns$. There was, however, an agreeableness main effect, $F(1, 313) = 10.59, p < .001, \eta^2 = .03$. Agreeable children rated *all* target children more positively, $rs = .17, .17, .13, p < .02$.

Negativity Ratings. Again, there was an overall weight effect, $F(2, 626) = 68.79, p < .001, \eta^2 = .18$. There is a marginal agreeableness X weight interaction, $F(2, 626) = 3.00, p = .05, \eta^2 = .01$. Agreeableness was not related to negativity ratings for thin participants, $r = -.09$. However, agreeable children were less negative in their ratings of

medium and heavy targets than were children lower in agreeableness, $r_s = -.17, -.21$, for medium and heavy targets, respectively. (See Figure 3.9).

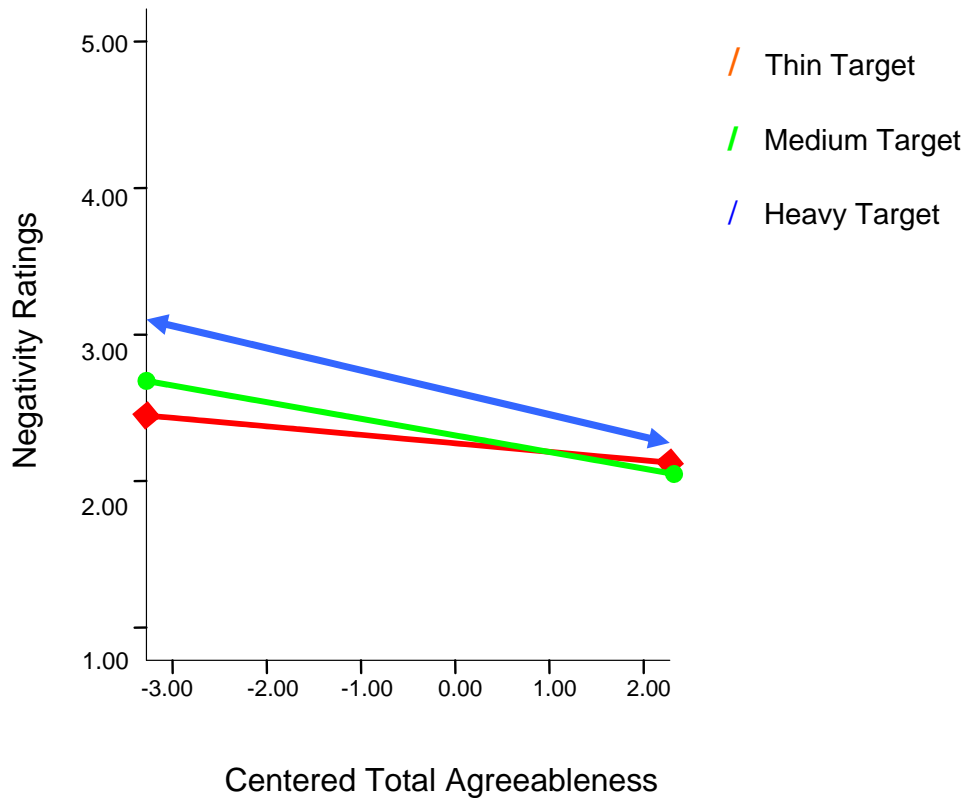


Figure 3.9: Main effects and interaction between the levels of negativity ratings based on weight and the agreeableness dimension of the Big Five inventory

Supplementary Analyses. Additional analyses examined whether the other Big Five dimensions contributed to target children. Iterative sets of regression analyses examined the unique contribution of personality to children's perceptions of target children. The dependent measures were positivity and negativity for heavy target children. There was no influence for the Big Five predicting positivity ratings for overweight children. However, conscientious children rated the child-target less

negatively than did less conscientious children, $\beta = -.23$, $t = -3.64$, $p < .001$. On the other hand, neurotic children rated the heavy target child more negatively than their less neurotic peers did, $\beta = .14$, $t = 2.45$, $p < .02$. In addition, children who report being open to experience rated the overweight children more negatively than the less open children, $\beta = .13$, $t = 2.04$, $p < .04$. After controlling for the other Big Five dimensions, agreeableness was only marginally related to negativity ratings for overweight targets, $\beta = -.11$, $t = -1.87$, $p = .06$.

Given these results, I then ran separate repeated measures ANOVAs for conscientiousness, neuroticism, and openness. The repeated measures were negativity ratings for each target child (thin, medium, heavy). There was a conscientiousness X weight interaction, $F(2, 626) = 3.26$, $p = .04$, $\eta^2 = .01$, and a main effect of conscientiousness $F(1,313) = 16.22$, $p < .0001$, $\eta^2 = .01$. Conscientiousness was inversely related to negativity ratings, $r_s = -.14, -.15, -.24$, $p < .01$, for thin, medium, and heavy targets respectively. Conscientious children rated all targets less negatively but the association was strongest for the heavy targets.

There was also a main effect of neuroticism $F(1,313) = 13.81$, $p < .0001$, $\eta^2 = .04$. Neuroticism was positively related to negativity ratings for thin, medium, and heavy targets, $r_s = .15, .14, .21$, $p < .01$. Neurotic children rated the targets more negatively than children who were less neurotic. There were no significant main or interaction effects for openness, $F_s(2, 626) = 1.63$, $p = .20$. When examining the bivariate correlations, openness was marginally and inversely related to negativity for heavy

targets, $r = -.10$, $p = .09$. Openness was not related to negativity ratings for medium and thin targets, $r_s = -.09$, $.00$.

CHAPTER IV

DISCUSSION

Overall, this study did not support the hypothesis that weight-bias toward other children may be attenuated by the child's own ethnicity, age, sex of participant, weight attitudes, or personality factors, and there were few exceptions. It is striking that in all cases an overwhelming weight bias existed. Indeed, there was a robust effect of weight in all analyses. Heavy targets were rated less positively than medium or thin targets. Heavy targets were also rated more negatively on all the rating items except "*do you think this kid is mean?*" In addition, weight accounted for between 3-23% of the variance in predicting positivity and negativity ratings. It is possible that being mean might involve more complex mechanisms. For example, being mean towards others can be considered as a positive thing among children. They often aspire to being like their older counterparts, and older children can be mean spirited toward younger siblings or children in lower school grades. In addition, some popular children are also seen as meaner than their less popular peers are. In sum, the children in this study had no hesitations judging whether overweight targets were lazy, sloppy, less intelligent, had poorer memory, and even less happy than those of typical weight. In 2003, Latner and Stunkard determined that overweight children were being rated significantly lower (by 41%) on how much they liked an overweight child than in 1961 when the original

measures were taken. This study would suggest that weight bias still exists among children and is robust

Ethnicity and Weight Bias

It was expected, however, that culture and ethnic backgrounds would influence some children to be more tolerant of heavier children. As such, Black and Hispanic children were expected to be more *weight-blind* when evaluating other children than would White children. There is some evidence that both Blacks and Hispanics adults stigmatize obesity less than White adults do (Crandall & Martinez, 1996; Hebl & Heatherton, 1998; Hebl & Turchin, 2005). However, the evidence for children is less promising. Even though the faces of the targets had some impact in influencing happiness ratings with Blacks being rated more positively than Whites, this still had no overall impact on the children's ratings toward overweight targets. Black targets were seen as being happier than either the White or Hispanic targets, yet all the participants (Black $n=98$) were no more forgiving of overweight Black targets. In sum, the present study found no evidence that ethnicity played a part in attenuating the weight bias.

Age and Weight Bias

Another possible moderating influence on weight bias was the age of the participant. Some researchers (e.g., Black-Gutman & Hickson, 1996) have found that younger children are more positive in their ratings of stigmatized targets than older children. Indeed, Black-Gutman and Hickson (1996) found that older children tend to hold biases that were more similar to adult attitudes. Based on these findings, it is possible that older children would show more weight bias than would younger children

(age buffering hypothesis). Conversely, even preschool children have demonstrated prejudiced behavior toward obesity (Turnbull, Heaslip & Mc Leon, 2000). For example, mothers of preschoolers (4-6 years old) have been found to heavily influence weight ideals of their children (e.g. Holub et al. 2005, Musher-Eizenman et al., 2003). Thus, it is also possible that weight bias will be well ingrained by 3rd grade (early bias hypothesis).

There was some support for both the age intensification hypothesis as well as the early bias hypothesis. Children from 3rd grade were less negative in their ratings of overweight targets than 6th grade children (age intensification support). This effect held when 3rd-5th grade children were compared to 6th grade children. However, there were no grade effects for positivity ratings. Although 3rd grade children were less biased than 6th grade children were, they still showed a bias toward overweight children (early bias support). Thus, even 3rd graders showed a bias against overweight children and this bias seems to intensify with age.

In addition, it is possible that children rated older looking (thinner) children more positively as older children are often seen as role models for younger children. Young children use social comparison to assess their similarities and differences to other children, which increases with age (Pomerantz, Ruble, Frey, & Grenlich, 1995). This however, does not explain the consistent weight effect in this study. Even after controlling for age, children were still negatively biased toward overweight targets.

Finally, children from all grades were very decisive about which body they did not want to look like. A total of 255 children (81%) chose the heavy target as the least

preferable. Only 47 children chose the gaunt child as the least preferable (14.9%). In addition, children consistently chose the more typical body size as preferable to look like. That is, 43.5% of the children chose the average weight child as most preferable, followed by the thin child (33.3%). The results from this study suggest that it would be naïve to ignore the possibility that weight bias does not influence children's thinking at an early age.

Sex of Participant and Weight Bias

This study also examined whether the sex of the target child influenced weight bias. It was anticipated that girls would be rated more harshly for being overweight than boys. Previous research has found that women are rated more negatively and even receive less financial support for college from their parents than do overweight boys (e.g. Crandall, 1995; Crosnoe, 2007). However, these studies always involved adults rating other adults or children.

The findings from this study did not support this bias toward overweight girls by other children. Boys rated both boy and girl targets who were heavy more negatively than did girls. Girls also stigmatized based on weight, but were more likely to stigmatize boy targets who were overweight than girl targets. This could be due to the very clear in-group/out-group perceptions children have at this age. Boys and girls develop separate social groups, in which the out-group, in this case boys, are perceived as more negative on many dimensions. This gender segregation could be reflecting the differences that develop between girls' and boys' play styles and activity levels (Maccoby, 1998). Girls begin to segregate earlier than boys and prefer same sex

playmates by 2 years old (La Freniere, Strayer, & Gauthier, 1984). By the time they enter first grade, children have already developed clear out-group biases towards the opposite sex and can behave more negatively toward them. Indeed, the investigators in this study even had several girls tell them that they did not like boys.

Does Being Overweight Affect Perceptions of Others?

Next, this study examined weight factors that might influence weight bias. The first factor involved the child's own weight as assessed by BMI-percentiles. The second factor involved weight controllability/luck. Participants' weight did not moderate the influence of weight bias on ratings of positivity. In addition, heavier children who believed weight was controllable were less positive in their ratings of other overweight targets than heavier children who did not believe weight was controllable. Thus, heavier children were rating overweight targets as negatively as thinner children did, especially when they believed weight was controllable.

Given that obesity is often seen as controllable compared to other physical attributes that are deemed uncontrollable such as race or gender (e.g. Tiggemann & Anesbury, 2000), children may begin to internalize these negative biases. Therefore, overweight children may view other overweight children less positively and more negatively than average weight children as they do not develop positive in-group attitudes toward being overweight (Hill & Silver, 1995).

An alternative view is that instead of simply holding a bias against being overweight, children are already firmly ingrained with "thin ideals" by the time they reach third grade. As such, positive attitudes towards thinness may be just as prevalent

as negative attitudes toward obesity. Many studies have documented children aged 6-9 years old prefer thinness (Clark & Tiggemann, 2006; Lowes & Tiggemann, 2003). However, this study found no differences between thin and medium targets, suggesting that, at least in this study, fat bias is stronger than preferences for thinness.

This study found limited evidence that beliefs about weight discipline moderated the influence of weight on ratings of the target children. There was no evidence that weight controllability exacerbated the influence of weight on negativity toward the target. However, heavier children who believed weight was controllable were less positive in their ratings of overweight target-children. In addition, children who viewed weight as just luck were more positive to medium and heavy targets than children who did not believe weight was luck. It is possible that here children are being a little more flexible in their thought patterns when judging others if the attribution of weight lies outside of the self. This phenomenon has occasionally been witnessed in other research studies. For example, Bell and Morgan (2000) found that when a medical condition had been attributed to being overweight, individuals were less biased (although not completely unbiased).

Does Personality Influence Weight Bias?

Finally, although it is clear that children consider overweight children in a less favorable light than normal weight children, personality did weaken this effect. Namely, this study found small effects for agreeableness and conscientiousness. Children who were more agreeableness and more conscientious were less likely to rate overweight children more negatively than children who were less agreeable and conscientious.

Recently, Graziano, et al. (2007) also found persons lower in agreeableness were less likely to want to work with an overweight partner, even if that partner was similar to them on other dimensions. This study extends this finding by showing that even disagreeable children are more likely to be biased against overweight peers.

Graziano and Eisenberg (1997) defined the agreeableness in terms of social motivation, given that agreeableness may reflect some people's willingness to develop and maintain positive relationships with others. In other words, children may hold certain prejudices or biases against their overweight peers. However, those children with higher levels of agreeableness may be more willing to suppress those biases (or may not even have those biases) in favor of maintaining more positive attitudes towards other children, even children who are overweight. When rating thin children, both agreeable and disagreeable children liked the target child equally well. When rating medium to heavy targets, agreeable children rated them less negatively than did children who were less agreeable.

Conscientiousness also played a role in children's target rating. Overall, those more conscientious children rated all targets less negatively, possibly using the same rules that apply for agreeable children, as agreeableness and conscientiousness are correlated with each other. Neuroticism however, is related to emotional stability, mood frustration, and anxiety. Previous research has found that neurotic adults are more negative in the interpersonal interactions with others and have negativity bias in their dealings with others (Watson & Clark, 1984). This study supports this research and found that neurotic children show greater negativity toward all target children.

Future Directions

This study took a unique approach to examining children's perceptions of each other. The stimulus materials were painstakingly developed specifically with ethnicity differences in mind, and more important, real life application. Many studies have used composites from magazines or drawings but using digitally altered photographs of real children is a recent application. There have been many studies conducted on weight bias, but many have ignored ethnicity factors that may play a part in advancing our understanding of obesity (e.g. Neumark-Sztainer, 1998, Thompson et al. 2003). An exception to this is work by Hebl and her colleagues (1997, 2005). Although she specifically examined racial differences in attitudes toward obesity, she only looked at adults and she only involved White and Black participants looking at White and Black targets. Given that Texas has over 35% Hispanic/Latinos (US Census Bureau, 2007), this important group has been virtually ignored. The ethnic make-up of the sample was also unusual, with a large percentage of African Americans and Hispanics, this study was able to tap into possible cultural different in ethnic groups that do not frequently participate in research.

There were some limitations to this study. There was a much smaller sample size of Hispanic children than was desired due to reasons beyond the control of the study. For example, the school districts that allowed us access to the schools did not have large Hispanic populations. Moreover, a large proportion of participants came from after school care programs, and many parents of Hispanic children were less likely to place their children in these programs. However, even with the current sample size, it was

clear that the moderating influence of ethnicity on weight bias was very small (and nonsignificant).

Secondly, it is possible that the weak personality effects were a result of the poor reliability of the measures used. First, there may have been an insufficient number of items for each personality dimension. Second, young children can have difficulties rating themselves on personality dimensions; however, this is contrary to some research (see Measelle, Ablow, John, Cowan, & Cowan, 2005). Future studies would need to address this issue and find a balance between time constraints of working with younger children to obtain results that are more meaningful. In addition, the use of parent or teacher ratings may be used to provide more reliable assessments of personality. However, Kagan (1994) suggested that parental reports are problematic due to biases, and advises against using them.

Finally, more research needs to examine whether attitudes toward weight do indeed involve two dimensions, namely weight controllability and weight fortune. That is, there needs to be a refinement in designing controllability scales that children can understand and respond to accordingly. At the very least, future research needs to replicate the current finding of two dimensions.

Final Conclusion

The findings in this study provide an interesting picture of the associations between being overweight and children's perceptions of each other. It is well known that children develop concepts and vocabulary of weight early on in life (E.g. Cramer & Steinwert, 1998; Puhl & Brownell, 2001; Holub et al. 2005), but when and how they use

this information to determine the social qualities of peers and indeed themselves is less understood. This study would suggest that even children as young as 8 years are showing biases toward their overweight peers.

From early childhood, body image affects the emotions and thoughts of individuals in everyday life (Cash & Pruzinsky, 2002). Persistent media attention surrounding obesity emphasizes the negative impact of being overweight, and people are constantly being bombarded with weight and nutrition information. School policies on best ways to tackle the *obesity epidemic* in the United States have become very public. For example, schools in several states have implemented or are discussing implementing the inclusion of BMI on report cards; schools nationally have removed certain types of vending machines from their premises, and some schools actively monitor pupils' lunch purchases and choices (foodserve.com).

Indeed, the American public is more aware of weight factors, and the implications (at least the physical implications) of being overweight today, than ever before. However, it is unclear whether this focus on weight is increasing biases toward individuals who are overweight. Indeed, our study did not find the same ethnicity effects as previous studies. One possible explanation is that the obesity stigma is becoming so strong that it is permeating into subcultures that were traditionally more tolerant of bigger body sizes. Future work needs to examine whether emphasis on weight in schools actually increases biases against children who are heavier. That is, there may be increased psychological costs associated with an increased emphasis to lose weight and/or be an ideal weight.

Second, a traditional idea in prejudice literature is the contact hypothesis (e.g. Allport, 1954, Sherif et al 1965) which suggests that prejudices have their origins in lack of information about people. I predicted that with increasing numbers of overweight people, children should show less bias toward overweight children due to potential normalizing factors (e.g., being overweight is now the average or norm). At the very least, overweight children should be less likely to stigmatize other overweight children. The results suggest that this is not the case. This study found that even overweight children were biased against other overweight children. Borrowing from classic research on racism (Clark & Clark, 1947), it is possible that overweight children have learned to reject other overweight children (even though they are overweight themselves) because of the pervasive stigmatization and prejudice associated with being overweight.

In summary, it appears that overweight biases are prevalent and becoming alarmingly more so in younger generations. This study with its digitally generated scale of bodies and its wide diversity base has not only clearly shown stigmatization toward overweight individuals regardless of ethnicity or sex of the target, it also infers that despite many parents' best efforts to discourage stereotyping or judgmental behavior the practice occurs regardless – and at a disturbingly young age. No child was *weight-blind* or unbiased, although there was some evidence, under limited conditions that some children are *weight near-sighted* or less biased. Uncovering how weight stigmatization processes develop in early childhood will be critical in understanding and constructing plans in which to not only combat obesity itself, but also to develop coping strategies for

children that are not at an ideal weight. This study has provided a good groundwork for beginning to understand these issues, and a springboard to develop multiple lines of future research.

APPENDIX A

TEST INSTRUMENT

CHILD STIGMA SURVEY

Please look at the photo then circle the number that best fits what you think about the person in the photograph.

1) Do you think this kid is smart?

1	-	2	-	3	-	4	-	5
Definitely Not		Probably Not		Maybe		Probably Yes		Definitely yes

2) Do you think this kid is happy?

1	-	2	-	3	-	4	-	5
Definitely Not		Probably Not		Maybe		Probably Yes		Definitely yes

3) Do you think this kid is cute?

1	-	2	-	3	-	4	-	5
Definitely Not		Probably Not		Maybe		Probably Yes		Definitely yes

4) Do you think this kid is popular at school?

1	-	2	-	3	-	4	-	5
Definitely Not		Probably Not		Maybe		Probably Yes		Definitely yes

5) Is this kid good at sports?

1	-	2	-	3	-	4	-	5
Definitely Not		Probably Not		Maybe		Probably Yes		Definitely yes

6) Do you think you would like this kid?

1	-	2	-	3	-	4	-	5
Definitely Not		Probably Not		Maybe		Probably Yes		Definitely yes

7) Do you think this kid is picked on or teased at school?

1	-	2	-	3	-	4	-	5
Definitely Not		Probably Not		Maybe		Probably Yes		Definitely yes

8) Do you think you would like to play with or do activities with this kid?

1	-	2	-	3	-	4	-	5
Definitely Not		Probably Not		Maybe		Probably Yes		Definitely yes

9) Do you think this kid is mean?

1	-	2	-	3	-	4	-	5
Definitely Not		Probably Not		Maybe		Probably Yes		Definitely yes

10) Do you think this kid is lazy?

1	-	2	-	3	-	4	-	5
Definitely Not		Probably Not		Maybe		Probably Yes		Definitely yes

11) Do you think this kid remembers things easily?

1	-	2	-	3	-	4	-	5
Definitely Not		Probably Not		Maybe		Probably Yes		Definitely yes

12) Do you think this kid is sloppy?

1	-	2	-	3	-	4	-	5
Definitely Not		Probably Not		Maybe		Probably Yes		Definitely yes

13) How heavy do you think this person is?

1	-	2	-	3	-	4	-	5
Very Thin		Thin		Average		Heavy		Very Heavy

14) How old do you think this person is?

1	-	2	-	3	-	4	-	5
8 years old or younger		9 years old		10 years old		11 years old		12 years old or older

WEIGHT LOCUS OF CONTROL (WLOC)

Please circle the number that best describes how you feel:

1) Kids who are the right weight are just lucky:

1	-	2	-	3	-	4	-	5
Strongly Disagree		Disagree		Maybe		Agree		Strongly Agree

2) Gaining or losing weight is just going to happen no matter what a kid does:

1	-	2	-	3	-	4	-	5
Strongly Disagree		Disagree		Maybe		Agree		Strongly Agree

3) If kids eat properly and exercise enough, they can control their weight:

1	-	2	-	3	-	4	-	5
Strongly Disagree		Disagree		Maybe		Agree		Strongly Agree

4) If kids get fat, it is their own fault:

1	-	2	-	3	-	4	-	5
Strongly Disagree		Disagree		Maybe		Agree		Strongly Agree

5) Kids can control their weight if they want to:

1	-	2	-	3	-	4	-	5
Strongly Disagree		Disagree		Maybe		Agree		Strongly Agree

PERSONALITY INVENTORY

Here are some words/descriptions that may or may not apply to you. Please write a number next to each statement to tell me if you agree or disagree with that statement.

1	2	3	4	5
Totally Disagree	Disagree a little	Maybe	Agree a little	T otally Agree

I see myself as someone who:

- 1) ____ is shy, quiet
- 2) ____ talks a lot
- 3) ____ gets excited about meeting new kids
- 4) ____ is kind
- 5) ____ gets along with other kids
- 6) ____ argues a lot
- 7) ____ gives up quickly when something is difficult to do
- 8) ____ is lazy
- 9) ____ is careful
- 10) ____ is moody
- 11) ____ gets nervous a lot
- 12) ____ is calm
- 13) ____ does not have good ideas
- 14) ____ is smart
- 15) ____ uses my imagination a lot

DEMOGRAPHIC QUESTIONNAIRE

Please put a check mark in the space that applies to you:

Are you a boy or a girl? BOY _____ GIRL _____

What is your date of birth? (M/D/Year) _____/_____/_____

What grade are you in? _____

What is your ethnicity?

- ☐ Asian
- ☐ Black or African American
- ☐ White/ Anglo-American
- ☐ Hispanic or Latino
- ☐ Other/Multiracial

Photograph Release

Approximately 20-30 3rd-5th grade children will have 3-4 digital pictures taken of them for research purposes. Parents will also be asked to provide some simple demographic information (e.g., birth date, height, weight, ethnicity, gender). Taking these photographs will require each child to stand facing forward in front of a plain background. Each child will be asked to wear plain clothing, and keep a neutral expression. These photographs will be viewed by research participants. Actual names will not be used in any of the studies to protect the identity of the child. The photographs may then be digitally altered (e.g., made to appear larger or smaller to manipulate weight perceptions). In a later study other people may also be provided fake information about the child in the picture (e.g., the person in the picture likes soccer even though your child might not personally like soccer). Participants in later studies will be asked questions about the “child” in the picture (e.g., their perceptions of the child’s weight, perceptions of their abilities, and what he/she feels about the person in the picture). These participants may also be asked questions like “Would you want this person for a friend?”

Each child will be paid a one-time honorarium of \$5 for allowing us to use their digital pictures in research and for allowing us to alter the images as needed.

I hereby grant to the Personality and Social *Behavior Laboratory at the University of Texas at Arlington* and its representatives, employees, agents and assigns, the irrevocable and unrestricted right to use, reproduce, alter, and publish photographs of me/my child, including me/my child’s image and likeness as depicted therein.

I hereby release The University of Texas at Arlington and its trustees, officers, employees, agents, legal representatives, and assigns from any and all claims, actions and liability relating to its use of said photographs.

I will make no additional monetary or other claim against The University of Texas at Arlington for the use of the photograph(s).

Name of Child: _____

Address: _____ State _____ Zip _____

Phone: (____) _____

Email: _____

Signature of Child: _____

Signature of parent/guardian _____

Parent/guardian name (print) _____

APPENDIX B

INTERNET FLYER

Posted Flyer

VOLUNTEERS REQUIRED FOR CHILD DEVELOPMENTAL STUDY

TITLE OF PROJECT: Children's Perceptions of Each Other

PURPOSE: The purpose of this study is to examine how children perceive each other based on first impressions and/or limited information (e.g., a photograph). We will examine how children's perceptions of other children differ based on appearance.

DURATION: Approximately 350 children from 3rd-6th grade from the Dallas-Fort Worth Metroplex will participate in our study. The study will consist of one meeting, which will last approximately 15-20 minutes.

PROCEDURES: Your child will view a set of photographs of children (who will not be known to them) and will be asked to provide his/her impression of the child in each picture. For example, he/she may be asked if the child in the picture has many friends. After he/she completes the ratings for each picture, your child will be asked to provide simple demographic information about him/herself (e.g., birthdate, gender, ethnicity) as well as answer a few questions about his/herself (e.g. I am outgoing/shy). All answers will be anonymous and your child's name will not be linked with his/her responses. Once children are done with their surveys, we will collect actual height and weight measures on your child (this will be done individually for privacy).

IF YOU HAVE A CHILD OR KNOW SOMEONE WITH A CHILD WHO WOULD BE INTERESTED IN VOLUNTEERING FOR THIS STUDY PLEASE CONTACT:

MADELINE REX-LEAR AT: REXLEAR@UTA.EDU

APPENDIX C

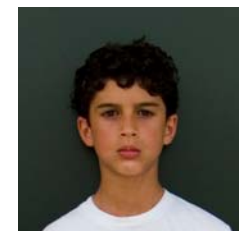
SAMPLE DIGITAL PHOTOGRAPHS

SAMPLE PHOTOS

Six sample photographs showing six different heads on one average body



Head Stimuli Materials



Body Stimuli Materials



APPENDIX D

FIGURE ARRAYS

Figure Arrays

Please WRITE the letter of the body that:

- 1) looks most like you now _____
- 2) you would most like to look like _____
- 3) you would most NOT like to look like _____



A



B



C



D



E



F



G



A



B



C



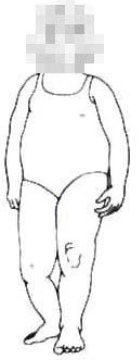
D



E



F



G

RESEARCHERS ONLY

ID _____

SCHOOL SCALE : 1 2 3 4 5 6 7

ACTUAL HEIGHT: _____

ACTUAL WEIGHT: _____

FOOTNOTES

¹ A computer glitch did not allow all participants to see one picture from each group. The problem and its resolution will be described in more detail in the results section.

² Supplementary analyses examined “Do you think you would like this person?” and “Do think you would like to play with or do activities with this kid?” as a separate factor since these items directly stigmatized the target. The results were virtually identical to the overall positivity dimension so only the overall positivity dimension results are reported in the thesis.

³Because ‘Mean’ was not related to weight, I created negativity composite excluding this dimension and used lazy, teased, and sloppy. The results were virtually identical so ‘mean’ was left in the final analysis.

⁴I also examined whether younger children (3rd, 4th, 5th children) versus 6th grade children were different in their ratings of negativity. There was still a grade X weight interaction for negativity, $F(2, 626) = 4.35, p < .01$.

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BIOGRAPHICAL INFORMATION

Madeline Rex-Lear completed her Bachelor of Arts degree in Psychology at the University of Texas at Arlington in 2005. She decided to pursue a graduate career in psychology at The University of Texas at Arlington in 2005. Under the supervision of Dr. Lauri Jensen-Campbell, Madeline received a Master's of Science degree in experimental psychology.

Madeline's interests are mainly in developmental and social psychology. She is especially interested in factors affecting healthy psychological development in children and adolescents. Madeline plans to pursue a career combining teaching and eventually counseling in order to give something back to the community.

She plans on continuing her research with Dr. Jensen-Campbell and completing her dissertation.