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# Body Image and Body Mass Index: An Investigation of Preadolescent Low-Income, Urban Ethnic Minority Girls

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LOYOLA UNIVERSITY CHICAGO

BODY IMAGE AND BODY MASS INDEX: AN INVESTIGATION  
OF PREADOLESCENT LOW-INCOME, URBAN  
ETHNIC MINORITY GIRLS

A THESIS SUBMITTED TO  
THE FACULTY OF THE GRADUATE SCHOOL  
IN CANDIDACY FOR THE DEGREE OF  
MASTER OF ARTS

PROGRAM IN CLINICAL PSYCHOLOGY

BY

AMANDA K. WARD

CHICAGO, IL

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## **ABSTRACT**

Utilizing a sample of low-income, urban preadolescent African American and Latina girls, this study examined ethnic differences in two aspects of body image (i.e., body dissatisfaction and weight descriptions), and determined if this relation varied as a function of age. This study also examined the relation between the body image variables and self-esteem and BMI and self-esteem, and determined if these relations differed depending on age or ethnicity. Participants were recruited from 3<sup>rd</sup> through 5<sup>th</sup> grade at five Chicago Public Schools, and completed measures of body dissatisfaction, weight descriptions, self-esteem, and had their anthropometric measurements taken. Results showed that Latina girls experienced more body dissatisfaction than African American girls, while no differences emerged for weight descriptions. Body dissatisfaction was the only variable that was significantly related to self-esteem, and this relation was strongest for younger, Latina girls. Overall, older girls in the sample demonstrated higher self-esteem and decreased body dissatisfaction. These findings have important implications for developing prevention and intervention programs, and explanations for understanding these results are discussed.



## **CHAPTER ONE**

### **INTRODUCTION**

Body image has become one of the most researched constructs in the field of psychology. This body of literature suggests that negative body image predisposes females to a number of health risks (George & Franko, 2010; Nishina, Ammon, Bellmore, & Graham, 2006; Shaw, Ramirez, Trost, Randall, & Stice, 2004; Wertheim, Paxton, & Blaney, 2009). Maintaining positive body image is fundamental not only for physical and psychological well-being, but also for quality of life (Grogan, 2008; Smolak & Thompson, 2009). Much of the research in this area has focused predominately on White middle-class, college-aged women, suggesting this group is most vulnerable to body image problems. Historically, the research that has been done with ethnic minority women proposed these females were at less risk for developing body image problems. However, more recent studies suggest ethnic minority women may now be at equal risk. Furthermore, while many researchers believed that body image concerns began in adolescence and increased with age (Gardner, Friedman, & Jackson, 1999), these concerns may actually emerge in girls prior to adolescence perhaps even as early as 6 years of age (Collins, 1991; Dohnt & Tiggemann, 2006).

In addition to age, body mass index (BMI) may also be an important component of understanding body image concerns, with BMI, more so than any psychosocial influence, being strongly associated with body image for young girls and adolescents

(Blowers, Loxton, Grady-Flessner, Occhipinti, & Dawe, 2003). These concerns in childhood may be a precursor to adult concerns with body image (Smolak, 2002). Earlier onset of body image concerns has been linked to more problems, such as decreased self-esteem in adolescence and young adulthood (Ohring, Graber, & Brooks-Gunn, 2002), highlighting the importance of investigating this construct in younger diverse populations.

Relying on a sample of urban, elementary school-aged African American and Latina girls, this study will examine ethnic differences in two aspects of body image (i.e., body dissatisfaction and weight descriptions), and determine whether these aspects vary as a function of age. The second aim is to examine the relation between these two aspects of body image, BMI, and self-esteem, and determine whether these relations vary by age, ethnicity, or age X ethnicity.

### **Body Image: Body Dissatisfaction and Weight Descriptions**

Body image is often conceptualized as an overarching construct consisting of a number of more specified dimensions. Body image encompasses thoughts, feelings, and attitudes related to one's body (Roberts, Cash, Feingold, & Johnson, 2006). Two important dimensions of body image will be explored in this paper, including *body dissatisfaction* (BD) and *weight descriptions* (WD). Both BD and WD are considered attitudinal body image dimensions, which can be further divided into global and cognitive components (Thompson & van den Berg, 2002).

Body dissatisfaction (BD) represents a global component of attitudinal body image, which refers to how dissatisfied one is with the body overall. It is defined as the difference between what an individual endorses as their perceived body (i.e., how they

believe their body looks) and their ideal body (i.e., what they want to their body to look like). BD has been shown to significantly influence psychological, physical, and health-related behaviors (Johnson & Wardle, 2005), and is considered one of the biggest risk factors for disordered eating (Striegel-Moore & Franko, 2002). An additional benefit to studying BD is that it captures how individuals perceive their body, allowing researchers to explore whether a person's subjective experience of their body is comparable to their anthropometrically measured objective body (Grogan, 2008). The difference between the actual and perceived body provides researchers with a valuable index of accuracy, as well as a quantitative measure of distortion (Jung & Peterson, 2007). For these reasons, BD has been widely studied in the field of body image.

Weight descriptions (WD) represent a cognitive component, which refers to how an individual thinks about their body (Thompson & van den Berg, 2002). Cognitive measures are useful for assessing beliefs, thoughts, and attributions of body image concerns, and provide researchers insight into potential cognitive distortions at work within an individual surrounding body image (Thompson & van den Berg, 2002). These cognitive distortions influence how individuals think about their weight, which is often times related to behavioral efforts used to control weight (Paeratakul, White, Williamson, Ryan, & Bray, 2002). Because WD may be related to harmful health outcomes, it has proven to be an important component of body image research. Both these attitudinal dimensions of body image, BD and WD, are valuable because they provide two perspectives of body image, affording both a general evaluation of satisfaction or dissatisfaction with one's body, as well as insight into an individual's thought process surrounding body image.

## **Ethnicity and Body Image**

Sociocultural theories of body image suggest that ethnicity is an important factor for understanding how women view their bodies (Abrams & Stormer, 2002), with ethnicity influencing the standards of acceptable body image, as well as the significance of those standards for individuals (Jackson, 2002; Smolak & Thompson, 2009). Each group defines body image attractiveness, and individuals' perceptions of their own body are dependent on these cultural definitions (Jackson, 2002). Thus, from a sociocultural perspective, body image is linked to how much an individual adopts and relates to a particular cultural ideal for thinness and body image. Research has suggested historically that there are differences in body image for women and girls of different ethnic groups. In the following sections, literature on ethnic differences in body image among women will be reviewed. Next, research that examines ethnic differences among girls will be presented. Finally, findings that suggest the relation between ethnicity and body image may vary depending on age of the individual will be reviewed.

### **African American Women**

Initially, research on ethnicity and body image compared only White and African American women. These studies typically concluded that African American women had less body image concerns than White women, and African Americans felt less pressure to be thin (Harris, Walters, & Waschull, 1991). Findings suggested African American females were open to larger ideal body types, more satisfied with their current size, and protected from the associated consequences of BD more so than other ethnic groups (Abrams, Allen, & Gray, 1993; Nishina et al., 2006; Roberts et al., 2006; Crago, Shisslak, & Estes, 1996). Furthermore, African Americans also rate their perceived size closer to

their ideal size compared to White women (Celio, Zabinski, & Wilfley, 2002). One explanation for these differences provided by sociocultural theory is White women base attractiveness on body type alone, while African American women take into consideration other factors such as personal style and ethnic pride (Celio et al., 2002). In addition, larger body sizes are also viewed more positively among African American individuals, which may contribute to decreased levels of BD compared to White women.

More recent work, however, has shown that these differences may be diminishing. A meta-analytic review of 98 articles examining ethnicity and body dissatisfaction (BD) by Grabe and Hyde (2006) found most ethnic groups were more similar than different, with only very small differences remaining between White and Black women. Thus, while minority status was once considered a protective factor, this may no longer be the case as differences in BD across ethnicities seem to be disappearing.

While levels of BD are becoming more similar across ethnic groups, the way women describe their weight (WD) may still be different. African American women are much less likely to describe themselves as overweight compared to White women, and continue to maintain a larger standard for what they consider “fat” (Celio et al., 2002; Parker et al., 1995). African Americans, even when overweight, do not describe themselves as such, and this group often places value in image and confidence rather than strictly in weight (Parker et al., 1995). Specifically, although recent work has found the differences in the level of BD between African American and White women are decreasing, differences do still seem to exist. Sociocultural theory has noted differences in standards of beauty and ideal body size between the groups, which is reflected in the way women describe their weight. Because African American women do not conform to

overly thin standards as many White women do, they describe themselves differently and may experience less BD.

### **Latina Women**

Although African American women's body image has been studied extensively, less research has been conducted to examine body image in Latina women. This population is one of the fastest growing groups within the United States (US Bureau of the Census, 2010), and therefore merits further study. Similar to research done on African Americans, the literature that is available on Latina populations has also used White women as the comparison group, and findings suggest Latina women may have body image concerns that are equivalent to White women (Grogan, 2008). Although several older studies reported that Latina women experienced less BD and weight concerns than White women (Harris & Koehler, 1992; Stern, Pugh, Gaskill, & Hazuda, 1982), more recent work suggests this population may have levels comparable to their White counterparts (Grabe & Hyde, 2006; Crago et al., 1996). Ethnicity does not appear to serve as a buffer against body dissatisfaction (BD) for Latina women. Furthermore, White and Latina women both describe themselves as overweight even when they are in the normal range. Weight is often the focus of body image research with Latina women because it is a highly valued component of appearance for the culture (Altabe & O'Garro, 2002). Because of differing emphasis on weight, African American and Latina females seem to describe it differently.

One explanation for this difference put forth in the sociocultural literature is that Latino culture promotes more traditional values and gender roles, and this feminine orientation is associated with more body image concerns (Avila & Avila, 1995).

Moreover, Latino cultures prescribe to a belief in cultural fatalism, which promotes the idea that individuals accept their fate without question of their cultural values. Kempa and Thomas (2000) explain that this leaves Latina women susceptible to body image concerns because they are less likely to question the thin ideal proposed by Western society. For this reason Latina women may experience equal levels of BD to White women, and describe themselves as overweight just as frequently. However, additional research is needed that goes beyond minority-White comparisons to provide a more complete picture of body image across different ethnicities, particularly investigations of BD and WD.

### **African American and Latina Girls**

While some research has suggested that ethnic differences in body image concerns are not apparent until later adolescence (Grabe & Hyde, 2006), others have found that young African American and Latina girls experience body image concerns as well. In fact, body image concerns may be present in young girls of varying ethnicities, with some researchers finding BD among both preadolescent African American (Sherwood et al., 2004; Stockton et al., 2009) and Latina girls (Robinson, Chang, Haydel, & Killen, 2001). In a review of body image concerns in children and adolescents, George and Franko (2010) found that BD occurs to some extent in all four major ethnic groups (African American, Latina, Asians, and Native Americans). However, these authors also note the major inconsistencies in findings comparing ethnic minority children to White children, with some studies finding similarities and others differences. One exception is that African American children have consistently been found to experience less BD and prefer larger ideal body sizes across most studies. Some studies have even found African

American ethnicity to be a protective factor against increases in BD in adolescence (Paxton, Eisenberg, & Neumark-Sztainer, 2006). Still, the relative inconsistency in the literature highlights the need to investigate body image in young girls more carefully. It seems that body image is in fact relevant for girls of all ethnicities, with African American girls experiencing the least concern. Furthermore, variables such age may be related to body image in urban, ethnic minority girls.

### **Moderating Variable: Age**

As noted previously, body image concerns may be relevant for younger girls. Body dissatisfaction (BD), for example, may no longer be a problem restricted to older girls and women, and has been consistently present in girls 6 and 7 years of age (Collins, 1991). Some researchers suggest that the development of BD is a process that begins in childhood and preadolescence (Davison, Markey, & Birch, 2003; Freedman, 1984). Research investigating this developmental process has shown that at ages 5-to-6 girls do not experience BD, but by 6 to 7 years of age more than 50% of girls prefer a smaller body size, and by 7 to 8 years of age girls have a solidified desire to become thinner and are dissatisfied with their bodies (Lowes & Tiggemann, 2003). Furthermore, with preadolescent girls demonstrating marked dissatisfaction with their bodies, it is not surprising that girls are aware of weight from an even younger age. Research has shown that children stigmatize overweight individuals as young as 3 years old, which may be due to the additional focus on weight in young children as a result of the childhood obesity epidemic and media efforts aimed at this population (Striegel-Moore & Franko, 2002). Thus, the age at which young girls begin thinking about their weight may be earlier, impacting the way girls describe their weight and satisfaction with their bodies.



Although body image may become relevant for girls much earlier, ethnic differences in body image may present differently at various ages. Previous work has shown that ethnic group differences become more apparent at older ages (Striegel-Moore, Wilfley, Pike, Dohm, & Fairburn, 2000). In a meta-analytic review of ethnicity and body dissatisfaction, Wildes, Emery, and Simons (2001) found that effect sizes of body dissatisfaction were strongest for college aged samples. African American and White women experienced similar levels in high-school and later in life, but White women experienced significantly more body image concerns in college than African American women. In their review, Grabe and Hyde (2006) found that ethnic differences in body image were dependent on age of the respondent. Specifically, it seems that ethnic differences are most apparent in adolescence and young adulthood, but less apparent during elementary-aged years. However, few studies have examined age as a moderator of ethnicity and body image concerns in samples other than White and African American females. Further investigation is needed to clarify the potential moderating role of age in Latina and African American samples.

### **Body Image, Body Mass Index, and Self-Esteem**

In addition to exploring ethnic differences in body image, the second aim of this study is to examine the relation between two aspects of body image (i.e., body dissatisfaction and weight descriptions), BMI, and self-esteem. This aim will also determine whether these relations vary by age or ethnicity.

### **Body Image and Self-Esteem**

Self-esteem is defined as a positive or negative attitude toward the self (Rosenberg, 1965, p. 30). It represents the evaluative component of a broader self, which

is self-concept (Blascovich & Tomaka, 1991; Davison & Birch, 2002). In their review, Blascovich and Tomaka (1991) explain that self-esteem is a piece of the more inclusive construct of self-concept, which is comprised of cognitive, behavioral, and affective components. Self-concept overarches self-esteem, and self-esteem includes more narrow and focused facets. Self-esteem can either be *global* in scope and measure all contained facets, or *specific* and measure only certain facets. Self-esteem is often considered a proxy for psychological well-being (Baumeister, Campbell, Krueger, & Vohs, 2003), and is one of the most studied outcomes in conjunctions with body image.

As the adverse consequences of body image concerns have become recognized, research exploring these negative outcomes has found a particularly strong link with self-esteem (Gardner et al., 1999; Nishina et al., 2006; Stice & Whitenton, 2002; Tiggemann, 2005; van den Berg, Mond, Eisenberg, Ackard, Neumark-Sztainer, 2010). Self-esteem is largely dependent on body image, particularly for women who are often socialized to create their definition of self based on appearance (Robins & Trzesniewski, 2005; Thompson, Heinberg, Altabe, Tantleff-Dunn, 1999). In fact, perceived appearance and BD are the best predictors of self-esteem for adolescent girls (Clay, Vignoles, & Dittmar, 2005; Johnson & Wardle, 2005). In a meta-analysis of weight and self-esteem, Miller and Downey (1999) found larger effect sizes between perceived overweight/BD and self-esteem than actual overweight status and self-esteem. In addition to being significantly associated with self-esteem, body image concerns have also been found to temporally precede and predict later self-esteem for females (Johnson & Wardle, 2005; Nishina et al., 2006; Tiggemann, 2005).

While the relation between body image concerns and self-esteem is well-documented, there remain inconsistencies in the literature regarding the impact of age and ethnicity, with both being identified as potential moderating variables of this relation. Research suggests it is unlikely that body image will have the same affect on self-esteem for females of different ethnic backgrounds and ages (van den Berg et al., 2010). Body image, as well as body weight, may have more influence on self-esteem for females at ages when appearance is most important, as well as for Caucasians compared to minorities (Miller & Downey, 1999).

#### **Moderating Variable: Age**

Historically, adolescence has been thought to be particularly important for changes in female self-esteem, with body image concerns having the most impact during this time. In a study of 11 to 16 year old girls, older girls had lower self-esteem as a result of body image concerns than did younger girls (Clay et al., 2005). That is, body image had more impact on self-esteem as girls continued through adolescence. Furthermore, a meta-analytic review revealed increasing effect sizes as females went from childhood, to high school, to college (Miller & Downey, 1999).

On the other hand, research has shown that females with more body image concerns have lower self-esteem than those with less body image concerns across ages. A recent study found the influence of BD on self-esteem was the same for girls in middle school as it was for girls in high school, with no changes over time (van den Berg et al., 2010). Furthermore, others have found this relation in pre-adolescent girls (Mendelson & White, 1985), adolescent females (Polce-Lynch, Myers, Kliewer, & Kilmartin, 2001), and young adults and older women (Wade & Cooper, 1999). Therefore, the research is

unable to make conclusive statements about how body image influences self-esteem at different ages. Some research has found that the relation gets stronger as age increases, while others have found a consistent link between body image concerns and self-esteem at any age when body image concerns are present. Although the relation is most often studied in adolescence and beyond, there is a need for further research with younger age groups as developmental roles change significantly from preadolescence to later adolescence (Paxton et al., 2006; Tiggemann, 2005).

### **Moderating Variable: Ethnicity**

While body image may be a significant predictor of self-esteem, less is known about the relation across ethnic groups. Previous research has found that when girls are dissatisfied with their bodies, regardless of ethnicity, they experience negative adjustment and lower self-esteem (Nishina et al., 2006). Several studies have compared Caucasian females to minority groups, but few studies have focused solely on low-income, urban minority girls.

**African American women.** A recent study of a diverse sample of adolescents aged 11-to-18 years revealed significant associations between BD and self-esteem for all ethnicities, but this relation was strongest among Caucasian girls (van den Berg et al., 2010). Similarly, utilizing a sample of 9 to 14 year old African American and Caucasian girls, researchers found that body image does not have the same impact on self-esteem for African American as Caucasian girls, with Caucasian girls' self-esteem being more affected by body image concerns (Brown et al., 1998). A meta-analysis by Miller and Downey (1999) found weaker associations between body image and self-esteem for minority females than White females. Evidence to support this was also found among a

younger sample of 8-to-10 year old African American girls, with no relation between BD and self-esteem (Stockton et al., 2009). Despite findings suggesting that ethnicity may be a protective factor for African Americans, one study found that there were no differences when comparing African American and Caucasian females on the relation between body image and self-esteem (Caldwell, Brownell, & Wifley 1997). However, the majority of literature in this area seems to suggest that African American females' self-esteem may be less affected by body image concerns than other ethnic groups.

**Latina women.** Less research has focused on Latina females, with the majority of the available literature suggesting Latina women are similar to Caucasians. In a sample of preadolescent Latina and Caucasian girls, researchers found no differences in the relation between BD and self-esteem based on ethnicity (Erickson, Hahn-Smith, & Smith, 2009). However, even when differences did emerge, Caucasians females were only slightly more affected than Latina females (van den Berg et al., 2010; Miller & Downey, 1999). Thus, body image concerns seem to influence Latina women's self-esteem in ways similar to White women. Still, findings are unclear as to how ethnicity influences the relation among young ethnic minority girls, suggesting ethnicity should be considered as a moderator when exploring body image and self-esteem in future investigations.

### **Body Mass Index and Self-Esteem**

Body Mass Index (BMI) is a measure of weight in kilograms divided by height in meters squared, and represents weight adjusted for height (Ogden & Flegal, 2010). This allows for BMI to be converted into percentile ranges based on CDC norms for age and gender (Kuczmarski et al., 2000). BMI is commonly used to express children's height

and weight, and has a higher correlation with body fat than any other indicator (Fisher, Lange, Young-Cureton, & Canham, 2005).

Discrepancies in the literature exist regarding the relation between BMI and self-esteem. Some studies have found a significant inverse relation between the two, with body weight emerging as a unique predictor of subsequent self-esteem (Clabaugh, Karpinski, & Griffin, 2008; Erickson et al., 2009; Mendelson, Mendelson, & Andrews, 2000). A two-year longitudinal study of BMI and self-esteem in high school girls revealed that larger BMI was significantly associated with lower self-esteem over the course of the two year study, even after controlling for initial levels of self-esteem (Tiggemann, 2005). Because overweight is often stigmatized and viewed negatively in American culture, it has the potential to influence self-esteem and adjustment outcomes (Puhl & Heuer, 2009; Puhl & Latner, 2007). However, other studies have only found very weak associations between BMI and self-esteem (Friedman & Brownell, 1995; Miller & Downey, 1999). This may be due to “body weight contingency of self-worth (CSW),” which refers to the extent to which individuals base self-esteem on body weight (Clabaugh et al., 2008). If females do not consider body weight as relevant to their self, then BMI is unlikely to have an impact on self-esteem. However, body weight CSW may be particularly salient for women living in western cultures who are exposed to thin ideals of beauty. While no clear link has been found between BMI and self-esteem, the disagreement in the literature may be a function of other variables such as age and ethnicity of participants, as females of different backgrounds or ages may base their self-esteem on different factors.

**Moderating Variable: Age**

Although many studies have found a clear relation between BMI and self-esteem in adolescent and older females (Mendelson et al., 2000; Kristjansson, Sigfusdottir, & Allegrante, 2008; Miller & Downey, 1999), the research is more ambiguous in studies of younger girls. Tiggemann's (2005) two year longitudinal study of BMI and self-esteem revealed a non-significant relation for 14 year old girls, while it was highly significant by age 16. However, these findings have not been replicated with preadolescent girls. In a study of girls 5 and 7 years of age, the association between BMI and self-esteem did not differ for 5 or 7 year old girls. (Davison & Birch, 2002). That is, there were no differences in BMI and self-esteem among younger and older pre-adolescent girls. Tiggemann (2005) provides several explanations for this age effect, particularly that more negative social feedback and increased awareness of body weight is not relevant until adolescence. These results indicate that BMI may not be as significant for the construction of self-esteem in very young girls.

However, recent research with preadolescent girls has found evidence to support the idea that BMI may in fact be relevant for self-esteem in young girls as well. In a study of girls in 3<sup>rd</sup> to 6<sup>th</sup> grade, heavier girls had significantly lower self-esteem, but these findings were largely dependent on age, with older girls being heavier and having lower self-esteem (Erickson et al., 2009). While the majority of studies have not found support for the link between BMI and self-esteem in very young girls, more work is needed to determine if this relation may be changing. As childhood overweight continues to be the focus of many national health initiatives, younger girls may be becoming more aware of body weight, which may impact self-esteem levels.

**Moderating Variable: Ethnicity**

While BMI has been associated with self-esteem for White females (Johansson, Solvoll, Bjerneboe, & Drevon 1998; Miller & Downey, 1999), more work is needed to determine if similar patterns of results emerge across ethnic groups. While some studies have found that BMI and self-esteem are linked regardless of ethnicity, others suggest BMI may be less important for self-esteem for females from different ethnic groups.

**African American women.** Typically, BMI tends to be unrelated to self-esteem among African American women. Data from four nationally representative samples of African American females revealed no association in three of the four studies (Faith, Manibay, Kravitz, Griffith, & Allison, 1998). This was also true in a sample of 8-10 year old African American girls, with no significant associations between BMI and self-esteem (Stockton et al., 2009). Similar results were found within a multi-ethnic sample of early adolescents aged 11-to-14 years. Overweight African girls actually had higher self-esteem with larger BMI, whereas all other ethnic groups had lower self-esteem with increases in BMI (Viner et al., 2006). In a study of White and African American college females, White females based their self-esteem on body mass significantly more than African American females (Clabaugh et al., 2008), which has been supported by sociocultural theory. BMI appears to be unrelated to self-esteem for African American females.

**Latina women.** While BMI may exhibit a weak or nonexistent influence on self-esteem in African American girls, this may not be the case among Latina populations. In a sample of preadolescent Latina and Caucasian girls, researchers found no differences in the relation between BMI and self-esteem based on ethnicity (Erickson et al., 2009).



That is, the pattern of BMI and self-esteem was the same for Latina as it was for Caucasian girls. Another study with 9-to-10 year old Latina and Caucasian girls supports this finding, with overweight girls reporting lower self-esteem in both groups (Strauss, 2000). It seems Latina females may emphasize body weight as much as Caucasian females in the development of self-esteem. However, because few studies have investigated how ethnicity influences the association between BMI and self-esteem in very young urban minority girls, more work is needed.

### **Specific Aims and Hypotheses**

#### **Specific Aim 1**

This study will examine ethnic differences in body image variables (i.e., BD and WD) in an urban sample of elementary-school-age African American and Latina girls. Overall, it is predicted that Latina girls will have more BD and describe themselves as more overweight than African American girls.

#### **Aim 1a**

To examine whether the degree of association between ethnicity and the body image variables is moderated by age (Figure 1). It is predicted that older Latina girls will experience the most body image concerns.

#### **Specific Aim 2**

To examine the relation between the body image variables and self-esteem and BMI and self-esteem. It is predicted that girls with more body image concerns and higher BMI will have decreased self-esteem.

**Aim 2a.** To examine whether the degree of association between the body image variables and self-esteem is moderated by age, ethnicity, or age X ethnicity (Figures 2 to

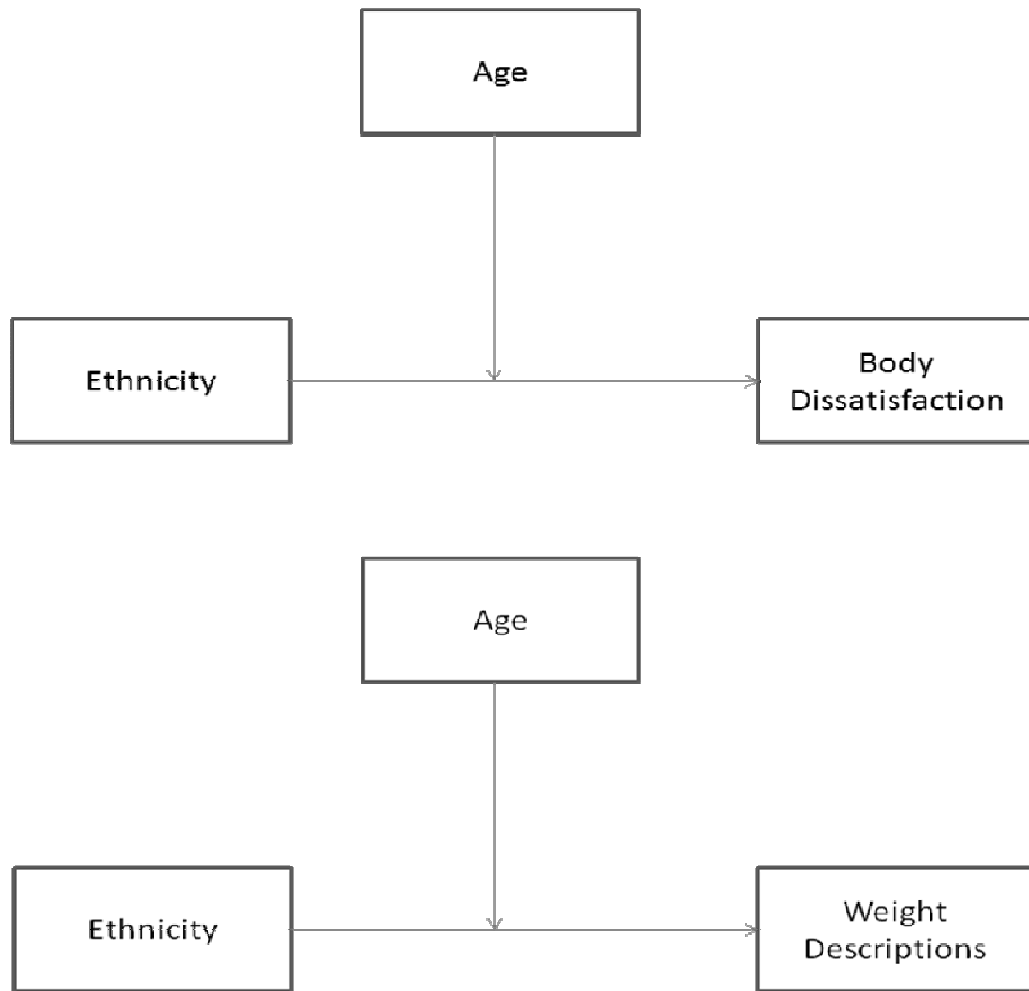


Figure 1. Proposed moderational models.

4). It is predicted that regardless of age or ethnicity, girls who experience more body image concerns will have decreased self-esteem.

**Aim 2b.** To examine whether the degree of association between BMI and self-esteem is moderated by age, ethnicity, or age X ethnicity (Figures 2 to 4). It is predicted that for Latina girls, increased BMI will be highly related to decreased self-esteem, and this association will be stronger among older girls.

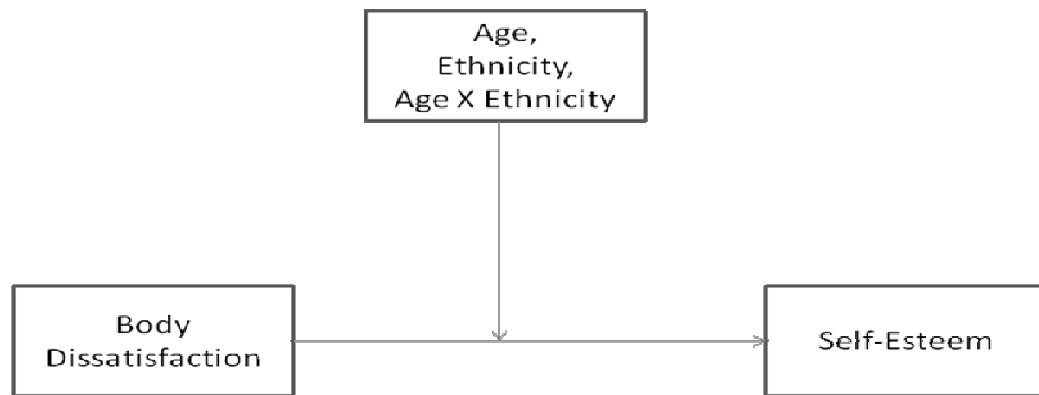


Figure 2. Proposed moderational model 1.

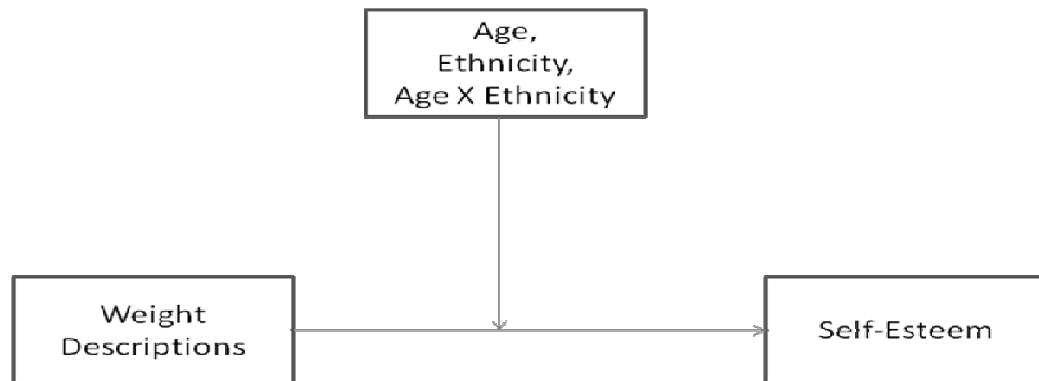


Figure 3. Proposed moderational model 2.

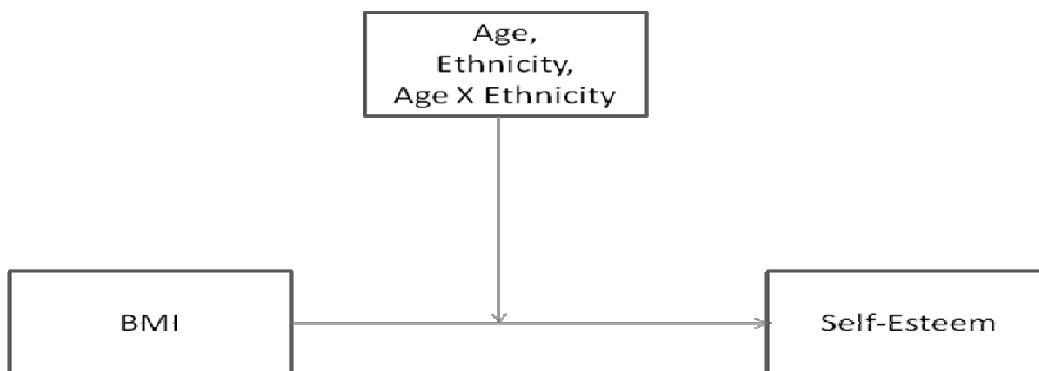


Figure 4. Proposed moderational model 3.

## **CHAPTER TWO**

### **METHOD**

#### **Study Design and Procedure**

Data for this study was taken from the first time point of a larger randomized controlled trial designed to evaluate the effectiveness of an after-school program being implemented at five Chicago public schools (CPS). All schools were located in urban communities, with low-income status ranging from 72.3% to 98.1% as indicated by the CPS city and school report. No significant school-level differences existed between participants on study variables. Brief announcements about the study and the after-school program were made during home room two weeks before the first data collection. Girls were provided consent forms in either English or Spanish, a cover letter explaining the study, and forms for the after-school program. Prior to the start of the after-school program, all consented girls were invited to attend a health festival where they completed questionnaires and had their height and weight measurements taken. Participants were assented and completed surveys with research assistants in small groups of two to three, and anthropometric measurements were recorded in a semi-private location. Participants had the option of completing the questionnaires without being weighed and measured.

#### **Participants**

Participants ( $N = 117$ ) were third through fifth grade girls, age 8 to 12. The participants were African American (37.4%), Latina (58.3%), Caucasian (3.5%), and

other (.9%), and 100% were female. Ethnicity information was obtained from the after-school program demographic database completed by parents. Though 117 participants were enrolled in the after-school program at time one, ethnicity information was not available for two participants, and only African American ( $n = 43$ ) and Latina girls ( $n = 67$ ) were considered in this study ( $N = 110$ ). Of these 110 participants ( $M = 9.19$ ;  $SD = 1.00$ ), 14 did not consent to be weighed and measured. Analyses were run to determine if differences existed between participants who consented to be weighed and measured and those who did not. One significant difference was found with non-consenting participants describing themselves as heavier than those who consented.

## **Measures**

### **Demographics**

Demographic measures included birth date, age, and grade in school. Ethnicity information was obtained from the after-school program demographic database completed by parents.

### **Anthropometric**

BMI was obtained from height and weight measurement. Participants' weight was measured without shoes to the nearest pound using a digital scale, and height was measured to the nearest inch. BMI  $z$  scores were calculated from the Children's Hospital of Philadelphia Research Institute home page based on the BMI-for-age percentile outlined by the Centers for Disease Control and Prevention (CDC) national norms using age to the nearest month and gender-specific median. BMI-for-age weight status categories were created based on BMI percentiles as outlined by the CDC: underweight (less than 5th percentile), normal weight (5th percentile to less than the 85th percentile),

overweight (85th to less than the 95th percentile), or obese (equal to or greater than the 95th percentile).

### **Body Image Concerns**

**Body dissatisfaction.** BD was assessed using a visual figure rating scale consisting of eight silhouette drawings from very thin (0) to very large (7) in body size that was adapted for use with African American girls (Stunkard, Sorenson, & Schulsinger, 1983). Participants were asked to choose the letter (each figure corresponds to a letter) of the girl that looks the most like them (perceived body), as well as the letter of the girl that depicts how they would like to look (ideal body). Higher ideal scores are indicative of endorsing a less emaciated ideal body image, and higher perceived scores designate endorsement of a larger body type. A measure of body dissatisfaction was obtained by calculating the difference between perceived and ideal bodies. Higher scores indicate more body dissatisfaction, and this measure has demonstrated reliability and validity (Banasiak, Wertheim, Koerner, & Voudouris, 2001; Thompson & Altabe, 1991), and has also been used in studies designed specifically for pre-adolescent minority girls (Sherwood et al., 2003).

To explore the *accuracy* of perceived body size estimations, the perceived body ratings from the visual figure rating scale were used to calculate categories corresponding to the CDC BMI weight status categories, with figures A and B representing *underweight*, C and D representing *normal weight*, E and F representing *overweight*, and G and H representing *obese* (Sherwood et al., 2003). Using a method employed by Saxton, Hill, Chadwick, and Wardle (2009), participants' BMI percentile ranking (i.e., underweight, normal weight, overweight, obese) was compared to their perceived body

rating. To calculate the accuracy of perceived body size estimations, BMI weight status category was subtracted from the perceived body rating, with negative scores indicating *underestimation* of size, zero indicating *accurate* selection, and positive scores indicating *overestimation*.

**Weight descriptions.** Weight descriptions were captured by asking participants “How would you describe your weight?” Response choices were (0) *too skinny*, (1) *skinny*, (2) *just right*, (3) *heavy*, (4) *too heavy*.

**Self-esteem.** Self-esteem was assessed using the Rosenberg Self-Esteem (RSE, Rosenberg, 1965) scale, a measure of global self-esteem. Participants were asked 10 questions (e.g., Sometimes, I think that I am no good at all) with four response choices ranging from (0) *strongly disagree* to (3) *strongly agree*. The RSE has test-retest reliability ranging from .85 to .88 (Silbert & Tippett, 1965), and strong validity (Rosenberg, 1979). Cronbach’s  $\alpha$  in the current study is .72.

## **CHAPTER THREE**

### **RESULTS**

#### **Data Preparation**

Initially, the data were examined for outliers and skewness (Tabachnick & Fidell, 1996), and all values were within an acceptable range. A mean imputation procedure was used in which a score for missing values was imputed if the participant responded to at least 80% of items on a scale. Composites were then calculated for the Rosenberg Self-Esteem Scale, body dissatisfaction (BD), and accuracy of body size perceptions. Additionally, preliminary descriptive analyses were run with all study variables, including means, standard deviations, and correlations.

#### **Descriptive Analyses**

Mean levels of study variables are listed in Table 1 for the overall sample, as well as for African American and Latina girls. The average zBMI for participants was .78 ( $SD = 1.22$ ) and was at the 69.89<sup>th</sup> ( $SD = 28.89$ ) BMI percentile. Using CDC criteria based on BMI for-age percentiles, 1% of the girls were underweight, 52.1% were normal weight, 19.8% were overweight, and 27.1% were considered obese. Although over a quarter of the girls in the sample were obese based on their actual body size, less than 1% perceived themselves to be in this weight category when asked to choose which picture looked most like them on the calibrated body silhouette scale. Table 2 shows the percentage of girls in each weight category based on actual BMI, as well as the



Table 1. Description of participant characteristics ( $N = 110$ ;  $n = 43$  African American;  $n = 67$  Latina)

	Overall	African American	Latina
	$M (SD)$	$M (SD)$	$M (SD)$
Ethnicity (%)			
African American	39.10	–	–
Latina	60.90	–	–
Age	9.19 (1.00)	9.42 (1.07)	9.05 (0.92)
zBMI	.78 (1.22)	.65 (1.57)	.87 (0.92)
BMI%	69.89 (28.89)	64.53 (33.91)	73.56 (24.53)
Body dissatisfaction	1.32 (1.51)	0.80 (1.44)*	1.65 (1.47)*
Weight descriptions	1.92 (0.87)	1.88 (0.80)	1.94 (0.91)
Self-esteem	1.87 (0.57)	1.94 (0.56)	1.84 (0.58)

\* $p < .05$

Table 2. Percentage of Participants Matched to Each of the Silhouette Categories According to Measured BMI, Participants' Own Perceptions, and Percentage Underestimating, Accurately Estimating, and Overestimating Body Size

Silhouette figure category	Overall	African American	Latina
% in each category based on BMI			
Underweight	1.0	2.6	0.0
Normal weight	52.1	51.3	52.6
Overweight	19.8	12.8	24.6
Obese	27.1	33.3	22.8
% who chose each category as most like them (perceived body)			
Underweight	11.1	14.3	9.1
Normal weight	55.6	45.2	62.1
Overweight	32.4	40.5	27.3
Obese	0.9	0.0	1.5
% choosing thinner figure (underestimation)	55.2	61.5	50.9
% choosing correct figure (accurate)	39.6	30.8	45.6
% choosing larger figure (overestimation)	5.2	7.7	3.5

percentage of girls in each category based on the figure chosen as most like them. As shown in Figure 5, Latina and African American girls' differed in terms of ideal body image with Latina girls endorsing a more emaciated ideal body. Correlational analyses also indicated that actual and perceived body size were significantly related ( $r = 0.60, p < .01$ ), suggesting that larger girls tend to choose larger figures to represent their body. However, overall girls demonstrated notable underestimation, with over half of the girls choosing smaller body sizes to represent themselves on the scale than their actual size as measured anthropometrically.

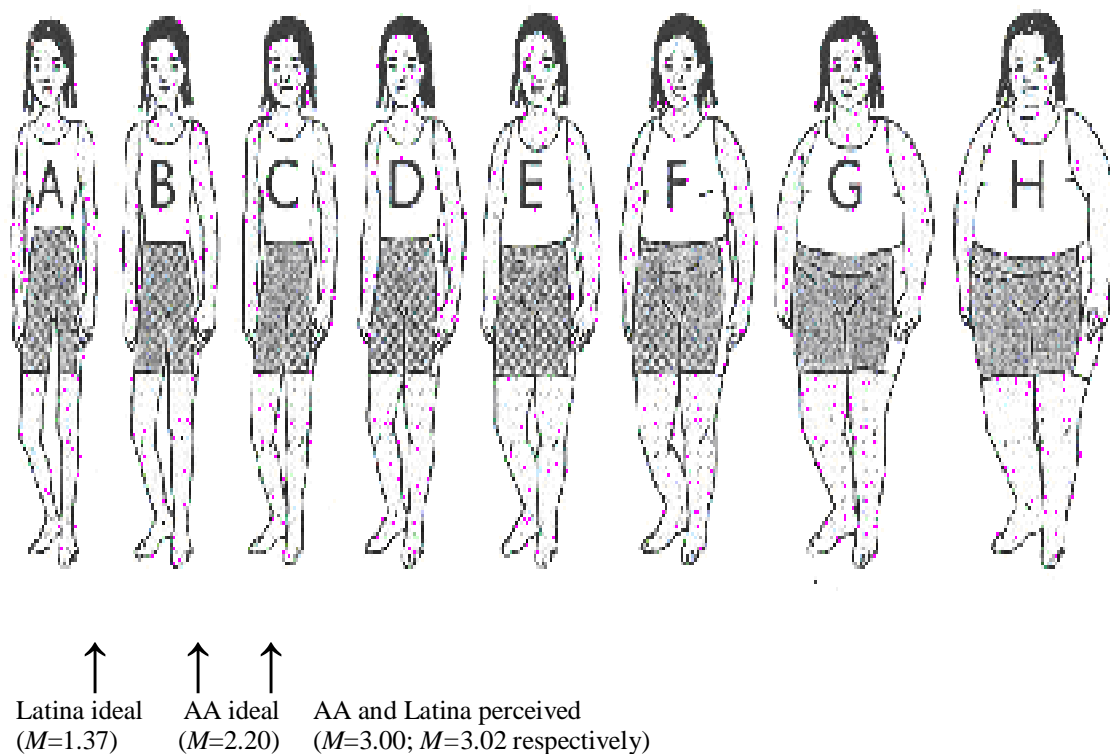


Figure 5. Latina and African American girls' choices for perceived and ideal body.

Several other study variables were also significantly related to one another (see Table 3). Body dissatisfaction (BD) was significantly positively associated with both zBMI and weight descriptions (WD), and WD was also positively associated with zBMI. These findings suggest that heavier girls experience more BD and describe themselves as more overweight. In addition, BD and self-esteem were significantly negatively associated, suggesting that girls who are more dissatisfied with their bodies experience lower self-esteem. Age and self-esteem were significantly positively associated suggesting that self-esteem was higher among the older girls in this sample.

Table 3. Correlations Among Study Variables

	1	2	3	4	5	6
1. Ethnicity <sup>a</sup>	–					
2. Age	.17	–				
3. zBMI	-.04	-.06	–			
4. Weight descriptions	-.04	.15	.39**	–		
5. Body dissatisfaction	-.24*	-.19	.55**	.43**	–	
6. Self-esteem	.08	.21*	-.09	-.01	-.25*	–

*Note.* A dash (–) indicates the diagonal.

<sup>a</sup> Represents Spearman

\* $p < .05$     \*\* $p < .01$

### Ethnic Differences in Body Image

To determine whether there were ethnic differences in the body image variables (BD and WD), an independent samples t-test was run. Ethnicity (categorical with two levels: African American and Latina) was entered as the independent variable, and BD and WD were entered as the continuous dependent variables. This analysis revealed that

Latina girls ( $M = 1.65$ ) reported significantly more BD than African American girls ( $M = .80$ ),  $t(104) = 2.89$ ,  $p = .005$ . However, there were no differences between Latina ( $M = 1.94$ ) and African American ( $M = 1.88$ ) girls in terms of how they described their weight. Thus, although African American and Latina girls describe their body weight similarly, Latina girls appear to experience significantly more dissatisfaction with their bodies than African American girls (see Figure 5).

### **Age as a Moderator of Ethnicity and Body Image**

Regression analyses were run to determine if the relation between ethnicity and the body image variables differed depending on age of the participant. To assess for moderation of the models shown in Figure 1, multiple regression was used (Baron & Kenny, 1986; Holmbeck, 1997, 2002). Age was centered by subtracting the mean from the variables, and ethnicity was coded into (0,1) form. Ethnicity and age were entered in Step 1 of the multiple regression analyses, followed by the two-way interaction term in Step 2 (ethnicity X age). Separate regressions were run using BD and WD as dependent variables.

For the body dissatisfaction (BD) analyses, there was a significant main effect of ethnicity on BD,  $B = -.78$ ,  $\beta = -.25$ ,  $t(101) = -2.65$ ,  $p = .009$ . That is, the ethnicity of the participant was significantly related to the level of body dissatisfaction experienced, with Latina girls experiencing more BD than African American girls. There was also a significant main effect of age,  $B = -.43$ ,  $\beta = -.28$ ,  $t(101) = -2.18$ ,  $p = .032$ , suggesting an inverse relation between age and BD, with lower BD among older girls. The Age X Ethnicity interaction, however, was not significant. For the weight descriptions (WD)

analyses, the main effects of age and ethnicity, as well as the interaction between the two, were not significant.

### **Body Image, Body Mass Index, and Self-Esteem**

Multiple regressions were also used to examine the relation between the body image variables (BD and WD) and self-esteem and BMI and self-esteem. BD, WD and BMI were entered in a single step, and self-esteem (continuous DV) as the outcome variable. Analyses revealed a significant main effect of BD on self-esteem,  $B = -.11$ ,  $\beta = -.31$ ,  $t(83) = -2.4$ ,  $p = .018$ , suggesting girls with greater BD experience lower self-esteem. WD and BMI were not significantly related to girls' level of self-esteem.

### **Age and Ethnicity as Moderators of the Relation Between Body Image, Body Mass Index, and Self-Esteem**

To assess for moderation of the relation between the body image variables and self-esteem and BMI and self-esteem, multiple regression was used (Baron & Kenny, 1986; Holmbeck, 1997, 2002). First, BD and age and were centered by subtracting the mean from the variables, and ethnicity was coded (0,1). BD, age, and ethnicity were entered in Step 1 to account for main effects of these variables, followed by the two-way interaction terms in Step 2 (BD  $\times$  Age, BD  $\times$  Ethnicity, Age  $\times$  Ethnicity), and the three-way interaction term in Step 3 (BD  $\times$  age  $\times$  ethnicity). The same procedure was used to examine moderating effects of age and ethnicity on the relation between WD and self-esteem and BMI and self-esteem. When significant interactions were detected, post-hoc probing via tests of simple slopes was conducted. Conditional moderating variables were created, and regressions were run incorporating the main effect of BD, the conditional variable, and the interaction between the two (Holmbeck, 2002). The interaction was

then plotted by substituting high (1 *SD* above the mean) and low (1 *SD* below the mean) values of BD through an interactive tool provided by Dawson & Richter (2006).

For regression analyses examining relations between BD and self-esteem, analyses revealed a significant  $BD \times Age \times Ethnicity$  interaction on self-esteem,  $B = -.25$ ,  $\beta = -.35$ ,  $t(90) = -2.5$ ,  $p = .014$ . This suggests that the influence of BD on self-esteem depends on the age and ethnicity of the participant. For younger Latina girls, there was a significant relation between BD and self-esteem,  $B = -.19$ ,  $\beta = -.43$ ,  $t(39) = -2.99$ ,  $p = .005$ . As shown in Figure 6, younger Latina girls who reported more BD had significantly lower self-esteem. There were no significant relations among BD and self-esteem for older Latina girls, younger African American girls, or older African American girls.

For regression analyses examining relations between WD and self-esteem, a main effect of age on self-esteem was found,  $B = .12$ ,  $\beta = .21$ ,  $t(96) = 2.06$ ,  $p = .043$ , suggesting older girls in the sample reported higher self-esteem. The main effect of ethnicity on self-esteem was not significant, and neither were the  $WD \times Age$ ,  $WD \times Ethnicity$ , or  $WD \times Age \times Ethnicity$  interactions.

For analyses examining relations between BMI and self-esteem, there again was a main effect of age on self-esteem,  $B = .12$ ,  $\beta = .21$ ,  $t(84) = 1.97$ ,  $p = .052$ , suggesting that older girls reported higher self-esteem. None of the other main effects (i.e., ethnicity, BMI) or interaction terms (i.e.,  $BMI \times Age$ ,  $BMI \times Ethnicity$ , and  $BMI \times Age \times Ethnicity$ ) were significant.

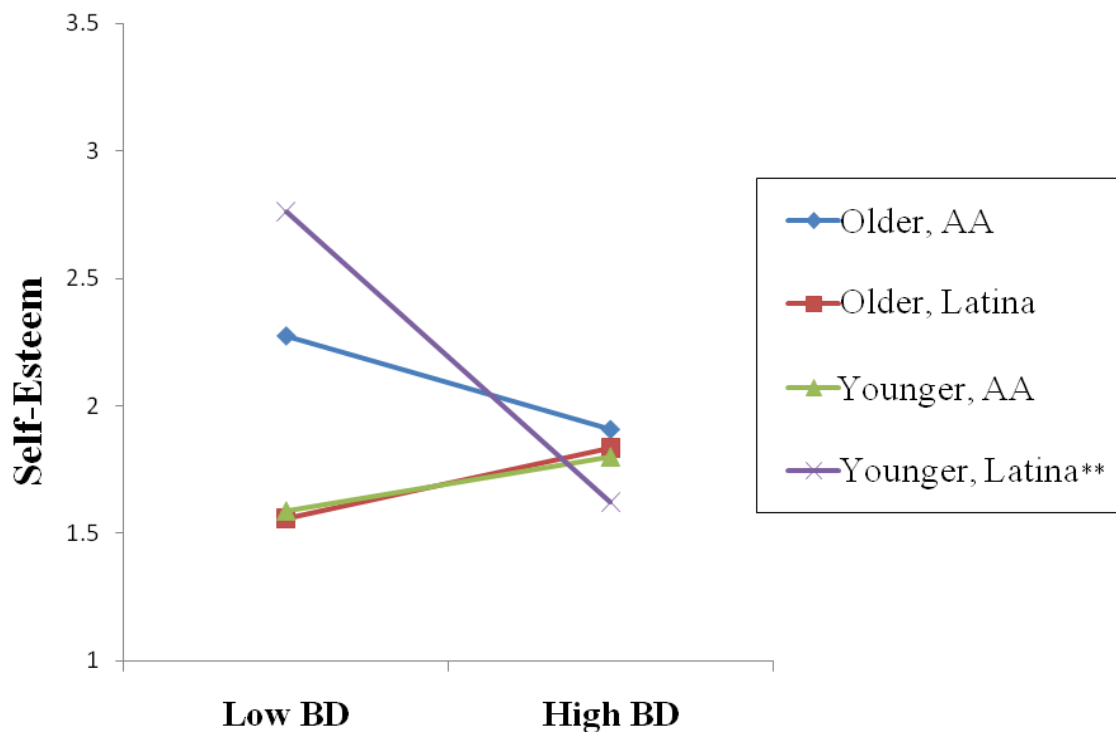


Figure 6. Regression analyses depicting the BD X Age X Ethnicity interaction on self-esteem.  $p < .01^{**}$ .

## **CHAPTER FOUR**

### **DISCUSSION**

#### **Key Findings**

This study is one of the first to investigate body image concerns, BMI, and self-esteem in a sample of preadolescent minority girls without using White females as the comparison group. Findings from this study provide evidence that BD is present in both young *and* minority females. Given that, it may be important to further examine body image concerns in these populations as this has been shown to precede a number of negative outcomes in adolescence and later life including disordered eating (Striegel-Moore & Franko, 2002; Tremblay & Limbos, 2009), decreased self-esteem (van den Berg et al., 2010), and depression and anxiety (Dyl, Kittler, Phillips, & Hunt, 2006), particularly among females as they traverse adolescence and young adulthood. Consistent with previous work, this study also found a link between BD and self-esteem, further demonstrating the importance of addressing body image concerns through prevention and intervention efforts.

Several other key findings emerged that may inform future work in this area. First, as expected, Latina girls reported significantly more body dissatisfaction than African American girls despite the fact that no differences in zBMI existed between the groups. There were also no differences in the percentage of girls in the CDC weight status categories, with the majority of Latina (52.6%) and African American (51.3%)



girls in the normal weight category, 24.6% of Latina girls and 12.8% of African American girls in the overweight category, and 22.8% of Latina girls and 33.3% of African American girls in the obese category. This finding has been supported by several studies (George & Franko, 2010; Robinson, et al., 2001), and is in line with theories put forth by sociocultural research on body image (Avila & Avila, 1995; Celio et al., 2002). This suggests that for African American females, body satisfaction is not dependent on body size alone, while it appears to be highly salient for Latina women. In a study utilizing 8-to-10 year old girls, researchers found that the majority of African American girls were happy with their size or did not think about it at all (Sherwood et al., 2003), while studies working with preadolescent Latina girls have found marked dissatisfaction with body size (Robinson et al., 2001). Because the measure of BD used in this study focused solely on the size of the body silhouettes, it is not surprising that Latina girls reported more BD.

Although Latina girls reported significantly more BD than African American girls, it should be noted that African American girls were still experiencing BD. The discrepancy between the images African American girls chose for their ideal and perceived bodies may have been smaller than that of Latina girls, but their figure choices were still not congruent. In addition, another study found that African American adolescent girls tended to choose figure C or D on the silhouette scale as the way they would most like to look (Hesse-Biber, Howling, Leavy & Lovejoy, 2004), whereas African American girls in the study chose the more emaciated figure B on average, suggesting girls' ideal body choice may be getting smaller.

It is interesting that the same pattern of results did not emerge for weight descriptions (WD). Contrary to past work in this area (Parker et al., 1995), no differences emerged in the way that African American and Latina girls described their weight. Even though Latina girls were more dissatisfied with their bodies, they did not describe themselves differently than African American girls did. This finding is somewhat surprising considering the sociocultural research on body image in Latina women has documented an extreme focus on body weight (Altabe & O'Garro, 2002). In addition, because Latina girls were more dissatisfied with their bodies than African American girls, it seems likely that they would also demonstrate differences in WD. One explanation for this finding may relate to the distinction between perceived body and ideal body. Although Latina and African American girls both described themselves as "normal," Latina girls are more likely to prescribe to the thin-ideal, making them more dissatisfied with their size.

This also brings up issues related to methodology and the differentiation between verbal and visual assessment methods. Body dissatisfaction was assessed using a visual scale where girls chose their answers based on a range of silhouettes, and WD was assessed using a verbal descriptor scale. Recent work with preadolescent children found that the majority of children report just right or normal when asked to rate their weight and bodies on verbal scales, and children may be hesitant to indicate "thinness" or "fatness" on this type of rating scale (Saxton et al., 2009). It is possible that if WD were assessed differently the findings might also vary.

Another finding that may be useful for clinicians and researchers to consider is how body image variables, BMI, and outcomes such as self-esteem relate to one another.

In this study, when examining BD, BMI, and WD, BD emerged as the only variable that was significantly related to self-esteem. This suggests that how girls perceive themselves in relation to their ideal body, rather than their actual weight or how they describe their weight, may be most important for the association with self-esteem. This finding corresponds to other work (Clay, Vignoles, & Dittmar, 2005; Johnson & Wardle, 2005; Miller and Downey, 1999), highlighting areas where health care practitioners may intervene to potentially influence self-esteem. It seems that if girls feel badly about their bodies they may also feel badly about themselves. The implication of findings such as these is that attempts to combat body image concerns in young girls may be more efficacious if tailored to address variables that are known to be strongly associated with one another.

Beyond simply understanding which variables may be associated with another, it is also important to consider factors that may affect or change these relations. For instance, in this study the strongest relation between BD and self-esteem was evident for younger Latina girls. Interestingly, this was not true for older Latina girls, or younger or older African American girls. In light of the childhood obesity epidemic, weight has become a focus for national health initiatives. It is possible that for young girls, particularly within Latina culture where weight and body size are already heavily emphasized, this extra focus may lead to decreased self-esteem. Very young girls may not have developed the coping skills to regulate their feelings related to this external pressure, but over time may become more equipped to do so.

Overall, interesting yet unexpected findings related to age continued to emerge throughout this study. While the relation between WD and self-esteem and BMI and

self-esteem did not vary depending age or ethnicity, age and self-esteem were related in both cases, with older girls reporting higher self-esteem. The same pattern of findings emerged when examining the influence of age on the relation between ethnicity and BD. While no differences were found for younger and older girls, age and BD were related, with older girls experiencing less BD. Typically, past research has suggested that girls tend to experience more adjustment difficulty as they get older (i.e., increased BD, decreased self-esteem), but the opposite was found here. Older girls exhibited less BD and higher self-esteem than younger girls in the study. Although this contradicts earlier work (Clay et al., 2005; Tiggemann 2005), many of these studies utilized older adolescents, high school, or college aged samples. The findings related to age observed in this study suggest that perhaps negative social feedback and awareness of body image begins earlier than in the past, and that as girls get older they are better able to manage issues related to this.

### **Limitations and Future Directions**

Although this study attempted to address gaps in the current body literature, there are several limitations that deserve mention. Due to the cross-sectional nature of this research, causality and assumptions that can be made regarding directionality of findings is limited. For example, despite the fact that longitudinal work has found body image concerns to temporally precede self-esteem issues (Johnson & Wardle, 2005; Nishina et al., 2006), the current study cannot determine this. As researchers believe that body image concerns are a dynamic, developmental process that begins in childhood (Davison et al., 2003), longitudinal research is necessary to account for changes in variables over time. In addition to methodological restrictions, there was also a lack of statistical power

to detect interactions due to sample size. However, this also suggests that the observed findings may have been particularly robust, especially considering several variables (e.g., zBMI, BD, WD) were significantly correlated accounting for the same variance.

Second, this study did not measure how strongly girls identified with their racial/ethnic group. Research on body image and ethnicity has found, particularly for African American females, that a positive sense of self is often tied to a strong positive sense of racial identity (Hesse-Biber et al., 2004). The authors explain that non-internalization of Western body ideals by African American females is directly related to their increased racial identity, and this may be the mechanism that serves as a buffer against body image concerns. Being raised in African American culture, children learn to separate themselves from the ideals of Western culture in favor of those put forth in the African American community. Hesse-Biber et al. (2004) explored racial identity in terms of body image and found that adolescent girls in their sample equated larger body types with strong female figures present in their life, resulting in less criticism of weight than seen in White cultures. Although the current study found that African American girls did experience less BD than their Latina counterparts who are more likely to prescribe to Western ideals, this finding cannot be ascribed to racial identity.

In addition to racial identity, acculturation was not explored here. This has proven to be an important factor in body image research as demonstrated by Becker's (2004) study of body image and identity on the island of Fiji. Prior to the introduction of American television in Fiji, weight loss was often seen as a sign of weakness and decreased health in this culture, but just three years after introducing television the prevalence of weight control behaviors among Fijian adolescent girls had significantly

increased in order to maintain American body ideals. While ethnicity may be an important factor in relation to body image concerns, it should be considered as a dynamic and complex variable rather than a static factor (Abrams & Stormer, 2002). Future work should include measures of ethnic identity and acculturation to obtain a more comprehensive picture of how ethnicity might influence body image.

Finally, while this study included minority girls in an attempt to expand on the White-focused body of literature, subgroups of each ethnicity were not explored. This poses a significant problem as heterogeneity within groups is an important issue, particularly within the Latina culture. Future studies should acknowledge variability within these groups and examine how this might influence outcomes. While it is important to know if differences exist in body image concerns between groups, it is more useful to understand the mechanisms that contribute to these differences. While future studies should utilize larger, longitudinal samples that include measures of ethnic identity and acculturation to answer questions related to why differences exist, this represents an initial attempt to begin understanding this process beginning in childhood and pre-adolescence. This study demonstrated that minority girls do in fact experience body image concerns as early as 3<sup>rd</sup> grade, and that these concerns may differ across ethnic groups. In addition, attitudinal dimensions of body image such as BD may be strongly related to adjustment (e.g., self-esteem), and thus should be a focus of prevention and intervention work.

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## VITA

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