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UNIVERSITY OF NORTHERN COLORADO

Greeley, Colorado

The Graduate School

THE INFLUENCE OF MILEAGE CLUB ON FEMALES'
BODY IMAGE AND SELF-ESTEEM

A Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy

Shanda Crowder

College of Education and Behavioral Sciences
Applied Psychology and Counselor Education
School Psychology

December 2014

This Dissertation by: Shanda Crowder

Entitled: *The Influence of Mileage Club on Females' Body Image and Self-Esteem*

has been approved as meeting the requirement for the Degree of Doctor of Philosophy in
College of Education and Behavioral Science in School of Applied Psychology and
Counselor Education, Program of School Psychology

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ABSTRACT

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This dissertation examined the influence that voluntary participation in Feelin' Good Mileage Club had on preadolescent females' body image and self-esteem. A total sample size of 52 preadolescent females, 7 to 10 years of age, were included in this study. Thirty-eight participants were enrolled in the experimental group and voluntarily participated in Mileage Club over a 10-week period. Fourteen participants were enrolled in the experimental check group and partook in the assessment portion of the study only. Results demonstrated participation in Mileage Club did not significantly influence body image satisfaction and self-esteem change scores in either group, $F(1, 50) = 1.358, p = .267$. When participants in the experimental group were categorized by age, results indicated participation in Mileage Club did not significantly influence body image satisfaction and self-esteem change scores in the 7 to 8 1/2 year-old group or the 8 1/2 to 10 year-old group, $F(1,36) = .309, p = .736$. These findings contribute to the literature in two ways. First, voluntary participation in Mileage Club alone would not suffice as an effective body image prevention program for elementary aged females. Furthermore, this study does not provide support for the belief that an average age of internalization exists at which point the ultrathin body ideal is internalized as part of a female's self-concept.

Keywords: preadolescent females, body image satisfaction, self-esteem, physical activity

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CHAPTER I

INTRODUCTION

In this chapter I will present the rationale for how this study will contribute to the literature on the presence of body image dissatisfaction among preadolescent females. Also, I will address the research questions, delimitations, and definitions of this study.

In 1935 Schilder originally defined body image as “the picture of our own body which we form in our mind, that is to say, the way in which the body appears to ourselves” (Pruzinsky & Cash, 2002, p. 7). Over the past 78 years, researchers have agreed that the definition of body image is much more complex than originally thought (Pruzinsky & Cash, 2002). Today, body image is a multidimensional construct consisting of the following types of components: cognitive, affective, perceptual, evaluative, and investment/behavioral (Muth & Cash, 1997; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999).

A positive body image is an essential component of healthy physical and physiological development in young females (Wertheim, Paxton, & Blaney, 2004). Williams, Cash, and Santos (2004) indicated females who report higher levels of body image satisfaction also reported higher levels of self-esteem, stronger social support, more adaptive coping skills, weight stability, and higher levels of optimism.

When an individual’s perceived body image does not align with societal expectations, dissatisfaction can occur. Body image dissatisfaction can range from a mild desire for a different body image to engagement in extreme compensatory behaviors in an

attempt to change one's appearance to avoid societal judgment (Wertheim et al., 2009). The development of body image dissatisfaction typically begins in early childhood and increases throughout late childhood and adolescence (Striegel-Moore & Franko, 2002).

Research on the manifestations of body image dissatisfaction focuses on two primary factors: individual and sociocultural (Smolak, 2009). Individual factors include body mass index (BMI), ethnicity, early menstruation, and individual psychological factors (e.g., social anxiety, low self-esteem, and depressed mood). Research has demonstrated that each of these factors significantly influence the development of body image dissatisfaction (Clark & Tiggeman, 2008; DeLeel, Hughes, Miller, Hipwell, & Theodore, 2009; Erickson & Gerstle, 2006; Paxton, Eisenberg, & Neumark-Sztainer, 2006; Phares, Steinberg, & Thompson, 2004; Vander Wal & Thelen, 2000a; Vander Wal and Thomas, 2004).

According to Wertheim et al. (2004) sociocultural influences are present within an individual's general (individualist or collectivistic culture) and proximal environments (e.g., school, families, and neighborhoods). These factors can impact a person's feelings about his or her perceived body in relation to the beauty ideal promoted within these environments (Wertheim et al., 2004). Many of the beauty ideals promoted within cultures around the world include a strong emphasis on thinness. This emphasis is often extreme, unrealistic, and unattainable for most people. The strong desire to obtain and/or maintain a body that aligns with the culture's beauty ideal often contributes to body image dissatisfaction, particularly when an individual feels that his or her body does not align with this standard (Wertheim et al., 2004). The following three sociocultural factors are significantly associated with the development of body image dissatisfaction: media,

familial influences, and peer-related influences (Dohnt & Tiggemann 2006b; Kichler & Crowther, 2011; Kostanski & Gullone, 2007; McCabe, Ricciarelli, Stanford, Holt, Keegan, & Miller, 2007; Menzel, Schaefer, Burke, Mayhew, Brannick, & Thompson, 2010; Murnen, Smolak, Mills, & Good, 2003; Tillman, Kehle, Bray, Chafouleas, & Grigerick, 2007).

A review of the literature specific to body image concerns of preadolescent females indicates body image dissatisfaction is fairly common (Anschutz & Engels, 2010; Clark & Tiggemann, 2006; Dittmar, Halliwell, & Ive, 2006; Lowes & Tiggemann, 2003; McCabe & Ricciardelli, 2003; Rolland, Farnill, & Griffiths, 1997; Sands & Wardle, 2003; Sinton & Birch, 2006). Dohnt and Tiggemann (2006a) reported on multiple studies supporting the notion that females as young as 6 years of age desire a thinner body (Ambrosi-Radnic, 2000; Davison, Markey, & Birch, 2000; Dohnt & Tiggemann, 2004, 2005; Hendy, Gustitus, & Leitzel-Schwalm, 2001; Williamson & Delin, 2001). Furthermore, Smolak (2011) indicated 40%-50% of children between the ages of 6 and 12 commonly report dissatisfaction with their bodies.

The presence of body image dissatisfaction and poor self-esteem among preadolescent females is cause for concern due to the numerous negative outcomes associated with each of these perceptions. According to Green and Kolos (2010), low self-esteem has been significantly associated with academic difficulties (Marin, Bohanek, & Fivush, 2008), externalizing behaviors (Donnellan, Trzesniewski, Robins, Moffit, & Caspi, 2005), depression (Emler, 2002), and anxiety (Ollendick, Shortt, & Sander, 2008). Furthermore, Dittmar et al. (2006) reported negative self-perception, depressed mood, and disordered eating are all correlated with body image dissatisfaction.

Statement of Problem

Currently, many prevention programs aim to reduce body image dissatisfaction (Holt & Ricciarelli, 2008). Norwood, Murray, Nolan, and Bowker (2011) indicated the majority of the available body image prevention and intervention programs are designed for an adolescent female population (McVey & Davis, 2002; McVey, Davis, Tweed, & Shaw, 2004; Richardson & Paxton, 2010; Scime, Cook-Cottone, Kane, & Watson, 2006; Stice, Mazotti, Wiebel, & Agras 2000). Holt and Ricciardelli (2008) have suggested the most effective prevention programs target a preadolescent population, because behaviors and attitudes demonstrated by adolescents are engrained and difficult to modify (Irving, 2000; Neumark-Sztainer, Sherwood, Collier, & Hannan, 2000; Smolak, Levine, & Schermer, 1998a; Smolak, Levine, & Schermer, 1998b; Stice & Shaw, 2004). Conversely, McCabe, Ricciardelli, and Holt indicated body image concerns reported by preadolescent children are often “more malleable and amenable to change” (as cited in Holt & Ricciardelli, 2008, p. 234). The above information makes it evident the most effective programs to positively alter body image are those implemented early, in preadolescence.

According to Diedrichs and Halliwell (2012), school-based body image prevention and intervention programs are typically comprised of multiple components, including “didactic teaching, audiovisual resources, and small group interactive activities that address established risk factors for the development of negative body image and eating disorders” (Stice, Shaw, & Marti, 2007, p. 534). Traditionally these programs focused solely on psychoeducational activities (Diedrichs & Halliwell, 2012). According to Diedrichs and Halliwell (2012), newer interventions are shifting from this traditional

format and placing a stronger emphasis on assisting children and adolescents in developing skills necessary to combat societal pressures (Stice & Shaw, 2004). These skills include media literacy, healthy weight control strategies, and coping skills (Diedrichs & Halliwell, 2012).

Holt and Ricciardelli (2008) reviewed all of the programs discussed in the literature that specifically aim to reduce or prevent body image concerns within an elementary aged population. They evaluated knowledge of content presented, self-esteem, body image concerns, and problems and concerns surrounding eating and dieting. Holt and Ricciardelli (2008) suggested limited evidence is present demonstrating the effectiveness of these programs in reducing or eliminating body image concerns, which is possibly due to the short duration of the prevention programs examined. An increase in program duration could result in more opportunities for reinforcement. More frequent reinforcement may increase the likelihood that both short- and long-term positive attitude and behavioral changes will be reported (Holt & Ricciardelli, 2008).

According to Diedrichs and Halliwell (2012), additional published reports have contradicted these findings, suggesting more recent prevention programs have been found to be successful in changing children's attitudes and beliefs regarding body image (O'Dea, 2005; Yager & O'Dea, 2008). O'Dea (2005) has attributed the effectiveness of these programs to the following: the utilization of student-centered learning opportunities, the inclusion of males in addition to females, and program delivery occurring within the educational setting. However, inconsistent findings show more research regarding body image prevention programs is necessary.

One weakness of many prevention programs is that the emphasis on physical activity is minimal. Of the 13 body image prevention programs reviewed, only one included an emphasis on exercise (Holt & Ricciardelli, 2008). Campbell and Hausenblas (2009) conducted a meta-analysis to examine the reported effects of exercise on body image. Only studies that included exercise as their independent variable and a body image measure as their dependent variable were included in their analysis. Significant differences in mean effect sizes were reported for the various age groups: older adult group (Mean Effect Size = .33); university group (Mean Effect Size = .22); and child/adolescent group (Mean Effect Size = .16). The authors suggested this age effect provides further support for the hypothesis suggesting body image concerns begin to develop in childhood, continually increase throughout adolescence, and eventually plateau and remain stable in adulthood (Eisenberg, Neumark-Sztainer, & Paxton, 2006; Kemmler, Whitworth, & Biebl, 2006; McCabe & Ricciardelli, 2004; McLaren & Kuh, 2004; Muth & Cash, 1997; Smolak, 2002; Tiggemann, 2004; Wang, Byrne, Kenardy, & Hills, 2005). A significant effect size was present for exercise-based interventions (Mean Effect Size = .37) when compared to lecture-based interventions (Mean Effect Size = .12), suggesting active participation in exercise produced significantly higher increases in self-reported body image satisfaction than did simply learning about exercise (Campbell & Hausenblas, 2009). Also, Campbell and Hausenblas (2009) reported frequency of exercise served as a moderating variable for effect size. Specifically, larger effect sizes were reported for programs that included more exercise sessions per week ($z = 2.50$, $p = .01$). I considered this information when I determined which intervention would be utilized for the current study.

Monteiro-Gaspar, Amaral, Oliveir, and Borges (2011) furthered the research in this area by examining the impact physical activity has on body image dissatisfaction in preadolescent and adolescent children. Their analysis indicated an effect size of 0.684 was present, suggesting physical activity may protect against body image dissatisfaction in this population. Monteiro-Gaspar et al. (2011) reported these findings align with previous research (Burgess, Grogan, & Burwitz, 2006).

Statement of Purpose

Much research has shown that physical activity should be considered when attempting to positively alter body image concerns in young females. Minimal involvement in exercise coupled with high childhood obesity rates have resulted in an increased number of our youth reporting higher rates of body image dissatisfaction (Campbell & Hausenblas, 2009). According to Campbell and Hausenblas (2009) more research is needed to examine specifically how exercise impacts our youths' self-reported body image satisfaction.

Researchers who have studied the sociocultural model hypothesize young females internalize the ultrathin body ideal prior to 9 years of age (Clark & Tiggemann, 2006; Sands & Wardle, 2003). Furthermore, findings by Dittmar et al. (2006) focused on the existence of a sensitive period between ages 7 1/2 and 8 1/2, during which point young females internalize the desirable qualities associated with aspirational role models to whom they are exposed (Dittmar et al., 2006). If this predicted age of internalization is accurate, elementary educators have a very small window of time to provide opportunities that could positively alter young females' body images.

Across the United States, many programs are currently being implemented which aim to increase the amount of daily physical activity children engage in. One program that is receiving a great deal of local and national attention is the Feelin' Good Mileage Club. Although limited research has been conducted on this program to date, preliminary findings are promising, and children, parents, and educators are enthusiastic about the program's future.

First, my proposed study assessed whether active participation in Feelin' Good Mileage Club positively altered body image and self-esteem within a preadolescent female population. Next, I sought to identify the existence of a sensitive period at which point the ultrathin body ideal is internalized as part of a female's self-concept. Identification of a sensitive period would have enhanced the theoretical support for the Sociocultural Model. This information provided further insight into the ideal age that prevention and intervention efforts should be implemented if researchers, practitioners, and/or educators hope to positively alter body image satisfaction and self-esteem in preadolescent females.

Primary Research Questions

- Q1 Will preadolescent females who participate in Feelin' Good Mileage Club report a larger difference in body image satisfaction and self-esteem change scores when compared to the preadolescent females who did not participate in Feelin' Good Mileage Club?
- Q2 Will preadolescent females between the ages of 7 and 8 1/2 who participated in Feelin' Good Mileage Club report a larger difference in body image satisfaction and self-esteem change scores when compared to the preadolescent females between the ages of 8 1/2 and 10 who participated in Feelin' Good Mileage Club?
- Q3 Will preadolescent females between the ages of 7 and 8 1/2 who participate in Feelin' Good Mileage Club report a larger difference in body image satisfaction and self-esteem change scores when compared to

the preadolescent females between the ages of 7 and 8 1/2 who did not participate in Feelin' Good Mileage Club?

- Q4 Will preadolescent females between the ages of 8 1/2 and 10 who participate in Feelin' Good Mileage Club report a larger difference in body image satisfaction and self-esteem change scores when compared to the preadolescent females between the ages of 8 1/2 and 10 who did not participate in Feelin' Good Mileage Club?

Supplemental Research Questions

- Q5 Is there a significant positive relationship between body mass index and change scores in body image satisfaction and self-esteem for participants in the experimental group and participants in the experimental check group?
- a) Females between the ages of 7 and 8 1/2
 - b) Females between the ages of 8 1/2 and 10
- Q6 Is there a significant positive relationship between body mass index and change scores in body image satisfaction and self-esteem when participants are categorized by age?
- a) Females between the ages of 7 and 8 1/2
 - b) Females between the ages of 8 1/2 and 10
- Q7 Is there a significant positive relationship between body mass index and the pre-test current body figure rating?
- a) Females between the ages of 7 and 8 1/2
 - b) Females between the ages of 8 1/2 and 10

Delimitations

This study included females between the ages of 7 and 10 who were enrolled within the educational setting approved for data collection, specifically those who participated in the Feelin' Good Mileage Club. Additionally, this study also included females between the ages of 7 and 10 who do not participate in Mileage Club but did participate in the assessment portion of the study. The sample is limited to children this age to specifically address an elementary aged population. At this stage of development

children's attitudes and beliefs surrounding body image are "malleable" rather than engrained which increases the likelihood that these attitudes and beliefs can be positively altered. Furthermore, additional research needs to be conducted on preadolescent populations given much research has already been conducted on late preadolescent, adolescent and adult populations.

Definition of Terms

Body dissatisfaction. The negative thoughts and esteem one has about his or her body (Dittmar et al., 2006).

Self-esteem. "The attitudinal, evaluative component of the self; the affective judgments placed on the self-concept consisting of feelings of worth and acceptance which are developed and maintained as a consequence of awareness of competence and feedback from the external world" (Guindon, 2002, p. 207).

CHAPTER II

REVIEW OF LITERATURE

In this chapter I will present a review of the literature regarding body image development, dissatisfaction, and dysfunction among preadolescent females. The sociocultural model is presented to help researchers, educators, and practitioners understand why dissatisfaction and dysfunction occur. I will also examine the typical developmental trajectories and risk factors associated with body image dissatisfaction. Finally, I will examine the effectiveness of prevention programs currently utilized within educational settings and discuss future research directions.

Body Image Development

In 1935 Schilder originally defined body image as “the picture of our own body which we form in our mind, that is to say, the way in which the body appears to ourselves” (Pruzinsky & Cash, 2002, p. 7). Over the past 78 years, researchers have to come to a consensus that the definition of body image is much more complex than originally thought (Pruzinsky & Cash, 2002). Today, body image is a concept that consists of the following components: cognitive, affective, perceptual, evaluative, and investment/behavioral (Muth & Cash, 1997; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999).

Positive body image is an essential component of healthy physical and physiological development in young females (Wertheim, Paxton & Blaney, 2004). Williams, Cash, and Santos (2004) indicated that females who report higher levels of

body image satisfaction also reported higher levels of self-esteem, stronger social support, more adaptive coping skills, weight stability, and higher levels of optimism. Each of these outcomes is the direct result of a healthy body image developing over time, beginning in infancy.

A person's body image develops and changes throughout his or her life, beginning in infancy. According to Smolak (2011), infants demonstrate the ability to recognize that they are distinct, independent beings within their environment. Newborns demonstrate this ability by recognizing and responding to their own touch and moving their own limbs (Rochat, 2003). Rochat and Striano (2002) reported that by 4 months of age, infants respond to (i.e., watch and smile at) videos of others but not of themselves. According to Berk (2006), self-awareness does not typically develop until 12 to 24 months of age.

Around 24 months of age, toddlers begin to demonstrate a strong sense of who they are. Specifically, they demonstrate a solid understanding of the concept "me" (Smolak, 2011, p. 68). Toddlers demonstrate this ability by recognizing and identifying themselves in multiple scenarios (Smolak, 2011). This is also the age at which toddlers begin utilizing the terms "me" and "I" when describing themselves to others (Smolak, 2011). By 3 years of age most children have a basic self-concept (Berk, 2006). Preschool children demonstrate this by making statements regarding observable characteristics specific to themselves and others (Berk, 2006). Several studies found these statements typically relate to names of objects, physical appearance, and behaviors (Harter, 1996; Watson, 1990 in Berk, 2006, p. 446).

It was not until 4 to 6 years of age children began comparing themselves to their peers (Smolak, 2011). Social comparisons occur more frequently within primary educational settings since children are surrounded by and interact with their peers for a substantial amount of time each day (Green & Kolos, 2010).

Around age 8, children begin to engage in self-evaluation (Smolak, 2011). A large component of the self-evaluation process involves an individual comparing his or her qualities, abilities, and characteristics to those of same-aged peers (Smolak, 2011). Typically, children of this age evaluate their abilities within four distinct areas: academic competence, social competence, physical/athletic skills, and physical appearance (Smolak, 2011). According to her, physical/athletic skills and physical appearance are both components of body image. According to Berk (2006), a child's ability to engage in the self-evaluation processes is made evident by his or her tendency to use qualified self-descriptive statements (e.g., I am very good at basketball; I am not good at soccer). During the social comparison process, children determine if their perceived current self aligns with desirable qualities and characteristics that are endorsed by society and displayed by their peers. If not, dissatisfaction can occur.

During early adolescence, 11 to 14 years of age, an individual's body changes a great deal as he or she goes through puberty (Croll, 2005). Adolescents typically report that changes make them feel self-conscious and awkward (Weinshenker, 2002). According to Croll (2005), throughout adolescence, body image is more strongly influenced by self-esteem and self-evaluation than evaluations conducted by peers, parents, or others. These self-evaluations are heavily influenced by cultural messages and societal endorsements present within the adolescent's environment (Croll, 2005).

Adolescent females are at a significantly higher risk for developing dissatisfaction with their body compared to males of the same age because females have a stronger tendency to concentrate on their appearance when assessing their own worthiness (Weinshenker, 2002). To examine body image dissatisfaction in its entirety, I will examine the sociocultural model in order to address how and why dissatisfaction occurs and follow its developmental trajectory; I will also address risk factors associated with dissatisfaction.

Body Image Dissatisfaction

Body image dissatisfaction can be described as a continuum ranging from a mild desire for different body characteristics to engagement in extreme compensatory behaviors in an attempt to change one's body to avoid societal judgment (Wertheim, Paxton, & Blaney, 2009). Examples of extreme compensatory behaviors include but are not limited to dieting, purging, and laxative use (Wertheim et al., 2009). Body image dissatisfaction typically begins in childhood and increases throughout late childhood and adolescence (Grogan, 2008; Smolak, 2002). Many theoretical models describe how body image dissatisfaction and dysfunction occur. Each model assesses this construct from a different vantage point (i.e., cognitive behavioral psychology, feminism, positive psychology, evolutionary perspective, genetic and neuroscientific perspective). For this study, I selected the sociocultural model as a framework for developing a better understanding of the development of body image dissatisfaction among preadolescent females. This model thoroughly explains how and why dissatisfaction occurs, integrating the influence that factors such as family, peers, media, culture, biology, and genetics can have over the way a preadolescent female perceives her body. Multiple researchers have

used this perspective when assessing body image dissatisfaction and dysfunction from a developmental perspective (Dittmar et al., 2006; Dohnt & Tiggemann, 2006a, 2006b; Erickson & Grestle, 2007; McCabe & Ricciardelli, 2003; Phares et al., 2004).

Sociocultural Model

The sociocultural model is widely used and has a very unique history. A thorough literature review revealed this model has been studied since the 1980s. According to Tiggemann (2011), over the years this model's theoretical and empirical applications have been variously interpreted, resulting in the development of more specific models that include elements of the sociocultural model (i.e., internalization of the ultrathin body ideal). Consequently, no one individual can be cited as the original source for this model. Striegel-Moore, Silberstein, and Rodin (1986), Stice (1994), and Thompson, Heinberg, Altabe, and Tantleff-Dunn (1999) are most commonly credited with the sociocultural model's application and interpretation. My research examines the basic idea that sociocultural influences have the ability to positively or negatively influence an individual's body image, aligning with the way previous researchers have utilized this model when assessing the development of body image in preadolescents.

The sociocultural model is one of the most theoretically and empirically supported explanations for the influences that cultural values have on individual values and behavior, including the development of one's body image (Jackson, 2002). The foundation of this model is the belief that cultural values greatly impact both how other members of society perceive an individual and how the individual perceives himself or herself (Jackson, 2002). Tiggemann (2011) used this model to identify four steps in the development of body image satisfaction or dissatisfaction. First, every culture promotes

and/or encourages particular beauty ideals that are viewed as desirable. Next, these beauty ideals are broadcast to the individuals within that culture via multiple sociocultural channels (e.g., media, peers, family). Internalization of that particular beauty ideal follows. Once an individual has internalized the ideal as part of his or her self-concept, body image satisfaction or dissatisfaction occurs as a result of how similar or different the individual perceives his or her body when compared to this beauty ideal (Tiggemann, 2011).

If positive body image programs are to be successful, a culture's ideas of beauty, especially the ultrathin beauty ideal, need to be examined. This information would allow for a better understanding of the first step within this model.

Anderson-Fye (2011) indicated body image ideals vary from one culture to the next, but there is typically agreement within a culture regarding what is considered attractive and desirable. It is important to recognize in Western and non-Western cultures the ultrathin body ideal currently endorsed has changed over time. According to Wertheim et al. (2004), researchers have studied various female beauty ideals (i.e., *Playboy* magazine models, Miss American beauty pageant contestants, London magazine models, ballet dancers, fashion shop mannequins, fashion magazines, and Asian body image ideals) over the past 50 years and have found a shift in favor of a thinner body ideal (Abraham, Beumont, Fraser, & Llewellyn-Jones, 1982; Garner, Garfinkel, Schwartz, & Thompson, 1980; Jung & Lee, 2006; Lee & Lee, 2000; Morris, Cooper, & Cooper, 1989; Rintala & Mustajoki, 1992; Sypeck, Gray, & Ahrens, 2004; Wiseman, Gray, Mosimann, & Athrens, 1992). Furthermore, Jackson (2002) reported this trend has been observed in many cultures. A recent study entitled the "International Body Project

(IBP-1)” surveyed 7,434 individuals within 10 major global regions in an attempt to better understand cultural similarities and differences regarding body dissatisfaction and body weight ideals (Swami et al., 2010). Results indicated even though significant differences were present throughout the 10 global regions, effect sizes representative of these differences were very small. The researchers attributed the significance to the large sample size rather than the existence of actual differences between regions. These results challenge the previous hypothesis, which suggested the ultrathin body ideal was only promoted and encouraged within Western cultures. Tiggemann (2011) suggested the spread of Western media to non-Westernized cultures could be one of the reasons why body image dissatisfaction is reported globally, rather than in Westernized societies only.

The second step within this model states societal ideals are transmitted via a variety of sociocultural channels including media, family, and peers (Tiggemann, 2011). Research and additional information regarding these sociocultural channels will be discussed in the upcoming sections.

The third step within this model refers to the internalization of these societal ideals. A large component of the internalization process involves the social comparison process. According to Thompson et al. (1999), individuals (male and female) engage in a self-evaluative process on a consistent basis to compare their strengths, weaknesses, similarities and differences to others in their society as well as to the ideal society has endorsed.

The fourth step within this model refers to body image satisfaction or dissatisfaction occurring as a result of the social comparison process. One of the main outcomes of the social comparison process is it enables “self understanding” as well as

“consistent and effective behavior” (Thompson et al., 1999, p. 126). Unfortunately, this consistent and effective behavior is not always positive or healthy. If an individual’s current body shape does not align with an internalized beauty ideal, body image dissatisfaction will likely occur, and a variety of compensatory behaviors could follow in an attempt to achieve the internalized standard (Tiggemann, 2011). Most compensatory behaviors (i.e., dieting, laxative use, fasting, and extreme exercise) utilized by females are unhealthy and could result in disordered eating and/or eating disorders (Tiggemann, 2011).

Many studies have utilized this model within their methodological design as well as their data interpretation, furthering the model’s theoretical and empirical support (Anschutz & Engels, 2010; Clark & Tiggemann, 2007; Dittmar et al., 2006, McCabe & Ricciardelli, 2003; Sinton & Birch, 2006; Sypeck et al., 2004; Wertheim, Paxton, Schutz, & Muir, 1997).

According to Jackson (2002) people who more similarly align with the ultrathin body ideal tend to experience greater success in the following areas when compared to those who do not as closely align with this ideal: occupation, personal relationships, sexual experiences, social skills, and physical and mental health. Also, people who embody physical attributes deemed attractive within a particular culture are often treated more favorably (Jackson, 2002). Attractive children typically demonstrate a higher frequency of appropriate behavior, score significantly higher on tasks related to general intelligence, adjust to new situations easier, and are more popular among their peers (Jackson, 2002). Also, more attractive adults tend to report better mental and physical

health and stronger self-esteem and social skills (Feingold, 1992; Wade, 2000 in Jackson, 2002)

The sociocultural model does not specify an age when internalization of the ultrathin beauty ideal typically occurs. An answer to this question would be vital information for researchers, practitioners, and educators who work with individuals struggling with body image dissatisfaction, dysfunction, and/or eating disorders. A known average age of internalization would greatly help those who develop age-appropriate positive body image programs. Also, practitioners and educators could more effectively determine when students need a body image prevention program compared to a body image intervention program.

Few studies have attempted to pinpoint an average age of internalization (during preadolescence) resulting from exposure to sociocultural factors present within an individual's environment (Anschutz & Engels, 2010; Clark & Tiggemann, 2006; Dittmar et al., 2006; Harriger, Calogero, Witherington, & Smith, 2010; Sands & Wardle, 2003).

Sands and Wardle (2003) studied females between 9 and 12 years of age to determine if there was a particular age at which the ultrathin body ideal was internalized as part of a female's self-concept. Data were collected on 356 females who attended one of two private institutions located in London. Each participant completed the Sociocultural Attitudes Towards Appearance Questionnaire (Heinberg, Thomas, & Stormer, 1995), the Body Esteem Scale (Mendelson & White, 1982), the Child Figure Rating Scale (Collins, 1991), the Maternal and Peer Weight/Eating-Related Concerns and Behaviors Scale (Conner, Martin, Silverdale, & Grogan, 1996), and a media exposure scale. Regarding age of internalization no significant trend was evident, $F = 0.86$, p

= .35. Furthermore, the study showed no significant trend regarding age and self-reported body image dissatisfaction, $F = 0.32, p = .57$. These results seem to support the idea that the psychological processes involved in the development of body image dissatisfaction are already established at this stage of development (Sands & Wardle, 2003).

Clark and Tiggemann (2006) reported similar findings regarding the internalization of the ultrathin body ideal in relation to age in their study of 100 preadolescent females in grades 4-7. Each participant completed a scale comparing appearance to media exposure, an Appearance Conversation Scale (Jones, Vigfusdottir, & Lee, 2004), a peer appearance scale (Oliver & Thelen, 1996), the Internalization of Appearance Ideals Scale (Jones et al., 2004), the Body Esteem Scale for Children (Mendelson, White, & Mendelson, 1996), and the Children's Figure Rating Scale (Tiggemann & Wilson-Barrett, 1998). A one-way analysis of variance indicated there was no significant difference regarding age and internalization of the ultrathin body ideal, $F(3, 95) = .20$. Clark and Tiggemann (2006) acknowledged the various studies which have demonstrated the presence of body image dissatisfaction within females as young as 6 years of age. Furthermore, this study suggested by the fourth grade, many females already have a desire to be thinner--a desire that is simply maintained throughout preadolescence and early adolescence.

Given the lack of significant results in internalization studies involving females 9 to 12 years of age, practitioners may assume that internalization of the ultra-thin body ideal has already occurred. Studying younger preadolescent female populations is vital in testing this assumption.

Dittmar et al. (2006) studied a possible age of internalization in a younger population. Specifically, the researchers wanted to determine if short-term exposure to a socialization agent promoting the ultrathin body ideal (i.e., Barbie dolls) would result in a decrease in body satisfaction in 5 to 8 year-old females. Data were collected on 162 females who were enrolled in a primary educational setting in Southern England. The Body Esteem Scale (Mendelson et al., 1996) and the Child Figure Rating Scale (Collins, 1991) were administered to each participant. Prior to the administration of these assessments, each participant was randomly exposed to one of three picture books, each featuring a different main character (Barbie, Emme, or Neutral). The first book included the traditional Barbie character, whose body size proportions are representative of the ultrathin body ideal. The second book included a character named Emme, whose body size proportions are representative of the average American woman. The last theme (i.e., trees) served as a control and did not focus on body size proportions.

A three-way multivariate analysis indicated third grade girls reported larger discrepancies between their perceived and ideal body image than did younger females, regardless of the exposure condition, $CE = -.39, p = .07$. Dittmar et al. (2006), reported on the increasing mean differences between the three grades demonstrating this trend (Grade 1 = $-.23$, Grade 2 = $-.63$, and Grade 3 = $-.79$). Sociocultural models predict these results, given older females have been exposed to the identified sociocultural factors longer than younger females have.

Next, results of a repeated measure multivariate analysis including exposure condition, age, and measurement tools indicated females who were exposed to the story featuring Barbie reported significantly higher body image dissatisfaction, $F(1, 153)$

= 7.53, $p < .01$, when compared to the other two groups (Dittmar et al., 2006). Again, these results would be expected given Barbie was the only stimuli included within the study that aligns with the ultrathin body ideal.

Further multivariate analysis focused on the age of students who read the Barbie book; this analysis suggested short-term exposure to Barbie did not result in self-reported body image dissatisfaction within the oldest group of females aged 7 1/2 to 8 1/2, $F(2, 153) = 6.61, p < .01, \eta^2 = .08$. Dittmar et al. (2006) believed the internalization process had already occurred. Interpretation of these findings focused on the idea that there may be a sensitive period between ages 7 1/2 and 8 1/2 at which young females are exposed to and internalize the desirable qualities associated with aspirational role models (Dittmar et al., 2006). When this internalization process is complete, a girl's desire to achieve the ultrathin beauty ideal results from the internalized standard, which is now a part of the individual's self-concept, rather than a response to stimuli within the environment (Dittmar et al., 2006). Once internalization of this standard is complete, positively altering an individual's body image is difficult, as ideas and beliefs surrounding physical attractiveness are engrained and difficult to modify (Irving, 2000; Neumark-Sztainer et al., 2000; Smolak, Levine, & Schermer, 1998a; Smolak, Levine, & Schermer, 1998b; Stice & Shaw, 2004).

Anschutz and Engels (2010) conducted a study that was an extension of Dittmar et al. (2006) research. Body image satisfaction, body esteem, and food intake were assessed. The researchers used actual dolls in this study rather than a story featuring the dolls as the main characters. Barbie dolls, Emme dolls, and a third doll (i.e., Tyler) were used. The Tyler doll was tall like the Emme doll but had body proportions similar to

Barbie's. Each doll served as a different condition within the study. Legos were included as a fourth condition, which served as a control group. Data were collected on 117 females who were enrolled in grades 1-4. Each participant was randomly assigned to one of four conditions (i.e., Barbie, Emme, Tyler, or Legos). After playing with either a doll or the Legos for 10 minutes, each participant completed the body image satisfaction and body esteem measures. Anschutz and Engels (2010) conducted an analysis of covariance, which revealed a significant interaction was not present between age and condition, $F(2,110) = .09, p = .92, \text{Cohen's } f = .04$. These findings contradict those of Dittmar et al. (2006) and make it apparent more research needs to be conducted in this area before a consensus can be reached.

Gender Difference

Gender can considerably affect the development of one's body image, and a concrete understanding of the differences between males and females is essential when interpreting and generalizing research on the development of body image.

According to Fawkner (2012) both males and females commonly report body image dissatisfaction when aspects of their bodies do not align with their respective gender-based ideals. The female body ideal encouraged within society is a thin, toned, large-breasted woman (Grogan, 2008; Koff, Lucas, Migliorini, & Grosssmith, 2010; Rodin, Silberstein, & Streigel-Moore 1985), whereas the male body ideal is thin yet muscular with a v-shaped physique (Fawkner, 2012). Both males and females typically report a strong desire to attain and/or maintain the societal beauty ideal that aligns with their gender. However, males and females differ in many ways, including influential factors, developmental trajectory, and possible outcomes.

Multiple studies have shown females are at higher risk for developing body image concerns than are same-aged males (Elgin & Pritchard, 2006; Feingold & Mazella, 1998; Frederick, Forbes, Grigorian, & Jarcho, 2007; Knauss, Paxton, & Alsaker, 2008). These studies have utilized various methods of statistical analysis (i.e., correlations, meta-analysis, analysis of variance, and structural equation modeling), all of which have supported this hypothesis. This pattern is consistent among preadolescent, adolescent, and adult populations (Murnen et al., 2003).

The same factors (e.g., familial, peer, and media) influence the development of body image dissatisfaction in both males and females; however, the magnitude and intensity of these factors vary (Murnen, 2011). Specifically, the media tend to objectify women to a greater degree (Murnen, 2011). Awareness of this objectification is reported by preadolescent females as young as 6 years of age (Murnen et al., 2003). Also, Murnen et al. (2003) studied the presence of a gender difference when assessing preadolescents' responses to objectified images of their own gender. A Chi-square test of association indicated females within the study demonstrated a higher degree of internal consistency in their responses to the objectified images than males did, $\chi^2(3) = 10.77, p = .01$. This suggests females are more aware of and respond more strongly to objectified images of women within their environment when compared to same aged males (Murnen et al., 2003).

Gender differences have also been reported when examining other sociocultural influences (i.e., peer influences and parental influences). Phares et al. (2004) assessed the presence of a gender difference among preadolescent children when the influence their family and peers have on their perceptions of body image was included. Data were

collected on 141 children, 64 males and 77 females. All participants were enrolled in grades 2-5. Each participant completed the Weight Teasing Scale, which was obtained from the Perceptions of Teasing Scale (Thompson, Cattarin, Fowler, & Fisher, 1995), the Family History of Eating (Moreno & Thelen, 1993), the Inventory of Peer Influence on Eating Concerns (Oliver & Thelen, 1996), the Eating Disorder Inventory for Children (Garner, 1984), the Children's Depression Inventory (Kovacs, 1992), and the Self-Perception Profile for Children, Global Self-Worth Subscale (Harter, 1985). A Chi-square test of association confirmed females are not only more aware of issues related to weight than males are, but they expressed a greater desire to lose weight in an attempt to achieve and/or maintain a desirable body ideal, $\chi^2(2) = 13.38, p = .001$. Additionally, a *t*-test of independence indicated females receive significantly more messages about weight, dieting, and body image from family members, $t(139) = -1.98, p < .05$.

Males and females also differ in their typical development of body image dissatisfaction. It has been well established in the literature that females begin to develop body image concerns in preadolescence, and this dissatisfaction typically increases throughout adolescence and plateaus in adulthood (Striegel-Moore & Franko, 2002). Males also begin to develop body image concerns in preadolescence; however, following puberty they experience a plateau or slight increase in body esteem (Smolak, 2002). The fact that the male body post-puberty more closely aligns with the male body ideal (i.e., slender, muscular, v-shaped physique) may explain this phenomenon. Typically changes that occur within the male body after puberty include an increase in height, strength, and speed (Croll, 2005).

Finally, negative behaviors associated with body image concerns also vary by gender. Females are more likely to engage in dieting and compensatory behaviors (i.e., laxative use and purging) than are males (Fawkner, 2012). Males are more likely to engaging in extreme exercise and steroid use, particularly in late adolescence and early adulthood (Fawkner, 2012). Also, both anorexia nervosa and bulimia nervosa are more prevalent among females (American Psychiatric Association, 2013). According to Hoek, 0.4% of the female population struggles with anorexia nervosa over a 12-month period, while the exact prevalence rate for males is not known (as cited in American Psychiatric Association, 2013). The most accurate estimate to date demonstrates a ratio of 10 females to every 1 male meet the clinical criteria for a diagnosis of anorexia nervosa (American Psychiatric Association, 2013). The current 12-month prevalence rate for bulimia nervosa in females ranges from 1% to 1.5% (Hoek, 2006; Smink, Hoeken, & Hoek as cited in American Psychiatric Association, 2013). Similar to anorexia nervosa, the most accurate estimate to date indicates that for every 10 females, 1 male meets the clinical criteria for a diagnosis of bulimia nervosa (Keski-Rahkonen et al., 2009; Marques et al., 2011; Swanson, Crow, Le Grange, Swendsen, & Merikangas as cited in American Psychiatric Association, 2013).

These ratios should be interpreted with caution. Research by Striegel-Moore, Bedrosian, Wang, and Schwartz (2012) examined the current estimates of those diagnosed with bulimia nervosa, specifically assessing whether or not men have been underrepresented in these estimates. Cross-section data were collected on 21,743 men and 24,608 women. A series of independent *t*-tests suggested of the men and women who reported that they engage in binge eating, no significant differences were present in

relation to age, race, ethnicity, and education (Striegel et al., 2012). Furthermore, this study showed that men and women who engage in binge eating reported similar levels of functional impairment. These findings align with previous research supporting the notion that binge eating is a compensatory behavior utilized by both genders (Mond & Hay, 2007). This notion challenges the accuracy of the 10-to-1 female-to-male prevalence rates of bulimia nervosa. Striegel et al. (2012) have suggested that men are less likely than women to seek treatment, which may contribute to the inaccuracy of these prevalence rates. In my literature review I did not discover any additional studies that assessed the accuracy of gender-specific prevalence rates for anorexia nervosa or bulimia nervosa in adult, adolescent, or preadolescent populations.

All things considered, the current research suggests young females receive significantly higher amounts of pressure from sociocultural factors to look a certain way than young males receive. Until more research is conducted on adult, adolescent, and preadolescent males regarding the influence of these sociocultural factors, this notion cannot be rejected. For these reasons, this study will focus solely on females in an attempt to help practitioners with conceptualization and prevention of body image problems. Prior to discussing body image dissatisfaction prevention efforts, it is important to first address the development of body image dissatisfaction within childhood and adolescents as well as the risk factors associated with dissatisfaction.

Development of Body Image Dissatisfaction in Children and Adolescents

When an individual's perceived body image does not align with societal expectations, dissatisfaction can occur. The development of body image dissatisfaction

typically begins in early childhood and increases throughout late childhood and adolescence (Striegel-Moore & Franko, 2002). The literature concerning the development of body image dissatisfaction throughout childhood and adolescence is far-reaching. Considering I am studying only preadolescent females, I will discuss only the research pertaining to this population.

Childhood. A review of the literature specific to body image concerns within a preadolescent female population indicated body dissatisfaction is fairly common (Lowes & Tiggemann, 2003; McCabe & Ricciardelli, 2003; Rolland et al., 1997). Prior to the early 1990s, very few studies were conducted on this topic. It was not until 2001 that Thompson and Smolak edited and published the first book unique to the development of body image dissatisfaction and dysfunction within children and adolescents (Cash & Smolak, 2011). This collection of articles, and other books published in the past 10 years (Grogan, 2008; Thompson, 2004), addressed body image concerns including risk factors and protective factors, along with attitudes about dieting, compensatory behaviors, and sociocultural influences.

Only one study I reviewed has demonstrated the existence of self-reported body image dissatisfaction in females prior to age 4 (Harriger et al., 2010). Cramer and Steinwert (1998) assessed the presence of negative attitudes toward overweight figures within a preschool population. Data were collected on 83 preschool-aged children, 44 girls and 39 boys. Each participant was read four different stories by the examiner. In every story there was a thin character, an average-sized character, and a chubby character. After each story, the participant was presented with pictures of the different characters and asked to identify which character was mean and which character was nice.

Despite the fact that all three characters were portrayed in both nice and mean roles, results indicated the chubby character was viewed as mean much more often than were the other two. Repeated measure analysis of variance yielded a significant effect for target \times adjective \times age interaction: $F(4,160) = 2.59, p < .04$. All 5 year-old males and females selected the “chubby” target as being aversive, compared to 75% of 3 and 4 year olds (Cramer & Steinwert, 1998). This significant difference suggests a stigma surrounding chubby or overweight body types slowly begins to develop around age 3 (Cramer & Steinwert, 1998). Although preschoolers demonstrate an awareness of the “social disapproval” of overweight or obese individuals, they are not yet typically concerned about their own body shape and weight (Smolak, 2011). Harriger et al. (2010) demonstrated similar findings, providing further support for Cramer and Steinwert’s research.

Dohnt and Tiggemann (2006a) reported on multiple studies which demonstrate support for the notion that a thinner body is desired in females as young as 6 years of age (Ambrosi-Radnic, 2000; Davison, Markey, & Birch, 2000; Dohnt & Tiggemann, 2004, 2005; Hendy et al., 2001; Williamson & Delin, 2001). Smolak (2011) indicated that 40%-50% of children between the ages of 6 and 12 commonly report dissatisfaction with their bodies. A study conducted by Lowes and Tiggemann (2003) assessed body image dissatisfaction and dieting awareness among 5 to 8 year-old females. Data were collected on 135 children, 75 girls and 60 boys, between 5 and 8 years of age. The researchers utilized the Collins Children’s Figure Rating Scale to assess the amount of body image dissatisfaction present. Related sample *t*-tests were conducted to assess if significant differences were present for both gender and age. Results of the *t*-test, $t(15) = 0.17, p >$

.05, indicated a significant difference was not present when assessing the mean scores for current and ideal self for 5 year olds. However, a significant difference was present among the mean scores specific to the 6 year olds, $t(29) = 2.73, p < .05$, and the 7 year olds, $t(28) = 5.57, p < .05$. These findings paralleled the findings from previous studies that assessed body image dissatisfaction in similar populations (Collins, 1991; Rolland et al., 1997; Schur, Sanders, & Steiner, 2000; Thompson, Corwin, & Sargent, 1997; Wood, Becker, & Thompson, 1996). These studies suggest females between the ages of 5 and 6 begin to develop a preference towards an ultrathin body ideal.

According to Vander Wal and Thelen (2000a), around age 8, young females tend to include peer comparisons, peer reactions, and cultural ideals in their appearance evaluations. Females who consistently compare their appearance to other individuals report increased body image dissatisfaction (Vander Wal & Thelen, 2000a). This is referred to as the social comparison hypothesis.

According to Smolak (2009) approximately 40%-50% of elementary aged children (6-12 years of age) report dissatisfaction surrounding either the shape or size of their perceived current self. Sinton and Birch (2006) assessed a variety of variables, via hierarchical regression, that are believed to predict body image dissatisfaction at this stage of development. Data were collected on 173 females who were 11 years of age. Multiple assessments were administered, including the Appearance Schemas Inventory (Cash & Labarge, 1996), the Body Esteem Scale (Mendelson, Mendelson, & White, 2001), the Children's Depression Inventory (Kovacs & Beck, 1977), the Risk Factor Survey (Taylor et al., 1998), and the interaction subscale of the Inventory of Peer Influence on Eating concerns (Oliver & Thelen, 1996). Results indicated moderate

correlations, ranging from .40 to .50, were present between body image dissatisfaction and multiple sociocultural variables (parent = .47, sibling = .41, peer = .40, and media = .50). These correlations demonstrated among the sample of 11 year-old females, reports of increased levels of body image dissatisfaction were associated with increased weight status and depression, as well as strong familial, peer, and media influences that heavily emphasized appearance concerns. According to Sinton and Birch (2006), these findings provide additional support for previous research within the field (Blowers, Loxton, Grady-Flessner, Occhipinti, & Dawe, 2003; Field et al., 2001; Levine, Smolak, & Hayden, 1994; Oliver & Thelen, 1996; Paxton, Schutz, Wertheim, & Muir, 1999, Pike & Rodin, 1991; Sands & Wardle, 2003; Vander Wal & Thelen, 2000b; Wertheim, Paxton, Schutz, & Muir, 1997).

Adolescence. The development of body image dissatisfaction has also been studied in adolescent female populations. At this stage of development depression has been found to be significantly associated with body image dissatisfaction. Research conducted by Wichstorm (1999) examined the prevalence rates of depression in both males and females. Data were collected on 12,287 Norwegian adolescents between 12 and 20 years of age. Each participant completed Kandel and Davies's (1982) six-item measure of depressed mood, Bern's Sex-Role Inventory (Bern, 1974), the Pubertal Developmental Scale (Petersen, Crockett, Richards, & Boxer, 1998), the Body Areas Satisfaction Scale (Brown, Cash, & Lewis, 1989), the Physical Appearance subscale (Harter, 1988; Wichstrom, 1995), and the Global Self-Worth subscale (Harter, 1985). A one-way analysis of variance indicated females reported higher rates of depression than did males, $F(1, 10839) = 567.45, p < .00001$. Further regression analysis revealed body

image satisfaction was strongly correlated with global self-worth (.57), which served as the strongest predictor of depressed mood, $\beta = -.34$, $r(1, 10065) = -.25.32$, $p < .00001$. These findings suggest adolescents who report higher levels of body image dissatisfaction are at higher risk for developing poor self-esteem, which can increase depressed mood (Wichstorm, 1999).

Sinton and Birch (2006) concurred; their literature review showed within young adolescents, higher levels of body image dissatisfaction were associated with increased rates of depression (Stice & Bearman, 2001; Stice & Shaw, 2003), negative affect as well as disordered eating (Ohring, Graber & Brooks-Gunn, 2002), which was observed to be present throughout adulthood.

Additional problems that are observed in adolescents who reported higher levels of body image dissatisfaction include problems specific to eating habits, binge eating, and unhealthy weight control behaviors (Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006). Thompson et al. (1999) suggested adolescent females who reported higher levels of body dissatisfaction were more likely to engage in dieting during childhood. Additionally, Neumark-Sztainer et al. (2006) found that individuals who report higher levels of body image dissatisfaction are less likely to engage in exercise.

Risk Factors Attributed to Body Image Dissatisfaction

In order to best address body image dissatisfaction in its entirety, I will examine risk factors associated with development of dissatisfaction. As mentioned previously gender, specifically being female, is a risk factor for body image dissatisfaction (Campbell & Hausenblas, 2009; Elgin & Pritchard, 2006; Feingold & Mazella, 1998). Researchers believe that gender differences occur because young females receive

significantly more pressure from sociocultural factors present within their environment than young males do (Murnen, 2011). Furthermore, “family, peers, schools, athletics, business, and health care professionals” contribute to the development of body image dissatisfaction (Groesz, Levine, & Murnen, 2002; Levine & Smolak, 1996, 1998; Smolak & Levine, 1996; Thompson & Stice 2001).

Research on the manifestations of body image dysfunction focuses on two primary factors: sociocultural and individual (Smolak, 2009). These primary factors will serve as umbrella categories for the many risk factors identified in the literature: familial influences, media exposure, peer-related influences, body mass index, puberty, and ethnicity. Given the significant amount of literature on body image dissatisfaction within females, I will present only research pertaining to a preadolescent female population.

Sociocultural Influences. The first group of factors identified in the literature as being highly associated with body image dissatisfaction is sociocultural influences. According to Wertheim et al. (2004), sociocultural influences are present within an individual’s general (individualist or collectivistic cultures) and proximal (e.g., school, families, neighborhood) environments. Sociocultural influences can impact and/or alter the feelings and beliefs an individual holds about her perceived body in relation to the beauty ideal promoted within these environments (Wertheim et al., 2004). Many of the beauty ideals promoted within various cultures around the world put a strong emphasis on thinness. This emphasis is often extreme, unrealistic, and unattainable for most individuals. The strong desire to obtain and/or maintain a body that aligns with the endorsed beauty ideal often contributes to the presence of body image dissatisfaction, particularly when an individual feels her body does not align with this standard

(Wertheim et al., 2004). Media, familial influences and peer-related influences will be discussed under the sociocultural influences.

Media exposure. The ultrathin body ideal that is endorsed by our society is rampant in the media. Murnen et al. (2003) assessed grade school children's responses to the objectification images of famous women and men who embody our society's thin, sexy beauty ideal. Data were collected on 88 girls and 58 boys. All participants were enrolled in grades 1-5. Each participant completed the Sociocultural Attitudes Toward Appearance Questionnaire (Heinberg et al., 1995) and the Body Esteem Scale (Mendelson & White, 1993). Each participant was also presented with four pictures of males and females representing the ultrathin body ideal. Each participant's responses to the photos were coded into one of four categories: rejectors, uncertain, acceptors, and inconsistent. A one-way analysis of variance specific to females indicated there was not a significant difference among the four response categories regarding awareness, $F(3, 84) = 2.40, p = .07$. However, a significant difference was present between females in the rejectors category and females in the uncertain category regarding internalization, $F(3, 84) = 3.21, p = .03$, and body esteem, $F(3, 84) = 3.72, p = .01$. These results suggest females in the rejectors category scored lowest on internalization and highest on body-esteem, when compared to the other categories of females. The researcher's interpretation of these statistics indicated females within the uncertain category demonstrated a strong awareness of the ultrathin beauty ideal (high internalization), however, they also understand that attaining this ideal is unrealistic and thus gave an uncertain response (Murnen et al., 2003). The researchers also indicated these results attest to the belief that girls receive numerous messages about the objectification of women from various forms

of media and that these messages have an impact on the way they perceive their bodies (Murnen et al., 2003).

The ultrathin body ideal is not promoted solely in media tailored for an adult audience; it is also present in multiple forms of media marketed towards young females. Dittmar et al. (2006) conducted a study demonstrating how short-term exposure to a storybook featuring Barbie as the main character resulted in a statistically significant discrepancy between perceived and ideal body image in 5 to 8 year-old girls. Data were collected on 162 females. As mentioned previously, each participant was exposed to three different picture books, each featuring a different main character (i.e., Barbie, Emme, or Neutral). A repeated measure multivariate analysis including exposure condition, age, and measurement tools administered indicated that females who were exposed to the story featuring Barbie reported significantly higher body image dissatisfaction, $F(1, 153) = 7.53, p < .01$, than did girls in the other two groups (Dittmar et al., 2006). The researchers suggested even short-term exposure to a product that is representative of the ultrathin body ideal could decrease a preadolescent female's body image satisfaction. These results are shocking considering the sheer number of products (e.g., books, dolls) available to children on a daily basis that could be having this effect.

Additionally, Dohnt, and Tiggemann (2006b) examined the impact that peers and the media have on an individual's body satisfaction prior to adolescence. Data were collected on 128 females between 5 and 8 years of age. The Children's Figure Rating Scale (Tiggemann & Wilson-Barrett, 1998), the Pictorial Scale of Perceived Competence/Social Acceptance (Harter & Pike, 1984), and the Global Self-Worth Scale of the Self-Perception Profile for Children (Harter, 1985) were administered to every

participant. The researchers also asked questions inquiring about each female's television and magazine viewing habits. Specifically, each participant was provided with a list of 12 specific television shows and asked to rate how frequently they watch each show on a Likert scale (2 = a lot, 1 = sometimes, 0 = never). Participants were also asked to rate 22 magazine titles on the same Likert scale. Simultaneous multiple regression analyses were conducted which revealed a significant set of predictor variables (i.e., Body Mass Index, peer body image dissatisfaction, peer discussion, imitation, television viewing, and magazine viewing) could predict body image dissatisfaction, $R^2 = 0.23$, $F(10,99) = 2.93$, $p < .01$. Dohnt and Tiggemann (2006b) stated these results further verify that body image dissatisfaction can be present in females between the ages of 5 and 8. Furthermore, these results suggest media exposure does serve as a predictor of body image dissatisfaction.

Dohnt and Tiggemann (2006a) conducted a follow-up study examining the connection between media and body satisfaction and self-esteem in females in grades kindergarten to grade 4. The females included within this study were initially part of the study listed above. Data for this particular study were collected on 97 females, all of whom were enrolled in private education settings in Southern Australia. Data were collected on each participant during two sessions, 12 months apart. The same measures and protocol were utilized in both studies. Univariate analyses of variance were conducted to assess the individual variables. A substantial number of females reported a desire to be thinner at both assessments (Time 1 = 40.2%; Time 2 = 43.3%). According to Dohnt and Tiggemann (2006a), these results further validate previous findings, which indicated that body image dissatisfaction among preadolescent females is fairly common and somewhat stable (Dohnt & Tiggemann, 2005; Ricciardelli & McCabe, 2001).

Furthermore, correlational statistics indicated time spent viewing television shows that promote the ultrathin body ideal was a significant predictor of body image dissatisfaction using data from both the first and second assessments. A significant correlation of $-.23$ was present, suggesting participants who spent more time viewing television shows with a strong appearance emphasis (e.g., *Friends* or *Rage*) reported they were less satisfied with their appearance than were members of a control group (Dohnt & Tiggemann, 2006a).

The effect that experimental media exposure has on body image satisfaction has also been assessed on a larger scale. Groesz et al. (2002) conducted a meta-analysis of 43 studies that analyzed the link between the existence of objectified images of women and body dissatisfaction. Populations included in the meta-analysis varied from elementary aged females to females attending college. The researchers utilized Cohen's d formula to calculate each effect size. An effect size of -0.31 , $z = -7.37$, $p < .0001$, was calculated, indicating groups of girls and women exposed to images of thin women expressed more body dissatisfaction than did females who viewed images of average sized women or images of neutral stimuli such as cars or houses. Furthermore, the mean effect size ($d = -.36$) for females under 19 years of age was greater than that of females 19 and older ($d = .34$). The difference in mean effect sizes for these two groups was significant at $\alpha = .05$ ($\chi^2 = 5.57$). Groesz et al. (2002) suggested these results demonstrated the need for further research, particularly during adolescence and preadolescence, when media influence is the greatest.

Each of the studies mentioned is consistent with the body of literature indicating the media does have an effect on viewers, although the effect is stronger among those

individuals who are more vulnerable, such as those with diagnosed eating disorders (Murnen et al. 2003). Given these forms of media are constantly present in children's lives, it is possible that long-term exposure to the ultrathin body ideal has a negative effect on a body image satisfaction throughout development.

Familial influences. Familial influences may provide potential positive or negative effects. Phares et al. (2004) specified two primary mechanisms leading to body image dysfunction: "parental modeling of dysfunctional eating attitudes and behavior, and parents' influence over their children by direct transmission of weight-related attitudes and opinions, such as comments or teasing" (p. 422). According to Wertheim et al. (2004), consistent evidence in the literature has indicated children who report the presence of body image concerns and engagement in dieting behaviors are more likely to have caregivers who make negative comments regarding the child's body to encourage weight loss (Keel, Heatherton, Harnden, & Horning, 1997; Moreno & Thelen, 1993; Pike & Rodin, 1991; Thelen & Cormier, 1995; Wertheim, Mee, & Paxton, 1999). More recent studies have also focused on parental communication and modeling and have supported this hypothesis (Kichler & Crowther, 2001; Phares et al., 2004)

Thelen and Cormier (1995) conducted seminal research that assessed the effects that parental communication and modeling have on fourth grade boys and girls. This particular study assessed both single parent ($n = 30$) and dual families ($n = 70$). Measures administered to each child included nine body silhouettes (Stunkard, Sorenson, & Schlusinger, 1980), a dieting frequency Likert scale, the Children's Eating Attitudes Test (Garner, Olmstead, Bohr, & Garfinkel, 1982), and a modified version of the Family History of Eating Survey (Moreno & Thelen, 1993). Measures administered to each

parent included nine body silhouettes (Stunkard et al., 1980), a dieting frequency Likert scale, Eating Attitudes Test (Garner et al., 1982), and a modified version of the Family History of Eating Survey (Moreno & Thelen, 1993). Height and weight measurements were also obtained for each parent and child for the purposes of calculating Body Mass Index. A two-tailed *t*-test of independence indicated both sons, $t(68) = 3.31, p < .003$, and daughters, $t(68) = 2.11, p < .05$, reported more encouragement surrounding weight and dieting behaviors coming from mothers than from fathers. Furthermore, correlational analysis revealed a significant, positive correlation was present between sons', $r(34) = .55, p < .0007$, and daughters', $r(34) = .67, p < .0001$, perceptions of parental encouragement to maintain or lose weight and self-reported maternal encouragement (Thelen & Cormier, 1995). The researchers hypothesized this significant difference may be due to mothers being more explicit in their encouragement than are fathers. These findings were groundbreaking because they showcased how caregivers can directly influence their child's attitudes and opinions surrounding weight and body concerns (Thelen & Cormier, 1995). Despite the age of this study, more recent research has confirmed these findings (Hendy et al., 2001; Kichler & Crowther, 2009; Phares et al., 2004).

Phares et al. (2004) further assessed whether parental influence is directly related to the development of body image disturbance among an elementary aged population. (This study was described in the prior section about gender differences; however, the researchers also examined familial influences.) A total of 141 children were assessed, 77 girls and 64 boys. As discussed earlier Phares et al. (2004) hypothesized correctly that females would demonstrate a significantly higher drive for thinness when compared to

same aged males, $t(139) = -3.58, p < .0001$. Additionally, females reported more concerns about their family's history surrounding eating concerns than did same-aged males, $t(139) = -1.98, p < .05$, presumably because females receive more messages from family members about weight and body image concerns than males do.

One question that remained unanswered was which parent is more likely to promote these messages. Phares et al. (2004) assessed which parent more strongly emphasized the importance of weight and body concerns. A paired t -test indicated mothers rated their daughter's and son's weight and body concerns as more important than did fathers, $t(29) = -2.93, p < .0006$, $t(27) = -2.61, p < .01$. These results are consistent with previous findings (Thelen & Cormier, 1995).

Kichler and Crowther (2009) also assessed the relationship between parental communication/modeling and preadolescent females' self-reported eating attitudes and body image satisfaction. The sample included 69 females enrolled in grades 4-6 and their mothers. The daughters each completed the Family Dieting History Form (Kichler & Crowther, 2001), the Communication Form (Kichler & Crowther, 2001), the Peer Modeling Measure (Levine, Smolak, Moody, Shuman, & Hessen, 1994), the Children's Eating Attitudes Test (Maloney, McGuire, & Daniels, 1988), and the Eating Disorder Inventory-Body Dissatisfaction Scale (Wood et al., 1996). The mothers completed the Tanner Scales (Marshall & Tanner, 1969), the Eating Attitudes Test (Garner & Garfinkel, 1979), and the Body Shape Questionnaire (Cooper, Taylor, Cooper, & Faiburn, 1987). According to Kichler and Crowther (2009), percentage calculations indicated daughters in the study self-reported a larger percentage of positive communications (range = 60.9% to 88.4%) about their weight and body shape from their mothers than negative

communications (range = 20.3% to 49.3%). Despite this promising finding, bivariate correlations demonstrated negative communication transmitted by parents was significantly correlated with body image dissatisfaction ($r = .42$). Evidently, despite negative communication occurring less frequently, such occurrences have a significant impact on the development of body image dissatisfaction (Kichler & Crowther, 2009).

Hendy et al. (2001) also provided support for Thelen and Cormier's conclusion regarding maternal influence on the development of body image dissatisfaction of preadolescent children. Specifically, Hendy et al. (2001) examined the influence of various social cognitive predictor variables, identified within the Social Cognitive Theory (Bandura, 1997), have on the development of body image within a preschool population. This research was vital to the literature as it assessed preschool-aged children, a population that has been drastically understudied. This study included 94 children, 52 males and 42 females, between the ages of 3 and 6. Data collection included participation from the child, female caregiver, and teacher. Each child completed the Children's Figure Rating Scale (Collins, 1991) and the Peer Influence on Eating Concerns Scale (Oliver & Thelen, 1996). Female caregivers were asked to complete a questionnaire requesting various information specific to their child (height, weight, rating of health) and themselves (mother's age, educational level, height, and weight). Additionally, female caregivers were asked to indicate their level of body image satisfaction and the frequency of verbal messages about their child's body image they transmit to the child (Thompson & Gray, 1995). Finally, female caregivers were asked to complete Bob and Tom's Method of Assessing Nutrition, which assessed their perception of the child's food competence during meals (Klesges et al., 1983). A *t*-test for independent means indicated

a gender difference was not present in body satisfaction scores, $t(91) = .70, p = .488$. Furthermore, simultaneous multiple regression analysis indicated verbal messages from mothers urging their child to be bigger was the only significant predictor for child body image dissatisfaction, $\beta = .296, t = 2.49, p = .016$. These results demonstrate that preschool-aged females report a desire to be bigger rather than thinner, which is the desired size reported by females 6 years of age and older (Hendy et al., 2001). These results demonstrate the power that maternal verbal criticism and suggestions have on the development of their child's body image satisfaction or dissatisfaction, even when the content of the message is not related to the ultrathin body ideal.

Similar findings were reported regarding verbal messages communicated by mothers concerning their preschooler's appearance (McCabe et al., 2007). The study was qualitative in nature and included a sample of 53 children between 3 and 4 years of age. Of the mothers who did make negative comments about their daughter's body appearance, a common theme was undesirable weight gain (McCabe et al., 2007). Additionally, mothers reported they would reduce their daughter's access to unhealthy foods while encouraging an increase in exercise if their daughter gained an undesirable amount of weight. Even though children in this sample are younger when compared to samples discussed previously (Hendy et al., 2001; Kichler & Crowther, 2011; Phares et al., 2004), these findings provide additional insight into the early age at which children are exposed to messages surrounding appearance concerns and expectations.

Peer-related influences. Potential positive or negative peer-related influences can impact body image development. Research to date has examined peer discussions

surrounding appearance, peer-related teasing, and peer modeling (Dohnt & Tiggemann, 2006a; Dohnt & Tiggemann, 2006b; Kostanski & Gullone, 2007; Phares et al., 2004).

Phares et al. (2004) examined the influence a child's peers can have on the development of body image dissatisfaction. This study (discussed previously for its results on the influence that parents have on their child's reported body image dissatisfaction) included 141 children, 77 girls and 64 boys enrolled in grades 2-5. Each participant completed the Weight Teasing Scale which was obtained from the Perceptions of Teasing Scale (Thompson et al., 1995), the Family History of Eating (Moreno & Thelen, 1993), the Inventory of Peer Influence on Eating Concerns (Oliver & Thelen, 1996), the Eating Disorder Inventory for Children (Garner, 1984), the Children's Depression Inventory (Kovacs, 1992), and the Self-Perception Profile for Children – Global Self-Worth Subscale (Harter, 1985). As mentioned previously, elementary-aged females demonstrated a significantly higher drive for thinness when compared to same aged males, $t(139) = -3.58, p < .0001$. Correlational analysis indicated a significant relationship between peer influence and the development of body image dissatisfaction among females, $r = .49, p < .001$. A significant relationship was also present between peer influence and the development of body image dissatisfaction among males; however, this significance became evident only when tested at a lower alpha level, $r = .26, p < .05$. Phares et al. (2004) attributed these findings to the belief that “peer influence plays an integral part in children's formations of maladaptive beliefs, attitudes, and expectations concerning weight, physical appearance, and body image” (Phares et al., 2004, p. 426).

Dohnt and Tiggemann (2006a) examined an even younger population to assess the influence same-aged peers have on the development of body image satisfaction. They also examined perceived peer body image dissatisfaction, peer discussions, and imitation. Examining all three variables allowed the researchers to determine if one particular form of peer influence was more influential than another. Participants in this study were 128 females between the ages of 5 and 8. Each participant completed the following measures: The Children's Figure Rating Scale (Tiggemann & Wilson-Barrett, 1998), the Pictorial Scale of Perceived Competence/Social Acceptance (Harter & Pike, 1984), and the Global Self-Worth Scale of the Self-Perception Profile for Children (Harter, 1985). The researchers also included a range of questions inquiring about each participant's television and magazine viewing habits. Data were collected on each participant in two sessions that were 12 months apart. Correlational analysis indicated that young females who participated in appearance-related discussion with peers reported lower appearance satisfaction at the second testing session (Time 1 = -.01; Time 2 = -.23). This trend was also reported for imitation (Time 1 = -.01; Time 2 = -.24). These changes were significant at $\alpha = .05$. These results suggest that as young females progress throughout elementary school, peer discussion and peer imitation become increasingly correlated with adverse implications (Dohnt & Tiggemann, 2006a). Furthermore, hierarchical regression revealed peer desire for thinness reported at Time 1 was a significant predictor of change for the following variables: desire for thinness, $\beta = .27$, $\Delta R^2 = .06$, $\Delta F = 6.12$, appearance satisfaction, $\beta = -.32$, $\Delta R^2 = .11$, $\Delta F = 9.79$, and self-esteem, $\beta = -.27$, $\Delta R^2 = .07$, $\Delta F = 7.83$. Dohnt & Tiggemann (2006a) stated "the beta values indicated that those girls who initially thought their peers would desire a thinner ideal body subsequently themselves

desired to be thinner, were less satisfied with their appearance, and had lower self-esteem” (p. 933). These findings were innovative because they demonstrated the influence that peers have on the development of body image dissatisfaction within a preadolescent population. Prior to this study, very few studies assessed the influence of this sociocultural variable on this population (Phares et al., 2004; Vander Wal & Thelen, 2000a). Dohnt and Tiggemann (2006a) have advocated for further research to investigate the culture that currently exists regarding appearance in a preadolescent population.

Kostanski and Gullone (2007) narrowed the focus of peer influence and specifically examined the effect of peer teasing on body image development in children 7 to 10 years of age. This study assessed 431 children, 232 females and 199 males. Each participant completed the following measures: Children’s Figure Rating Scale (Collins, 1991), self-reported teasing questionnaire (Kostanski & Gullone, 2007), and the Children’s Version of the Eating Attitudes Test (Maloney, McGuire, Daniels, & Specker, 1989). Frequency analysis demonstrated children are more often teased by their peers than by their mothers and fathers. Furthermore, logistical regression analysis suggested both sex and body mass index (BMI) served as significant predictor variables for peer teasing, $\chi^2 = 18.52$, $df = 3$, $p = .00$, sex: $\beta = -.714$, $df = 1$, $wald = 4.103$, $p = .04$, BMI: $\beta = -1.58$, $df = 1$, $wald = 5.32$, $p = .00$. Children in the study who were classified as overweight or underweight for their age and gender reported more peer-teasing-related incidents. When assessing the particular type of peer teasing that was occurring, participants reported more mean teasing, which is calling another aversive names that are typically associated with a physical deficit (Warm, 1997). This form of teasing is the

most common form observed during this stage of development (Kostanski & Gullone, 2007).

Tillman et al. (2007) furthered the research regarding peer teasing by assessing the perceptions held by an elementary-age population about overweight peers. This research sought to explain why teasing is occurring in the first place. The study sample included 34 participants, 21 females and 13 males, who were selected via a stratified random sample. All participants were between the ages of 6 1/2 and 8 1/2. Each participant was read four stories and then asked to specify which character was viewed as being mean and which character was nice. Next, participants were asked to state the character's behavior that was perceived as mean or nice. Each participant was exposed to books portraying both thin and overweight characters as mean. A paired sample *t*-test indicated that there was a significant difference between how often the slim targets were viewed as being nice compared to how often the overweight characters were viewed as being nice, $t(33) = -5.48, p \leq .001$, with overweight characters being viewed as "less likeable" than the slim characters (Tillman et al., 2007, p. 76). No gender difference was present, $F = 1.09, df = 1, p = .304$. Tillman et al. (2007) suggested these perceptions could be attributed to the increased number of peer-related teasing occurrences related to weight and body image. Based on this research, schools should implement programs that include an emphasis on behavior modification, provide students with more opportunities to engage in physical activity, allow for self-monitoring, include an increased amount of positive reinforcement, and include education surrounding personal health and nutrition. Tillman et al. (2007) believe such programs would not only combat childhood obesity but also help to alter the negative perceptions that students hold regarding overweight peers.

Menzel et al. (2010) recently published a meta-analysis that specifically assessed appearance-related teasing in relation to body image dissatisfaction. A total of 41 studies were included, all of which assessed populations of either children or adolescents.

Menzel et al. (2010) reported a significant effect was present ($ES = .41$) for weight-related teasing and body image dissatisfaction and supported findings of Kostanski and Gullone (2007) and Tillman et al. (2007).

Individual factors. The second set of primary factors identified in the literature as being highly correlated with body image dysfunction are individual factors. Examples of individual risk factors include body mass index (BMI), ethnicity, early maturation, and individual psychological factors.

Body mass index. According to Wertheim et al. (2009), a higher body mass index that is not consistent with the beauty ideal promoted within one's society has been identified as a biological risk factor for body image dissatisfaction and dysfunction (Field, Camargo, Taylor, Berkey, Roberts, & Colditz, 2001; Ohring et al., 2002; Paxton et al., 2006). According to Vander Wal and Thelen (2000b), multiple studies have found elementary-aged females who weigh more than their same-aged, average-weight peers typically report higher levels of body image dissatisfaction (Braet, Mervielde, & Vanerecken, 1997; Brown, Schreiber, McMahon, Crawford, & Ghee, 1995; Hill, Draper, & Stack, 1994; Mendelson & White, 1982, 1985; Mendelson et al., 1996; Vander Wal & Thelen, 2000b). Additionally, Vander Wal and Thelen (2000a) reported on multiple studies that have produced findings indicating that higher rates of BMI have been reported to be associated with a desire to be thinner, decreased self-worth, altered, and unhealthy eating patterns as well as fears regarding being viewed as overweight (Braet et

al., 1997; Fox, Page, Peters, Armstrong, & Kirby, 1994; Hill, Oliver, & Rogers, 1992; Koff & Rierdan, 1991, 1993; Kolody & Sallis, 1995; Oliver & Thelen, 1996; Strauss, Smith, Frame, & Forehand, 1985; Striegel-Moore, Schreiber, Pike, Wilfley, & Rodin, 1995; Vander Wal & Thelen, 2000b).

More recent research by Clark and Tiggeman (2008) supported these findings. The researchers assessed the prediction power of various sociocultural and psychological predictor variables in relation to body image dissatisfaction. The study sample included 150 females between the ages of 9 and 12 who lived in Southern Australia. Each participant completed an appearance conversation scale, the Internalization of Media Ideals Scale (Jones et al., 2004), the Children's Appearance Schemas (Clark & Tiggemann, 2007), an autonomy scale, the Children's Figure Rating Scale (Tiggemann & Wilson-Barrett, 1998), and the Body Esteem Scale (Mendelson & White, 1993). Assessments were administered twice, with the sessions 12 months apart. Cross-sectional analysis indicated a significant relationship was present between participant BMI and desire for thinness, $t = 2.53$, $r = .54$. Furthermore, a second significant relationship was present between BMI and body-esteem, $t = 2.35$, $r = .56$. Each of these correlations were significant at $\alpha = .001$. A particular strength of this study is that the researchers collected data for a second time 12 months later, thereby demonstrating the stability of body image dissatisfaction and body-esteem in young females whose bodies do not align with the beauty ideal encouraged by their culture.

Ethnicity. Research conducted by Erickson and Gerstle (2007) inquired about differences in reported body image dissatisfaction among young females 8 to 12 years old of various racial groups. Data were collected on 141 preadolescent females who were

identified as either Hispanic or Caucasian. Researchers administered multiple body image dissatisfaction measures to each participant to better understand the idea of body image satisfaction. This range of assessments included the Revised Eating Disorder Inventory-Body Dissatisfaction Subscale (Wood et al., 1996), the Child Figure Drawings (Childress, Brewerton, Hodges, & Jarrell, 1993), the Body Esteem Scale (Mendelson & White, 1982), and the Children's Version of the Eating Attitudes Test (Maloney et al., 1988). Erickson and Gerstle (2007) calculated means and effect sizes for each measure to determine if body image assessments that have been typically utilized for Caucasian females are appropriate measurement tools when working with other racial groups. Means for the Hispanic and biethnic-Hispanic group as well as the non-Hispanic group were determined for the purpose of calculating the effect sizes of each measure. The following effect sizes were reported: Revised EDI-BD = .02, CFD = .02, BES = .32, Cheat = -.02. Erickson and Gerstle (2007) found small effect sizes; only the Body Esteem Scale could be considered moderate. These results suggest Hispanic American and Caucasian females respond similarly to the various measures of body image dissatisfaction included within the study (Erickson & Gerstle, 2007).

DeLeel et al. (2009) furthered this area of research by assessing the prevalence of body image dissatisfaction among preadolescent females across various racial and socioeconomic groups. This study assessed multiple racial groups, including some that were not included in the previous study (i.e., African American & Asian). Data were collected on 581 females between 9 and 10 years of age. The Children's Version of the Eating Attitudes Test (Maloney et al., 1988), the Body Image Measure (Collins, 1991), and the Pubertal Development Scale (Peterson et al., 1988) were administered to each

participant. DeLeel et al., (2009) conducted a univariate analysis of variance which indicated a statistical difference was not present among various racial or socioeconomic groups specific to body image dissatisfaction, $F(1,575) = 1.455, p = .228$, partial $\eta^2 = .003$. These findings provided further support for the conclusions previously drawn by Erickson and Gerstle (2007) and expanded on these results, as it demonstrated similar findings across racial groups (African Americans, Caucasians, Asians, and Hispanics/Latinas). According to Franko and Edwards-George (2009), this research challenges the traditional belief that a higher discrepancy between perceived current self and ideal self is reported in White children and adolescents (Franko, Becker, Thomas, & Herzog, 2007, Ruiz, Pepper, & Wilfley, 2004).

Early maturation. Early maturation has also been reported in the literature as being a biological risk factor for body image dissatisfaction. Throughout puberty, young females experience numerous dramatic body changes (Smolak, 2009). During this time girls are more likely to compare themselves to their same-aged female peers, with typical comparisons surrounding rate and size of bodily changes (Smolak, 2009). Wertheim et al. (2004) stated females who mature early or late compared to the majority of their same-aged female peers commonly report higher levels of body image dissatisfaction. In either case, a female's body does not resemble what is considered normal for that particular developmental period. Early or late maturation can cause concerns about being accepted by one's peers at a time when similarity and acceptance is highly important (Wertheim et al., 2004).

Individual psychological factors. Wertheim et al. (2009) reported certain individual characteristics increase the likelihood that body image dissatisfaction will

occur. Personality variables--low self-esteem, depressed mood, and global psychological functioning--have been correlated with body image dissatisfaction (Wertheim et al., 2004).

Research by Vander Wal and Thelen (2000a) specifically examined social anxiety and appearance comparisons as potential predictor variables to determine their roles in the development of body image dissatisfaction in preadolescent females. Other variables and outcomes from this study were discussed previously, as the researchers examined other predictor variables as well (i.e., peer and familial influences). Data were collected on 100 females who were enrolled in grades 3-5. Each participant completed the Revised Body Esteem Scale for Children (Mendelson & White, 1982, 1993), the Figure Rating Scale for Children (Collins, 1991), the Peer Investment in Dieting Scale (Levine et al., 1994), the Inventory of Peer Influence on Eating Concerns (Oliver & Thelen, 1996), the Perception of Parental Influence (Thelen & Cormier, 1995), the Social Anxiety Scale for Children (La Greca, Dandes, Wick, Shaw, & Stone, 1988), the Physical Appearance Comparison Scale (Thompson, Fabian, Moulton, Dunn, & Altabe, 1991), and provided demographic information about herself (i.e., age, height, and weight). Vander Wal and Thelen (2000a) conducted a multiple regression analysis which indicated social anxiety, $r = .49$, and appearance comparisons, $r = .58$, were significant predictors of body image dissatisfaction, Model $R^2 = .42$, $F = 8.15$, $p = .0005$. The researchers suggested these results support the social comparison hypothesis, which suggests that females who frequently compare their appearance to other females tend to report higher levels of body image dissatisfaction (Thompson, 1992).

In a follow-up study Vander Wal and Thomas (2004) assessed many of these predictor variables in relation to the presence of body image dissatisfaction in African American and Hispanic girls. Correlational analysis indicated body image dissatisfaction was significantly correlated with fear of negative evaluation, $r = -.57, p < .001$. Further regression analysis revealed fear of negative evaluation was the strongest predictor variable in a model that significantly predicted body image dissatisfaction, $F(2, 63) = 30.01, p < .001$. The researchers did not specifically examine the relationship between fear of negative evaluation and social anxiety; however, it is possible that fear could produce and/or increase the amount of social anxiety a young female feels about her body in relation to the ultrathin body ideal.

The relationship between self-esteem and body image dissatisfaction in preadolescents has been assessed sporadically. Only a few studies have included self-esteem as an outcome variable when assessing body image dissatisfaction in children younger than 13. According to Phares et al. (2004), a link was present between self-esteem concerns and body image dissatisfaction; however, this is not a causal link (Mendelson et al., 1996). Research indicated body image dissatisfaction and poor self-esteem develop concurrently. Phares et al. (2004) evaluated gender differences in body image disturbance, self-worth, and psychological functioning within a preadolescent population. This study included 141 children, 77 girls and 64 boys, who were enrolled in grades 2-5. Each participant completed the Self-Perception Profile for Children-Global Self-Worth Subscale (Harter, 1985) and the Eating Disorder Inventory for Children (Garner, 1984). Phares et al. (2004) conducted a correlational analysis, which revealed participants who reported increased levels of body image dissatisfaction also reported

more depression symptoms, $r = .37$, and lower levels of global self-worth, $r = -.42$. Each of these correlations were significant at $\alpha = .01$. Previous research supported these findings (Herzog, Keller, Sacks, Yeh, & Lavori, 1992; Wood et al., 1996).

One study contradicts these findings. Dohnt and Tiggemann (2006a) sought to determine if a relationship was present between body image dissatisfaction and self-esteem in preadolescent females. Their study included 97 preadolescent females, and data were collected at two different times, 12 months apart. Each participant completed the Self-Perception Profile for Children--Global Self-Worth Subscale and the Children's Figure Rating Scale (Tiggemann & Wilson-Barrett, 1998). Correlational analysis indicated current and ideal self were not significantly correlated with global self-worth, $r = -0.06$. According to Ricciardelli et al. (2009), findings correlating these two constructs have been inconsistent. One possible explanation for these findings is the utilization of longitudinal vs. cross-sectional methodologies. Additional research in this area would explain these inconsistent findings, allowing researchers and practitioners to address this relationship more accurately and appropriately. The methodology utilized within my study has been designed to further this area of research.

Possible Outcomes of Body Image Dissatisfaction

Considering that multiple risk factors for body image dissatisfaction are present in a young female's life every day, researchers, educators, and parents are concerned about the potential long-term impact of body image dissatisfaction. This section briefly addresses possible negative outcomes (i.e., poorer academic performance, low self-esteem, depression, and anxiety) that might result from long-term dissatisfaction. Even though many of these possible outcomes are not reported until adolescence or adulthood,

the presence of influential sociocultural factors throughout childhood contributes to these outcomes.

In addition to the compensatory behaviors discussed earlier, a variety of other variables have been correlated with body image dissatisfaction. According to Diedrichs and Halliwell (2012), children and adolescents who report higher levels of body image dissatisfaction are more likely to demonstrate poorer academic performance and poor school attendance. Disordered eating habits have also been reported as potential outcomes associated with body image dissatisfaction among females (Benuto, Haboush, & Jones-Forrester, 2007).

Decreased self-esteem is also associated with body image dissatisfaction. As mentioned previously, a link is present between self-esteem concerns and body image dissatisfaction; however, this is not a causal link (Mendelson et al., 1996). Rather, body image dissatisfaction and poor self-esteem develop concurrently (Phares et al., 2004). Multiple factors associated with the development of an individual's body image (i.e., familial influences, peer influences, and the media) have also been associated with the development of self-esteem (Guindon, 2010). Negative outcomes identified within the literature for disordered eating, eating disorders, externalizing behaviors, depression, and anxiety have the potential to impede academic, emotional, and social growth. According to Green and Kolos (2010), a thorough review of the literature revealed low self-esteem has been significantly correlated with academic difficulties (Marin, Bohanek, & Fivush, 2008), externalizing behaviors (Donnellan et al., 2005), depression (Emler, 2002), and anxiety (Ollendick, Shortt, & Sander, 2008). Given so many negative outcomes are associated with body image dissatisfaction, it is important to make prevention programs

available for affected individuals and to examine the effectiveness of current prevention efforts.

Body Image Dissatisfaction Prevention Programs

According to Holt and Ricciardelli (2008), prevention programs that aim to decrease body image concerns among school-age children were first introduced in the 1980s. Norwood et al. (2011) reported the majority of the prevention and intervention programs are designed for adolescent females (McVey & Davis, 2002; McVey et al., 2004; Richardson & Paxton, 2010; Scime et al., 2000). Holt and Ricciardelli (2008) have suggested the most effective prevention programs target a preadolescent population, because behaviors and attitudes demonstrated by adolescents are engrained and difficult to modify (Irving, 2000; Neumark-Sztainer et al., 2000; Smolak et al., 1998a; Smolak et al., 1998b; Stice & Shaw, 2004). Conversely, McCabe, Ricciardelli, and Holt stated body image concerns reported by preadolescent children are often “more malleable and amendable to change” (as cited in Holt & Ricciardelli, 2008, p. 234). Consequently, prevention programs, which aim to positively alter body image, need to be implemented early in order to be most effective.

According to Diedrichs and Halliwell (2012), school-based body image prevention and intervention programs are comprised of multiple components including “didactic teaching, audiovisual resources and small group interactive activities that address established risk factors for the development of negative body image and eating disorders” (Stice, Shaw, & Marti, 2007, p. 534). Traditionally, body image prevention programs focused solely on psychoeducational activities (Diedrichs & Halliwell, 2012). Stice and Shaw stated that newer programs are shifting from this traditional format and

placing a stronger emphasis on assisting children and adolescents in developing skills necessary to combat societal pressures (as cited in Diedrichs & Halliwell, 2012). These skills include media literacy, healthy weight control strategies, and coping skills (Diedrichs & Halliwell, 2012). These prevention programs require funding, time, and training to be successful, so it is important to evaluate their effectiveness. The following section briefly addresses the effectiveness of body image prevention programs designed to positively alter body image dissatisfaction in females.

Holt and Ricciardelli (2008) reviewed all prevention programs discussed in the body image literature that specifically aim to reduce and/or prevent body image concerns in children between 8 and 12 years of age. The goal of this research was to review the effectiveness of each prevention program. A total of 13 prevention programs were identified and examined in detail. Outcome variables of interest included knowledge of content presented, self-esteem, body image concerns, and problems or concerns surrounding eating and dieting. These variables were reviewed directly after program completion (i.e., post-test) as well as 3 months after program completion (follow-up assessment). Some reviews of the outcome variables do not include all 13 studies because some studies had no control group; some did not test for statistical significance; and some did not collect follow-up data (Holt & Ricciardelli, 2008).

In all six studies included in the final review, participants did demonstrate an increase in knowledge as shown by the difference in pre- and post-assessment scores (Huon, Roncolato, Ritchie, & Braganza, 1997; Kater, Rohwer, & Levine, 2000; Kater, Rohwer, & Londre, 2002; Neumark-Sztainer et al., 2000; Smolak et al., 1998a, 1998b). According to Holt and Ricciardelli (2008), only one study demonstrated a significant

increase in the students' knowledge about body image during the follow-up assessment that was administered 3 months later (Holt & Ricciardelli, 2008).

Unfortunately, this outcome was not repeated for self-esteem. Of the four studies reviewed, only one demonstrated a significant difference between pre- and post-test scores immediately after the completion of the program (Baranowski & Hetherington, 2001). Furthermore, two studies reported an increase in self-esteem for both the experimental and control groups during post-test (McVey, Lieberman, Voorberg, Wardrope, & Blackmore, 2003; McVey, Lieberman, M., Voorberg, N., Wardrope, Blackmore, & Tweed, 2003). No studies demonstrated significant evidence suggesting an increase in participant self-esteem 3 months after program completion (Holt & Ricciardelli, 2008).

The majority of studies reviewed (7 out of 10) demonstrated no significant changes in self-reported body image dissatisfaction on pre- and post-assessments. Holt and Ricciardelli (2008) further stated that only two studies demonstrated improvements over a 24-month follow-up period.

Overall, limited evidence is present to conclude that these programs reduce or eliminate body image concerns, possibly due to the duration of the prevention programs examined (Holt & Ricciardelli, 2008). An increase in program duration could result in more opportunities for reinforcement, which increase the likelihood that both short- and long-term attitude and behavioral changes will be reported (Holt & Ricciardelli, 2008).

According to Diedrichs and Halliwell (2012), additional published reports have contradicted these findings, suggesting more recent prevention programs have been found to be successful in changing children's attitudes and beliefs regarding body image

(O'Dea, 2005; Yager & O'Dea, 2008). O'Dea (2005) has attributed the effectiveness of these programs to the utilization of student-centered learning opportunities; the inclusion of males in addition to females; and programs occurring within the educational setting. These inconsistent findings make it evident more research regarding body image prevention programs is necessary.

One weakness of many prevention programs is the emphasis on physical activity is minimal. Holt and Ricciardelli (2008) examined each program's objectives as a way to assess the desired learning outcomes. Of the 13 body image prevention programs they reviewed, only one included an emphasis on exercise (Holt & Ricciardelli, 2008). Research regarding the relationship between physical activity and body image dissatisfaction is discussed below. This relationship clearly indicates why physical activity needs to be included in programs to positively alter body image dissatisfaction in youth.

Physical Activity

Campbell and Hausenblas (2009) conducted a meta-analysis to examine the reported effects of exercise on body image. Only studies that included exercise as their independent variable and a body image measure as their dependent variables were included in the meta-analysis. Furthermore, studies were excluded from the meta-analysis if the researchers utilized a cross-sectional design, if correlational analysis was the main method of analysis, or if the study lacked a control group. The following information was coded for each study: age, gender, ethnicity, body composition, and pre-intervention fitness levels (Campbell & Hausenblas, 2009). Also coded were type of exercise, length of intervention, number of sessions, and intensity of the exercise.

This analysis included preadolescent, adolescent, and adult populations. Few studies included in the analysis focused on elementary ($n = 3$), middle school ($n = 5$), and high school ($n = 2$) populations, so those three categories were combined and compared to studies that focused on adult populations. Significant differences in mean effect sizes were reported for the various age groups: older adult group (Mean Effect Size = .33), university group (Mean Effect Size = .22), and child/adolescent group (Mean Effect Size = .16). The authors suggested this age effect provides further support for the hypothesis that body image concerns begin to develop in childhood, continually increase throughout adolescence, and eventually plateau and remain stable in adulthood (Eisenberg et al., 2006; Kemmler et al., 2006; McCabe & Ricciardelli, 2004; McLaren & Kuh, 2004; Muth & Cash, 1997; Smolak, 2002; Tiggemann, 2004; Wang et al., 2005).

A significant effect size was present for exercise-based interventions (Mean Effect Size = .37) compared to lecture-based interventions (Mean Effect Size = .12). These results demonstrate active participation in exercise did result in significantly higher increases in self-reported body image satisfaction compared to solely learning about exercise (Campbell & Hausenblas, 2009). Also, Campbell and Hausenblas (2009) reported frequency did serve as a moderating variable for effect size. Specifically, larger effect sizes were reported for studies that required more sessions per week, $z = 2.50$, $p = .01$. I used this information to help determine which intervention program I would study further.

A recent study by Monteiro-Gaspar et al. (2011) examined the impact of physical activity on body image dissatisfaction in preadolescent and adolescent children. The sample consisted of 234 children between 10 and 17 years of age. Each participant

completed the Children's Figure Rating Scale (Collins, 1991) and the Habitual Physical Activity Index (Baecke, Burema, & Frijters, 1982). Analysis indicated an effect size of 0.684 was present, suggesting physical activity may serve as a protective factor against body image dissatisfaction within this population. Monteiro-Gaspar et al. (2011) reported these findings align with other research (Burgess, Grogan, & Burwitz, 2006).

It is evident physical activity is an important component of programs that aim to positively alter body image in young females. According to Campbell and Hausenblas (2009), it was imperative more research examined how exercise impacted our youths' self-reported body image satisfaction. Minimal involvement in exercise coupled with high childhood obesity rates have resulted in an increased number of our youth reporting higher rates of body image dissatisfaction (Campbell & Hausenblas, 2009).

Many programs are currently being implemented across the United States to increase the amount of physical activity children engage in on a daily basis. One program in particular that is receiving a great deal of local and national attention is the Feelin' Good Mileage Club. Limited research has been conducted on this program to date, yet, preliminary findings are promising, and children, parents, and educators are enthusiastic about its future.

Feelin' Good Mileage Club

The Feelin' Good Mileage Club began in 1972 in San Diego, California, as an extension of the Feelin' Good Cardiovascular Health Program (Fitness Finders, 2013). In 1986, a group of teachers at Frost Elementary consulted with Fitness Finders to learn more about how to create more physical activity opportunities throughout the school day. This collaboration resulted in the idea of having students walk laps in exchange for beans

(Fitness Finders, 2013). For every lap completed, each student received one bean that they would submit after recess in exchange for points. The start of this collaboration resulted in the program being trademarked by the federal government in 1986 (Fitness Finders, 2013). Continual consultation between the teachers at Frost Elementary and employees at Fitness Finders resulted in improvements to the original idea. Toe Tokens were added to reward students for progress made. Furthermore, Mileage Marker Cards were created as a form of progress monitoring, allowing each student to track his or her progress (Fitness Finders, 2013). In 1992, Foote Hospital, located in Jackson, Michigan, began sponsoring the Feelin' Good Mileage Club. Over the past 21 years, this sponsorship has contributed to the increased implementation and continual use of this program across the United States and throughout Canada (Fitness Finders, 2013).

Newspaper articles have reported on the numerous positive outcomes associated with student participation in mileage/running clubs. Students have learned the value of exercise, responsibility, goal setting, progress monitoring, and nutrition. They appear to be more on task during academic engaged time and have experienced a healthy decrease in body mass index (Bullock, 2012; Gilfillian, 2012; Troianello, 2012). To date only one study has been published that assessed the effectiveness of providing an incentive to children who have completed a certain number of miles.

Randall and Keizer (2011) assessed whether an incentive program would encourage preadolescent children (grades 3-5) to participate in an increased amount of physical activity throughout the school day. Sixty students began participating in Mileage Club during its first week. Student participation was voluntary during regularly scheduled recess times. Later, the researchers introduced an incentive (beads that could be strung

onto a bracelet) to determine if more students would participate on a daily basis. Children received one bead for every 500 meters they walked or ran. After the incentive was introduced, 90 students participated in Mileage Club. The inclusion of an incentive increased student participation by 50%.

A 50% increase in student participation suggests the inclusion of an incentive increased student participation in Mileage Club; however, no research was conducted on outcomes associated with exercise. Given physical activity may serve as a protective factor against body image dissatisfaction in preadolescent children (Monteiro-Gaspar et al., 2011), it would appear to be beneficial to provide physical activity opportunities, such as Mileage Club, within primary education settings.

I am specifically interested in studying whether or not a program such as Feelin' Good Mileage Club could lessen body image dissatisfaction among preadolescent females, 7 to 10 years of age. Researchers who have studied the sociocultural model hypothesize that young females internalize the ultrathin body ideal prior to 9 years of age (Anschutz & Engels, 2010; Clark & Tiggemann, 2006; Dittmar et al., 2006; Sands & Wardle, 2003). If this predicted age of internalization is accurate, elementary educators have a very small window of time to provide opportunities that could positively alter body image.

CHAPTER III

METHODOLOGY

In this chapter, research methodology is presented. First, participants recruited for the study are discussed. Next, the instruments used to measure each dependent variable are described. Finally, the procedures specific to participant recruitment, data collection, and procedures utilized to analyze the data are presented.

Participants

Experimental Group

The population for this study was selected after an extensive review of the literature indicated that body image dissatisfaction is commonly present within a 7 to 10 year-old female population. An elementary-age population allowed the researcher to determine if a significant difference existed among females who have and have not internalized the ultra-thin body ideal, as discussed in Chapter II. Accordingly, the sample for this study included 38 females, ages 7 to 10, who were enrolled at the participating elementary school at the time of data collection. The participating elementary school was located in the western United States. Females who did not speak English fluently or who had previously participated in a Feelin' Good Mileage Club were excluded from the study.

The participants were divided into two groups. Random assignment was not possible in this study, as the independent variable was age. Group one included

preadolescent females between the ages of 7 and 8 1/2. Group two included preadolescent females between the ages of 8 1/2 and 10.

The sample size was determined using a general power analysis program specific to multivariate analysis of variance. An effect size of .25 is detectable based on this sample size (GPower Tutorial, 2013). The educational setting where data collection occurred had approximately 320 students enrolled during the data collection phase. Of the 320 students, approximately 160 were females. The minimum sample size necessary for this study was 27 females between the ages of 7 and 10. The researcher attempted to gain parental consent for 60 females to account for potential attrition. Thus, a participation rate of 37.5% was desired.

It is important to note, all students enrolled within the educational setting who did not meet the inclusion criteria for participation (i.e., females younger than six years of age or older than 10 years of age as well as all males) were still allowed to participate in Feelin' Good Mileage Club. Additionally, females between the ages of 7 and 10 who did not obtain/receive caregiver consent were also allowed to participate in Feelin' Good Mileage Club. These students were only excluded from the assessment portion of the study.

Experimental Check Group

An experimental check group was included within the study to account for threats to internal validity, specifically maturation. This group included 14 preadolescent females, 7 to 10 years of age. The purpose of this group was to assess for changes in body image satisfaction and self-esteem resulting from maturation, which otherwise could be attributed to participation within Feelin' Good Mileage Club. The participants in this

group were recruited from parent groups present within the community. Caregiver and participant consent were obtained prior to the administration of baseline assessments (see Appendices A and B). Participants were then divided into two groups. Random assignment was not possible in this study, as the independent variable was age. Group one included preadolescent females between the ages of 7 and 8 1/2. Group two included preadolescent females between the ages of 8 1/2 and 10. Regarding actual participation in the study, the only difference between the experimental group and the experimental check group was participation in Feelin' Good Mileage Club. Students in the experimental check group only partook in the assessment portion of the experiment and were not exposed to any physical activity opportunities provided by the researcher. It is important to note the participants in the experimental check group were not at a disadvantage educationally from the participants in the experimental group. The opportunity for increased involvement in physical activity was provided to participants in the experimental group, however, no participant education or psychoeducation surrounding physical activity, body image or self-esteem was included as a component of this study.

Measures

A review of the literature specific to the variables of interest identified several measures appropriate for assessing the outcome variables. The following measures were selected to assess each of the dependent variables.

The Figure Rating Scale for Children

The most common procedure used to assess body image dissatisfaction in children, adolescents and adults is figure rating scales. According to Truby and Paxton

(2002), multiple advantages to this procedure have been reported, particularly when used with children. First, figure rating scales are quick to administer and do not require advanced equipment (e.g., computer). Second, figure rating scales are less abstract when compared to questionnaires, which increases the likelihood of accurate understanding. This quality is particularly important when assessing body image satisfaction within a population that varies developmentally in their reading comprehension abilities.

The Figure Rating Scale for Children, created by Collins (1991) was utilized to assess each participant's overall body image satisfaction. This scale was selected after a thorough review of the literature indicated that it is one of the most widely used figure rating scales when assessing body image dissatisfaction within a preadolescent population (DeLeel et al., 2009; Dittmar et al., 2006; Hendy et al., 2001; Kostanski & Gullone, 2007; Vander Wal & Thelen, 2000; Wood et al., 1996). This particular body image scale includes seven figures with each figure coinciding with a number. The seven figures have been drawn to represent a range of body sizes. The first figure (far left) represents an extremely thin child. The last figure (far right) represents an overweight child. The remaining five figures are positioned between figure 1 and 7. These five figures were drawn to represent stepped gradations in body size. The stepped gradation has served as a visual representation of increases in body size and was not based on a mathematical calculations (Hill, 2011).

The following is the standardized protocol created by Collins (1991) and is recommended when utilizing the Figure Rating Scale for Children. Participants were asked to indicate (i.e., circle the selected figure with a pencil) which figure they believe most accurately represents their current body shape. Next, participants were asked to

indicate which figure best represents their ideal/desired body shape. The number coinciding with the indicated ideal/desired body shape was subtracted from number coinciding with the indicated current body shape. The discrepancy present is the reported measure of body image dissatisfaction. A score equal to zero indicated no discrepancy between current body image and ideal body image exists. A positive score was indicative of the participant's desire to be thinner when compared to her perceived current body shape. A negative score was indicative of the participant's desire to be larger than her perceived current body shape.

Collins (1991) reported 1- to 3-week test-retest reliability estimates of .71 for real self and .59 for ideal self for a sample of 159 first to third graders. Collins also reported criterion-related validity coefficients assessed through comparisons of the figure rating scale with actual weight and BMI. She reported correlations of .36 between figure rating scale and weight, and .37 between the figure rating scale and BMI. Kostanski, Fisher, and Gullone (2004) conducted further criterion-related validity analyses of Collin's figure rating scale and cognitive and affective body image dissatisfaction within a 7 to 10 year-old female population. Significant correlations of .50 and .36 were reported with cognitive and affective body image dissatisfaction, respectively.

Tiggeman and Wilson-Barrett (1998) also analyzed relationships between perceived current body shape and BMI within a 7 to 10 year-old population. A significant correlation of .53 was reported. This study was significant, because results indicated children ages 7-10 demonstrate the cognitive ability to select an accurate representation of their current body shape (Tiggemann & Wilson-Barrett, 1998).

Self-Perception Profile for Children Inventory--Global Self-Worth Subscale

Questionnaires are the most common method used to assess children's global self-esteem. A thorough review of the literature indicated it would be most appropriate to utilize the Global Self-Worth Scale of the Self-Perception Profile for Children Inventory (SPPC) by Harter (2012) when working with this particular population. This inventory was originally developed in 1985 and was revised in 2012. According to Muris, Meester, and Fijen (2002), the Self-Perception Profile for Children Inventory (SPPC) has been the most utilized questionnaire when assessing the construct of self-esteem in children and adolescents aged 8-14.

The SPPC includes six subscales, each containing six items. The six subscales are as follows: Scholastic Competence, Social Acceptance, Athletic Competence, Physical Appearance, Behavioral Conduct and Global Self-Worth. For the purposes of this study only the Global Self-Worth Subscale was be utilized. The Global Self-Worth Subscale is a measure of self-esteem that has been utilized in previous research, which focused on the relationship between body image satisfaction and self-esteem within preadolescent and adolescent populations (Dohnt & Tiggemann, 2006a; Dohnt & Tiggemann, 2006b; Phares et al., 2004). This scale consists of six total items. No questions on the Global Self-Worth Subscale were altered during the 2012 revision. Given this information, reliability and validity evidence published prior to 2012 has been reported.

Each question included in the Global Self-Worth Subscale includes two dichotomous scenarios. Each question requires the participant to first select which scenario is most like them. Next, participants are asked to indicate whether the scenario

selected is only “sort of true for you” or “really true for you?” (Harter, 2012, p. 9). An example question is as follows: “Some kids are often unhappy with themselves but other kids are pretty pleased with themselves” (Harter, 2012, p. 7).

Internal consistency of the revised Global Self-Worth Subscale ranged from .78-.87 for eight samples from Colorado (Harter, 2012). Muris et al. (2002) reported Cronbach’s alpha estimates of .80 for 1,143 old children aged 8-14. Even though this measure was developed for an 8-14 year-old population, strong reliability estimates have been reported in females as young as age 5. Specifically, Dohnt and Tiggermann (2006b) utilized the Global Self-Worth Subscale of the SPCC when assessing the construct of self-esteem in 5 to 8 year-old females, and obtained a Chronbach’s alpha of .74. Internal consistency reliability for the current study was .81 for both pre and post-test.

Test-retest reliability was not studied. Harter indicated this form of reliability is not recommended given that self-perceptions vary, depending upon events in children’s lives, interventions in place, transitions, stress levels, etc. Therefore, stability over time is not expected. However, Muris et al. (2002) found correlations of .84 or higher over a 4-week re-test period.

Evidence for convergent validity is also present. Harter (2012) compared the SPCC to the Self-Description Questionnaires developed by Marsh (1988, 1991), which is a battery of assessments created to assess similar constructs for the same age level. Harter found the Global Self-Worth Subscale of the SPCC was correlated with Marsh’s General Self-Concept Subscale at .56.

Body Mass Index

Each participant's height and weight was also measured in order to calculate their body mass index (BMI). Body mass index is a method utilized to determine an individual's weight status (i.e., underweight, normal weight, overweight). Once height and weight measurements were obtained a number was calculated from BMI charts endorsed by the CDC (2011). The calculations endorsed by the CDC (2011) were both age and sex specific.

Body mass index was included within the methodology for multiple reasons. First, it was utilized to assess the validity of each participant's perception of her current body shape reported during the pre-test. Correlational analysis was utilized to evaluate this validity check, specifically assessing the strength of relationship present between participant BMI and pre-test current body shape. Body mass index was also included for the purposes of determining if a relationship was present between BMI and change scores reported for each dependent variable

Procedure

Procedures regarding participant recruitment, data collection, and data analyses are discussed in this section.

Materials Specific to Feelin' Good Mileage Club

A list of materials utilized during the implementation of Feelin' Good Mileage Club has also been included within this section. For the purposes of this research multiple alterations were made to Feelin' Good Mileage Club's original protocol which was created and trademarked by Fitness Finders. Charlie Kuntzleman, the creator of Feelin' Good Mileage Club, approved all alterations that were made. A description of each

alteration made has been included within the methodology for potential replication purposes.

Mileage course. The physical education teacher, principal and lead researcher jointly decided on the most appropriate location for the mileage course. Once the location was decided upon, the physical education teacher and lead researcher measured the appropriate distance and marked the course accordingly, giving labels to certain points for reference purposes. The course distance in its entirety was equivalent to one quarter of a mile.

Popsicle sticks. The original Feelin' Good Mileage Club protocol does not use Popsicle sticks as a method for tracking the number of laps completed by each student. Popsicle sticks were included within the study for reliability purposes. Each participant earned one Popsicle stick for every quarter of a mile completed on the mileage course. The classroom teacher and the specialist teacher assigned to that particular grade were the only individuals who allocated Popsicle sticks for completed course laps during scheduled recess breaks. When a participant acquired four Popsicle sticks (four Popsicle sticks are indicative of one mile completed), she submitted the Popsicle sticks to her classroom teacher.

Each grade was designated a specific color of Popsicle sticks (i.e., 1st grade = yellow, 2nd grade = red, etc.). The specialist teachers (physical education teacher, music teacher, media teacher and special education teacher) were also designed a specific color of Popsicle sticks (i.e., Specialist teacher = orange). The rationale for designating a specific color to each grade was to decrease the likelihood that a participant would submit a Popsicle stick they did not personally earn. By allowing students to only receive

Popsicle sticks from their classroom teacher and the specialist teacher assigned to their grade, the classroom teacher was able to assess the accuracy of the Popsicle sticks submitted by each participant relative to the progress that specific participant made while participating in Feelin' Good Mileage Club.

Mileage marker cards. The mileage marker cards were used to keep track of the number of miles completed by each participant (see Appendix C). At no point during the study were participants personally responsible for their mileage marker card. Rather, each classroom teacher stored the mileage marker cards in a designated space in his or her classroom. This ensured the mileage marker cards were not lost, as the researcher needed this information when assessing participant progress and attrition rates.

The first mileage marker card was yellow and contained the numbers 1-20. Each number on the card was printed in an individual box. This box contained additional space for the classroom teacher to mark the date that the mile was completed. When a student acquired four Popsicle sticks, she was responsible for submitting them to the classroom teacher. Classroom teachers were then responsible for collecting the Popsicle sticks and marking the date that the mile was completed within the box of the corresponding mile on the participant's mileage marker card.

Once a participant completed 20 miles, she was given a blue mileage marker card that was used to track miles 21-40. After a participant completed 40 miles, a green mileage marker card was used to track miles 41-60. The same format and procedure was utilized for all mileage marker cards regardless of color or number of miles the participant was working towards completing.

After a participant completed all of the miles on the mileage marker card (e.g., yellow), the card was given to the physical education teacher. Classroom teachers were asked to initial every completed mileage marker card prior to submitting it to the physical education teacher, as an indication that the data submitted was authentic and accurate. The physical education teacher then stored all completed mileage marker cards in his office until the researcher collected them.

Please note, the Feelin' Good Mileage Club original protocol did not include Mileage Marker Cards in various colors. All cards were yellow and included a blank space for the student to mark their progress. In this study, cards were developed in different colors and each number was pre-marked. These alternations were made for two reasons. First, pre-marked numbers increased the reliability of the data. Secondly, designated colors for each card allowed the researcher to better assess participation progress and attrition rates. Considering these materials are trademarked, the researcher received permission from Charlie Kuntzleman prior to altering these materials.

Charms. At specified milestones, students were able to earn charms. The charms served two purposes: (a) reward participants for their progress in Feelin' Good Mileage Club thus far and (b) serve as an incentive for the participant to continue participating in Feelin' Good Mileage Club. These charms had little monetary value and were only included within the study for the two reasons listed above. Participants were encouraged to keep all acquired charms on their necklace. All charms available to participants in the study were matched with a specific milestone. Charms were only allocated when a participant earned and submitted the necessary number of Popsicle sticks to their classroom teacher for that particular milestone. Charms were earned in 5-mile

increments. Special numbered charms, which corresponded to the number of miles acquired, were made available to participants after they had completed 10, 20, 30, etc. miles. A variety of other charms (e.g., flowers, butterflies, dogs, soccer ball, etc.) were made available to participants when they had completed 5, 15, 25, etc. miles.

The variety of charms has been included as an addition to the original Feelin' Good Mileage Club protocol. A larger variety of charms were added to increase the novelty of charms awarded. This in turn was expected to increase the likelihood of continual participation in Feelin' Good Mileage Club.

Necklaces. Every participant received a necklace and her first charm when she acquired and submitted 20 Popsicle sticks indicating the completion of five miles. After this point, each participant was responsible for her necklace and all charms earned. Participants were encouraged to keep charms earned on the necklace provided.

Pre-Data Collection Procedures

The proposal for this study was submitted to and approved by the University of Northern Colorado Institutional Review Board (IRB) prior to participant recruitment (see Appendix D). After IRB approval was granted, the researcher contacted educational settings (i.e., public and private schools) to inquire about potential participant recruitment opportunities. Each educational setting that was contacted received a document outlining the purpose and rationale for the study (see Appendix E).

Caregiver consent. After administrative approval was granted the lead researcher began obtaining parental consent from the caregivers of elementary-aged females enrolled within the approved setting. The desired participants were minors, a protected population within the research community (Gall, Gall, & Borg, 2007). As a result,

caregiver consent was required prior to participants being enrolled in this study. In an attempt to acquire caregiver consent, the study consent form was disseminated to the caregivers of potential participants. This document was sent home in the backpacks of potential participants. Prior to sending this document home in backpacks the researcher provided a brief presentation to potential participants introducing Feelin' Good Mileage Club. This document was also made available to caregivers during an educational event which caregivers were likely to physically be present and participate (i.e., end of the year field day). The rationale for utilizing two methods to acquire caregiver consent is that combining these methods increased the likelihood of obtaining a 34% participation rate.

The study consent form included detailed information describing the purpose and rationale of the study, desired participant characteristics, as well as the researcher's contact information (i.e., mailing address, email address and telephone number; see Appendix F). The study consent form required the consenting caregiver to include their child's first and last name and date of birth. Additionally, caregivers were asked to mark yes or no to the following questions: Has your child previously participated in Feelin' Good Mileage Club while attending a different educational setting? Does your child speak and understand English fluently?

Caregivers who were interested in having their child participate in the study were asked to complete the consent form and return it to the educational setting via their child's backpack. Caregivers were also encouraged to contact the researcher through one of the methods listed on the informational document if they had questions and/or concerns prior to consenting. Finally, consent and verbal assent was acquired from each participant prior to the administration of baseline measures.

Research packets. Pre-assembled packets containing assessment protocols were pre-marked with a three-digit number corresponding to a particular participant. No identifying information was included in the pre-assembled packet for confidentiality purposes. The three-digit number assigned to each participant was only recorded on assessment protocols utilized in the study. This number was not recorded on any consent forms obtained (i.e., caregiver or participant) which were placed in a separate file folder to ensure confidentiality. The only document linking each participant to her three-digit number was created and saved on the researcher's password protected computer.

Mandatory teacher training. Teachers working in the educational setting participated in a mandatory training prior to the implementation of the Feelin' Good Mileage Club. Teachers were educated on Feelin' Good Mileage Club procedures as well as their role in the study. At this training the researcher introduced all materials included in the study (i.e., mileage marker cards, Popsicle sticks, charms and necklaces). Classroom teachers were also shown the location of the mileage course. After this training was completed, all classroom teachers were provided the following materials: colored Popsicle sticks assigned to their grade level, mileage marker cards, charms that corresponded to specific milestones and necklaces. Teachers were instructed to contact the researcher or the physical education teacher if questions and/or concerns were present regarding the implementation of Feelin' Good Mileage Club.

During the mandatory teacher training the researcher also provided psychoeducation surrounding body image dissatisfaction, poor self-esteem and the potential outcomes associated with each of these constructs. Teachers were provided with handouts that contained information on prevalence rates of obesity, body image

dissatisfaction and diagnosable eating disorders as well as observable behaviors of concern associated with each of these constructs. Information regarding the history of Feelin' Good Mileage Club, program implementation procedures and the relevance of the current study were also included. Furthermore an appropriate course of action, which included school staff and personnel, was outlined within the handout if teachers were to observe a student displaying concerning behaviors. The researcher was also available as a resource to assist staff members, teachers and/or administrators if/when a referral was made.

This information allowed the teachers involved in the implementation of Feelin' Good Mileage Club to be observant and capable of assisting students who displayed inappropriate and unhealthy behavior surrounding their body image and/or self-esteem. A primary concern was that students would not eat lunch in an attempt to acquire additional miles. Psychoeducation was provided to address this concern in addition to other concerns that were voiced during the mandatory teacher training, ensuring the safety of participants.

Baseline Data Collection Procedures

Prior to each student participating in Feelin' Good Mileage Club pre-assessment data were collected. The researcher, school principal and physical education teacher selected a location in the education setting where data collection was to occur ensuring confidentiality was maintained. Baseline assessments were administered to participants throughout the first or second week of the academic year during either their classroom recess time or one of their physical education classes.

All participants were assessed on an individual basis. Once student assent and consent were received (see Appendix G) the researcher administered the baseline measures. This included the Figure Rating Scale for Children (see Appendix H) and the Self-Perception Profile for Children Inventory--Global Self-Worth Subscale (see Appendix I). The researcher read the instructions and questions to the participant. This ensured the participant's individual reading level did not influence the data. The researcher also marked the participant's answers/selection on the protocol to ensure that the correct response was selected. All measures were completed in 5-10 minutes. Once all baseline measures were completed the participant rejoined their peers.

The lead researcher also calculated each participant's BMI during the administration of baseline assessments. Participant height and weight was calculated using a portable scale and height chart. After this information had been obtained it was then utilized to calculate each participant's BMI. This information was recorded on a document and included within the participant's research packet. This document included the three-digit number that had been pre-assigned to the participant and the BMI calculation only. No other identifying information was present.

Feelin' Good Mileage Club Participation

After all baseline data were collected, participants begin participating in Feelin' Good Mileage Club. Participation in Feelin' Good Mileage Club occurred on a voluntary basis. Participants were allowed to acquire miles during all scheduled recess breaks, however, they were not allowed to acquire miles before or after the regularly scheduled school day. This decision was made to account for the fact that not all students arrive and leave school at the same time. Setting these parameters ensured that every participant was

provided with the same number of opportunities to acquire miles. Participants acquired miles by walking or running laps within the designated course on the school's property. Participants were allocated one Popsicle stick for every lap completed (1 lap = 1/4 of a mile). Participants were required to complete four laps and receive four Popsicle sticks prior to their classroom teacher crediting the mile on their mileage marker card. Furthermore, participants were required to complete a minimum of one mile per week for a minimum of seven weeks in order to remain enrolled in the study. Participants who did not meet these criteria were withdrawn from the study.

Post-test Data Collection Procedures

After 10 weeks of active participation in Feelin' Good Mileage Club, post-assessment data were collected on each participant. This included the Figure Rating Scale for Children, and the Self-Perception Profile for Children Inventory--Global Self-Worth Subscale. Similar to the baseline measure protocol, the researcher read the directions and the questions to each participant as well as marked their answers on the protocol. The typical duration of time that elapsed during the administration of post measures was approximately 5-10 minutes.

Statistical Analyses

After data collection was completed, the researcher analyzed the data and interpreted the findings. Participant BMI as well as their change scores for each dependent variable were included in the analysis. The pre-test scores for participants who were withdrawn from the study were not included in the statistical analysis conducted.

Multivariate Analyses of Variance

Multiple one-way multivariate analysis of variance (MANOVA) were conducted. This statistical procedure allowed the researcher to identify group differences when assessing multiple dependent variables (Gall et al., 2007). A Bonferonni's adjustment was calculated and applied considering multiple MANOVA's were conducted.

The independent variables included in the analyses were age (7-8 1/2 years of age and 8 1/2-10 years of age) and treatment (experimental group vs. experimental check group). The dependent variables included in the analyses were body image satisfaction and self-esteem change scores.

An individual MANOVA was calculated for each primary research question. First, the researcher inquired whether a statistical difference was present between the experimental group and the experimental check group. Next, the researcher inquired whether a statistical difference was present between the two groups of participants who participated within Feelin' Good Mileage Club. Specifically, participants between the ages of 7 and 8 1/2 were compared to participants between the ages of 8 1/2 and 10.

The researcher also inquired if a significant difference in change scores was present between 7 to 8 1/2 year-old participants in the experimental group and 7 to 8 1/2 year-old participants in the experimental check group. Finally, the researcher inquired if a significant difference in change scores was present between 8 1/2 and 10 year-old participants in the experimental group and 8 1/2 and 10 year-old participants in the experimental check group.

When conducting a MANOVA, it is important to assess whether assumption violations are present. The following assumptions were addressed: observations are

dependent of one another, the distribution of each dependent variable should be normal, the relationship between the dependent variables should be linear, and variance and covariance matrices should be homogenous. Additionally, evidence in the literature should indicate the dependent variables are theoretically related to one another.

Histograms were developed for each dependent variable to assess the normality of the distribution. Specifically, skewness and kurtosis values were calculated. Potential outliers were also examined. Scatterplots of the dependent variables were inspected to assess the linear relationship between the two dependent variables. Finally, a Box's Test of Equality of Covariance Matrices was conducted to determine if the assumption of homogeneity was violated.

Correlational Analyses

The researcher also utilized correlational analyses for the purpose of answering the three supplemental research questions. Correlational coefficients were calculated to examine the relationship between body mass index (BMI) and body image satisfaction and self-esteem change scores. Each participants change scores were calculated by subtracting the post-test scores from the pre-test scores for each dependent variable. The presence of a significant positive relationship would indicate that participants with a higher BMI at the beginning of the study demonstrated a larger change in overall body image satisfaction or self-esteem when compared to participants who had a lower BMI at the beginning of the study. Two correlational analyses were conducted. The first analysis included all participants between the ages of 7 and 8 1/2 years of age. The second analysis included all participants between the ages of 8 1/2 and 10 years of age.

Correlational coefficients were also calculated to examine the relationship between Body Mass Index (BMI) and the figure selected at pre-test representative of the participants perceived current body shape. This correlation was conducted to assess the validity of the responses. Participants with a lower BMI were expected to select a thinner figure to represent their perceived current body shape whereas participants with a higher BMI were expected to select a larger figure. The presence of a significant positive relationship would indicate that participant perceptions of their current body shape are similar to their actual BMI. A correlational analysis was conducted for each of the following groups: females between the ages of 7 and 8 1/2 who participated in Mileage Club, females between the ages of 7 and 8 1/2 who did not participated in Mileage Club, females between the ages of 8 1/2 and 10 who participated in Mileage Club, and females between the ages of 8 1/2 and 10 who did not participated in Mileage Club,

Follow up correlational analysis was conducted to investigate the relationship between BMI and participant's body image satisfaction score obtained at the pre-test. This is different from the previous analysis, because the pre-test body image satisfaction score is derived from the pre-test ideal body image rating subtracted from the pre-test current body image rating.

CHAPTER IV

RESULTS

The results of the study are presented in this chapter. A brief description of the population demographics is included. Next, statistical analysis of the data reflective of each primary research question is presented. Finally, an analysis of the data reflective of each supplemental research question is presented.

Population and Sample Description

The total sample of 52 was comprised of preadolescent females between the ages of 7 and 10. Thirty-eight of these participants participated in Feelin' Good Mileage Club. The remaining 14 participants were members of the experimental check group.

Ethnicity, level of educational attainment and annual income are included in this section as population descriptors. Parental education level has been reported in the literature to be associated with body image satisfaction in preadolescent females; specifically higher rates of body image dissatisfaction were more prevalent among preadolescent females whose parents reported lower educational attainment (Austin, Haines, & Veugelers, 2009). Furthermore, analyses published by the Bureau of Labor Statistics (2014) indicated a relationship was present between level of educational attainment and annual income in relation to the current economy. Finally, recent research regarding preadolescent females' level of body image satisfaction and ethnicity has challenged the traditional belief that a higher discrepancy between perceived current self

and ideal self is reported in White children and adolescents (Erickson & Gerstle, 2007, DeLeel et al., 2009), however, a consensus has yet to be reached on this finding. Data collected by the U.S. Census Bureau and the Colorado Department of Education (CDE) regarding each of these demographic variables are included in Table 1 (Colorado Department of Education, 2013a, 2013b; U.S. Census Bureau, 2014a, 2014b, 2014c, 2014d).

Data reflective of the above predictor variables was not obtained from caregivers of the participants. This decision was made given these variables were not included as covariates in this study. The descriptive statistics for each school does allow for a stronger understanding of how the populations compared to one another and will aid future researchers when comparing this research to similar studies.

All participants enrolled in the experimental group resided in the same city and were enrolled in the same elementary school. Participants who participated in the experimental check group were recruited from three cities located in Northern Colorado. All eleven participants who resided in the first city at the time of data collection attended the same elementary school (school/city #1). The two participants who resided in the second city attended a local elementary school (school/city #2). Lastly, only one participant resided in the third city at the time of data collection and attended a local elementary school (school/city #3).

Table 1

Population Demographic Information

	Experimental Group		Experimental Check Group	
	School/City #1	School/City #1	School/City #2	School/City #3
Number	38	11	2	1
Ethnicity				
White alone, not Hispanic or Latino	17.80%	85.00%	14.90%	29.10%
Hispanic or Latino	77.80%	5.45%	82.90%	65.70%
Black or African American	2.30%	0.16%	0.81%	1.36%
American Indian and Alaska Native	0.76%	0.16%	0.27%	0.45%
Asian	0.51%	5.30%	0.00%	1.36%
Native Hawaiian or Pacific Islander	0.00%	0.00%	0.00%	0.00%
Parent Education Level				
High school graduate	83.60%	95.50%	87.40%	82.20%
Bachelor's degree or higher	18.90%	52.30%	37.30%	25.90%
Median Household Income	\$35,176	\$53,359	\$57,142	\$44,226
Free and Reduced Lunch	84.185	3.43%	90.17%	92.33%

This study required a minimum sample size of 27 participants (GPower Tutorial, 2013). The sample size was determined using a general power analysis program specific to multivariate analysis of variance. An effect size of .15 is detectable based on this sample size (GPower Tutorial, 2013).

Statistical Analyses

Multiple one-way MANOVA's were conducted to answer the three primary research questions. This statistical analysis was conducted using SPSS 21. A Bonferroni correction was applied given multiple analyses were conducted, which resulted in an adjusted alpha level of .01.

Primary Analyses of Research Questions

Measures of central tendency and variability are reported for pre-test, post-test, and change scores in relation to body image satisfaction in Table 2. The same measures of central tendency and variability are reported for self-esteem pre-test, post-test, and change scores in Table 3. Participant change scores were calculated by subtracting the post-test score from the pre-test score for each dependent variable.

Table 2

Body Image Satisfaction Descriptive Statistics: Measures of Central Tendency and Variability

	<i>n</i>	Pre-test Score		Post-test Score		Change Score	
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Experimental Group							
7 to 8.5 years of age	16	1.37	1.20	1.25	1.06	-.12	1.15
8.5 to 10 years of age	22	1.14	1.08	0.73	1.08	-.41	1.14
Experimental Check Group							
7 to 8.5 years of age	8	-0.12	0.83	0.12	0.64	0.25	0.71
8.5 to 10 years of age	6	0.00	0.00	0.17	0.41	0.17	0.41

Note. Collin's Figure Rating Scale for Children has an overall body image satisfaction mean change score = 0.48. Change scores were calculated by subtracting the pre-test score from the post-test score. A change score mean equal to 0 represents no change in overall body image dissatisfaction. The further from 0 in the negative direction represents an increase in overall body image satisfaction, whereas moving further from 0 in the positive direction represents a decrease in overall body image dissatisfaction.

Table 3

Self-Esteem Descriptive Statistics: Measures of Variability and Central Tendency

	<i>n</i>	Pre-test Score		Post-test Score		Change Score	
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Experimental Group							
7 to 8.5 years of age	16	19.50	3.71	20.19	4.18	0.69	3.36
8.5 to 10 years of age	22	19.21	4.87	19.68	4.87	0.45	3.10
Experimental Check Group							
7 to 8.5 years of age	8	22.75	1.98	22.37	1.92	-0.37	2.56
8.5 to 10 years of age	6	21.00	4.15	21.50	2.51	0.50	4.32

Note. Harter's Global Self-Worth Subscale has a mean score = 19.04 and a standard deviation = 4.11 for elementary aged females. Change scores were calculated by subtracting the pre-test score from the post-test score. A change score mean equal to 0 represents no change self-esteem. The further from 0 in the negative direction represents a decrease in overall self-esteem whereas moving further from 0 in the positive direction represents an increase overall self-esteem.

Regarding body image satisfaction change scores, visual examination of the data revealed that the group means did progress in different directions, which was consistent with the researcher's hypothesis. Specifically, participants in the experimental group reported an increase in overall body image satisfaction after participating in Feelin' Good Mileage Club. This pattern is not present for participants in the experimental check group, or for either group in relation to self-esteem. In order to determine if the group means were statistically different from one another a Mann-Whitney U test was conducted. Findings revealed the two groups were not statistically different from one another when tested at the .05 alpha level, $U = 50, p = .103$.

Q1 Will preadolescent females who participate in Feelin' Good Mileage Club report a larger difference in body image satisfaction and self-esteem change scores when compared to the preadolescent females who did not participate in Feelin' Good Mileage Club?

The researcher first inquired whether a significant difference was present in body image satisfaction and self-esteem change scores between the experimental and experimental check group. A Box's Test of Equality of Covariance Matrices was conducted to determine if the assumption of homogeneity was violated (Brace, Kemp, & Snelgar, 2009). Given the results of Box's M test were not significant, $p = .083$, we have no reason to suspect the homogeneity assumption has been violated. Levene's Test of Equality of Error Variance was also conducted to determine if equality of variance was present (Brace et al., 2009). A non-significant p -value was present for self-esteem, $p = .610$, however, not for body image satisfaction (.026). This indicates equality of variance is present for self-esteem but not for body image satisfaction. Visual examination of skewness and kurtosis values, histograms, normal Q-Q plots and box plots suggested that the data were normally distributed. To examine skewness and kurtosis, z -values were

calculated to determine if any values were greater than 1.96 or less than -1.96. These cut-off values were established based on the study's sample size, which was less than or equal to 50 participants (Kim, 2013). All of the calculated z -values fell in this desired range, with the exception of the self-esteem skewness and kurtosis values for the experimental check group. This result indicates the data are not normally distributed. Furthermore, the assumption of independence was not violated, considering every participant in the study participated in either the experimental group or the experimental check group. Finally, multiple outliers were also present.

A reflect and square root transformation was applied to the original data set and produced similar findings. Based upon this information, the researcher elected to report results that were produced from the original data set rather than the transformed data. The researcher also decided against omitting the outliers in consideration of the study's sample size. Even though two assumption violations were present, a MANOVA was conducted given the robustness of this statistical procedure (Gall, Gall, & Borg, 2007).

Results of this one-way MANOVA indicated participants in the experimental group and participants in the experimental check group reported similar body image satisfaction and self-esteem change scores as reflected by the Wilks' lambda test statistic, $F(1, 50) = 1.358^b$, $p = .267$; partial $\eta^2 = .053$. This outcome indicates voluntary participation in physical activity alone would not suffice as an effective body image prevention program for females in a primary education setting.

- Q2 Will preadolescent females between the ages of 7 and 8 1/2 who participated in Feelin' Good Mileage Club report a larger difference in body image satisfaction and self-esteem change scores when compared to the preadolescent females between the ages of 8 1/2 and 10 who participated in Feelin' Good Mileage Club?

A one-way MANOVA was conducted to determine whether Feelin' Good Mileage Club had a stronger influence on the 7 to 8 1/2 year-old participants when compared to the 8 1/2 to 10 year-old participants as measured by body image satisfaction and self-esteem change scores. According to Dittmar et al. (2006), a sensitive period may exist between 7 1/2 and 8 1/2 years of age, during which young females internalize the desirable qualities associated with aspirational role models to whom they are exposed. Once internalization of this standard is complete, positively altering an individual's body image is difficult, as ideas and beliefs surrounding physical attractiveness are engrained and difficult to modify (Irving, 2000; Neumark-Sztainer et al., 2000; Smolak, Levine, & Schermer, 1998a; Smolak, Levine, & Schermer, 1998b; Stice & Shaw, 2004). Monteiro-Gaspar et al. (2011) examined the impact physical activity has on body image dissatisfaction in preadolescent and adolescent children and reported physical activity may serve as a protective factor against increasing dissatisfaction. Assuming accuracy of the identified sensitive period, the younger participants would be expected to demonstrate larger change score values when compared to the older participants.

A Box's Test of Equality of Covariance Matrices, $p = .940$, indicated the homogeneity assumption was not violated. Levene's Test of Equality of Error Variance also produced non-significant p -values for both body image satisfaction, $p = .922$, and self-esteem, $p = .565$, indicating equality of variance was present. Visual examination of histograms, normal Q-Q plots and box plots suggest the data were normally distributed. Furthermore, in relation to skewness and kurtosis values, all of the calculated z -values fell in this desired range, suggesting the data were normally distributed. Multiple outliers

were also present in relation to each dependent variable. Finally, the assumption of independence was not violated.

Similar to the first analysis, a reflect and square root transformation was applied and produced similar findings. Based upon this information a MANOVA was conducted using the original data set.

Results of this one-way MANOVA revealed participation in Feelin' Good Mileage Club had a similar influence on both groups as reflected by the Wilks' lambda test statistic, $(1,36) = .309^b$, $p = .736$; partial $\eta^2 = .017$. It was possible the projected age of internalization needs to be studied further to determine if 8 1/2 years of age is the most accurate projected age of when internalization of the ultra-thin body ideal does occur for most preadolescent females. It is also possible that frequency and duration of the intervention was not sufficient enough to significantly alter body image satisfaction and self-esteem, a conclusion that has been reported similar studies (Gehrman, Hovell, Sallis, & Keating, 2006).

Q3 Will preadolescent females between the ages of 7 and 8 1/2 who participate in Feelin' Good Mileage Club report a larger difference in body image satisfaction and self-esteem change scores when compared to the preadolescent females between the ages of 7 and 8 1/2 who did not participate in Feelin' Good Mileage Club?

A Box's Test of Equality of Covariance Matrices, $p = .201$, indicated that the homogeneity assumption was not violated. Levene's Test of Equality of Error Variance also produced non-significant p -values for both body image satisfaction, $p = .190$, and self-esteem, $p = .358$, indicating equality of variance is present. Visual examination of histograms, normal Q-Q plots and box plots suggest the data were normally distributed. Furthermore, in relation to skewness and kurtosis values, all of the calculated z -values

fell in the desired range, suggesting the data were normally distributed. Finally, the assumption of independence was not violated.

Results of this one-way MANOVA revealed similar differences in change scores between the two groups, $F(1, 22) = .616^b$, $p = .550$; partial $\eta^2 = .055$. These findings indicate females, 7 to 8 1/2 years of age, who participated in Feelin' Good Mileage Club reported similar body image satisfaction and self-esteem change scores when compared to females, 7 to 8 1/2 years of age, who did not participate in Feelin' Good Mileage Club. Based on this finding, the researcher cannot rule out the possibility that maturation had an impact on the way the 7 to 8 1/2 year-old participants responded to the questions.

Q4 Will preadolescent females between the ages of 8 1/2 and 10 who participate in Feelin' Good Mileage Club report a larger difference in change scores regarding body image satisfaction and self-esteem compared to the preadolescent females between the ages of 8 1/2 and 10 who did not participate in Feelin' Good Mileage Club?

A finale one-way MANOVA was conducted to determine if significant difference in change scores was present between 8 1/2 and 10 year-old participants in the experimental group and 8 1/2 and 10 year-old participants in the experimental check group. A Box's Test of Equality of Covariance Matrices, $p = .100$, indicated that the homogeneity assumption was not violated. Levene's Test of Equality of Error Variance also produced non-significant p -values for both body image satisfaction, $p = .048$, and self-esteem, ($= .617$, indicating equality of variance was present. Visual examination of histograms, normal Q-Q plots and box plots suggest the data were normally distributed. Furthermore, in relation to skewness and kurtosis values, all of the calculated z -values fell in the desired range, suggesting the data were normally distributed. Multiple outliers

were present in relation to both dependent variables. Finally, the assumption of independence was not violated.

A final reflect and square root transformation was applied, however, similar findings were reported. Based upon this information a MANOVA was conducted using the original data set.

The results of this one-way MANOVA revealed similar differences in change scores between the two groups as determined by the Wilks' lambda statistic (1, 26) = .694^b, $p = .509$; partial $\eta^2 = .053$. Similar to the younger group of participants, these findings indicated females, 8 1/2 to 10 years of age, who participated in Feelin' Good Mileage Club reported similar body image satisfaction and self-esteem change scores when compared to females, 8 1/2 to 10 years of age, who did not participate in Feelin' Good Mileage Club. Considering the similarities in change scores, the researcher cannot rule out the possibility that maturation had an impact on the way the 8 1/2 to 10 year-old participants responded to the questions.

Supplemental Analyses of Research Questions

Parametric and nonparametric correlation coefficients were calculated to answer the three supplemental research questions. Scatterplots were developed to assess whether the assumption of normality was supported. Next, skewness and kurtosis z -scores were calculated, in addition to a Shapiro-Wilks test statistic. If the above analyses indicated the data were normally distributed, a Pearson's product-moment correlation coefficient was reported. Contrarily, if the above analyses indicated the normality assumption had been violated, a Spearman's rank correlation coefficient was reported (Brace et al., 2009).

These statistical analyses were conducted using SPSS 21, and all correlation coefficients were tested for significance at the .05 alpha level.

Body mass index was calculated from height and weight measurements that were collected during the pre-test. Descriptive statistics for BMI are displayed in Table 4. Correlation coefficients for BMI and the change scores of each dependent variable are displayed in Table 5.

Table 4

Body Mass Index Descriptive Statistics: Measures of Variability and Central Tendency

	<i>n</i>	Mean	Median	Standard Deviation
Experimental Group				
7 to 8 1/2 years of age	16	17.01	16.90	1.97
8 1/2 to 10 years of age	22	19.18	18.65	4.21
Experimental Check Group				
7 to 8 1/2 years of age	8	14.47	14.20	1.53
8 1/2 to 10 years of age	6	15.78	15.75	2.65

Table 5

Correlations Between Body Mass Index and Body Image and Self-Esteem Change Scores

	Number	Body Image Change Scores	Self-Esteem Change Scores
Experimental Group			
7 to 8 1/2 years of age	16	.38	.43*
8 1/2 to 10 years of age	22	-.09	.31
Experimental Check Group			
7 to 8 1/2 years of age	8	-.401	-.145
8 1/2 to 10 years of age	6	.244	-.62
All Participants			
7 to 8 1/2 years of age	24	.03	-.08
8 1/2 to 10 years of age	28	-.16	.26

* $p < .05$

Q5 Is there a significant positive relationship between body mass index and change scores in body image satisfaction and self-esteem for participants in the experimental group and participants in the experimental check group?

- a) Females between the ages of 7 and 8 1/2
- b) Females between the ages of 8 1/2 and 10

A Pearson's product-moment correlation coefficient was computed to assess the relationship between BMI and body image satisfaction change scores for females between the ages of 7 and 8 1/2 who participated in Feelin' Good Mileage Club. This analysis indicated a moderate positive correlation was present, $r(14) = .381$, $p = .073$, however, this correlation was not significant at the .05 alpha level (Pearson product-moment correlation, 2013) as reflected in Table 5.

A second Pearson's product-moment correlation coefficient was computed to assess the relationship between BMI and self-esteem change scores for females between the ages of 7 and 8 1/2 who participated in Feelin' Good Mileage Club. Results indicated a significant negative correlation was present between these two variables, $r(14) = -.435$, $p = .046$, one-tailed, as reflected in Table 5. This relationship suggests females, 7 to 8 1/2 years of age, who had a higher BMI at the start of the study reported lower self-esteem change scores.

Visual examination of the scatterplot suggested a monotonic relationship was present. A Spearman's rank correlation coefficient was computed to assess the relationship between BMI and body image satisfaction change scores for females between the ages of 8 1/2 and 10, who participated in Feelin' Good Mileage Club. This analysis indicated a correlation was not present between these two variables, $r_s(20) = -.093$, $p = .345$, as reflected in Table 5.

A third Pearson's product-moment correlation coefficient was computed to assess the relationship between BMI and self-esteem change scores for females between the ages of 8 1/2 and 10 who participated in Feelin' Good Mileage Club. Results demonstrated a moderately positive correlation exists between these two variables, $r(22) = .314$, $p = .078$, however, this correlation was not significant at the .05 alpha level. These results are reflected in Table 5.

Four additional correlations were calculated to examine the relationship between these variables for participants in the experimental check group. A Pearson's product-moment correlation coefficient was computed to assess the relationship between BMI and body image satisfaction change scores for females between the ages of 7 and 8 1/2 who

did not participate in Feelin' Good Mileage Club. This analysis indicated a moderate negative correlation was present, $r(6) = -.401, p = .162$, however, this correlation was not significant at the .05 alpha level. A second Pearson's product-moment correlation coefficient was computed to assess the relationship between BMI and self-esteem change scores for females between the ages of 7 and 8 1/2 who did not participate in Feelin' Good Mileage Club. Results indicated a small negative correlation exists between these two variables, $r(6) = -.145, p = .366$, however, significance at the .05 alpha level was not demonstrated.

A Spearman's rank correlation coefficient was computed to assess the relationship between BMI and body image satisfaction change scores for females between the ages of 8 1/2 and 10, who did not participate in Feelin' Good Mileage Club. This analysis indicated that a small positive correlation was present, $r_s(4) = .244, p = .321$, yet significance was not demonstrated. An additional Spearman's rank correlation coefficient was computed to assess the relationship between BMI and self-esteem change scores for females between the ages of 8 1/2 and 10 who did not participate in Feelin' Good Mileage Club. Results indicated a small negative correlation exists between these two variables, $r_s(4) = -.162, p = .380$, however, this correlation was not significant at the .05 alpha level.

The researcher did not predict the presence of a negative relationship between BMI and self-esteem change scores in 7 to 8 1/2 year-old participants enrolled in the experimental group. A negative relationship between BMI and self-esteem was also present for younger and older participants in the experimental check group; however, significance was not demonstrated. These results do not align with the positive

relationship that was present for females between 8 1/2 and 10 years of age. Specifically, it was hypothesized that participants who had a higher BMI at pre-test would report a higher change score representing an increase in overall body image satisfaction when compared to thinner participants. The above findings demonstrate instability in this construct when comparing females younger than and older than 8 1/2 years of age.

Q6 Is there a significant positive relationship between body mass index and change scores in body image satisfaction and self-esteem when participants are categorized by age?

- a) Females between the ages of 7 and 8 1/2
- b) Females between the ages of 8 1/2 and 10

A Spearman's rank correlation coefficient was calculated to assess the relationship between BMI and body image satisfaction change scores for females between the ages of 7 and 8 1/2. Participation in Feelin' Good Mileage Club was not taken into account in answering this research question. This analysis indicated a relationship was not present between BMI and body image satisfaction change scores in females 7 to 8 1/2 years of age, $r_s(24) = .039, p = .429$. A second Spearman's rank correlation was calculated to assess the relationship between BMI and self-esteem change scores which yielded similar results indicating a relationship was not present between these two variables, $r_s(24) = -.084, p = .348$.

Spearman's rank correlation coefficients were also calculated for females between the ages of 8 1/2 and 10. A small, negative correlation was present between BMI and body image satisfaction change scores, however, this relationship was not significant at the .05 alpha level, $r_s(28) = -.162, p = .205$. Similarly, a small, positive correlation was also present between BMI and self-esteem change scores; still significance was not evident, $r_s(28) = .264, p = .087$. The above results are reflected in Table 5.

Q7 Is there a significant positive relationship between body mass index and the pre-test current body figure rating?

- a) Females between the ages of 7 and 8 1/2
- b) Females between the ages of 8 1/2 and 10

A Spearman's rank correlation coefficient was computed to assess the relationship between BMI and the pre-test current body figure rating for females between the ages of 7 and 8 1/2. Results indicated that a small negative correlation was present, $r_s(4) = -.133$, $p = .401$. This correlation was not significant at the .05 alpha level as reflected in Table 6.

A second Spearman's rank correlation coefficient was computed to assess the relationship between BMI and the pre-test current body figure rating for females between the ages of 8 1/2 and 10. Results indicated a strong positive relationship exists between these two variables, $r_s(26) = .750$, $p < .000$, one-tailed. This relationship demonstrates 8 1/2 to 10 year-old females with a higher BMI at the start of the study selected a larger figure to represent their perceived current body image whereas 8 1/2 to 10 year-old females with a lower BMI at the start of the study selected a thinner figure to represent their perceived current body image. Table 6 reflects these results.

Follow-up correlation coefficients were calculated to investigate the relationship between BMI and the pre-test body image satisfaction score. This was different from the previous analysis, because the pre-test body image satisfaction score was derived from the pre-test ideal body image rating subtracted from the pre-test current body image rating. Spearman's rank correlation coefficients indicated that a moderate, positive relationship is present for females between the ages of 7 and 8 1/2, $r_s(24) = .47$, $p = .01$, and a strong, positive relationship is present for females between the ages of 8 1/2 and 10, $r_s(28) = -.69$, $p = .000$. Both correlations are significant at the .05 alpha level and are

presented in Table 6. These significant correlations indicated the females who were measured as having a higher BMI at the beginning of the study reported a lower body image satisfaction rating at the pre-test when compared to females who were measured as having a lower BMI.

Table 6

Correlations Between Body Mass Index and Pre-test body Image Satisfaction

	<i>n</i>	Current Rating	Current Rating-- Ideal Rating
All Participants			
7 to 8 1/2 years of age	22	-.133	.47*
8 1/2 to 10 years of age	28	.750*	.69**

* $p < .05$, ** $p < .01$

Summary of Findings

The results of this study suggest that participation in Feelin' Good Mileage Club did not significantly influence changes in body image satisfaction and self-esteem in the 7 to 8 1/2 year-old participants or the 8 1/2 to 10 year-old participants. Based on this information, this study does not support previous research that identified an average age of internalization. It is important to note, visual examination of the data revealed the group means did progress in different directions, which was consistent with the researcher's hypothesis. Specifically, participants in the experimental group reported an increase in overall body image satisfaction after participating in Feelin' Good Mileage Club. This pattern is not present for participants in the experimental check group, or for either group in relation to self-esteem. Further analyses revealed body image satisfaction

change score means for the experimental group and the experimental check group were not statistically different from one another when tested at the .05 alpha level.

Correlation coefficients were calculated to determine if a relationship was present between BMI and each of the dependent variables. No significant correlations were present between BMI and body image satisfaction change scores. Only one significant correlation was present between BMI and self-esteem. Specifically, results indicated a significant negative correlation was present between BMI and self-esteem for participants 7 to 8 1/2 years of age who were enrolled in the experimental group.

In relation to self-esteem, the researcher did not predict the presence of a significant negative relationship in 7 to 8 1/2 year-old participants enrolled in the experimental group. A negative relationship between BMI and self-esteem was also present for younger and older participants in the experimental check group; however, significance was not demonstrated. These results do not align with the positive relationship that was present for females between 8 1/2 and 10 years of age. Specifically, it was hypothesized that participants who had a higher BMI at pre-test would report a higher change score representing an increase in overall body image satisfaction when compared to participant's thinner participants. The above findings demonstrate instability in this construct when comparing females younger than and older than 8 1/2 years of age.

The researcher also sought to determine if a relationship was present between BMI and the pre-test current body figure rating when participants were categorized by age without taking into account whether or not they participated in Feelin' Good Mileage Club. Findings revealed participants between the ages of 8 1/2 and 10 selected a pre-test current body image figure that was more representative of their current BMI than did

females between the ages of 7 and 8 1/2. Specifically, older females with a higher BMI at the start of the study selected a larger figure to represent their perceived current body image whereas older females with a lower BMI at the start of the study selected a thinner figure to represent their perceived current body image.

CHAPTER V

DISCUSSION

This chapter includes a brief overview of the study followed by an interpretation of the results. Practice and research implications are then discussed as well as limitations of the study. Finally, recommendations for future research are presented.

Overview of the Study

As discussed in chapter two, body image concerns and dissatisfaction is fairly common in preadolescent females (Anschutz & Engels, 2010; Clark & Tiggemann, 2006; Dittmar et al., 2006; Lowes & Tiggemann, 2003; McCabe & Ricciardelli, 2003; Rolland et al., 1997; Sands & Wardle, 2003; Sinton & Birch, 2006). Dohnt and Tiggemann (2006a) reported on multiple studies supporting the notion that females as young as 6 years of age desire a thinner body (Ambrosi-Radnic, 2000; Davison et al., 2000; Dohnt & Tiggemann, 2004, 2005; Hendy et al, 2001; Williamson & Delin, 2001). Smolak (2011) indicated that 40%-50% of children between the ages of 6 and 12 report feeling dissatisfied with their bodies. The presence of body image dissatisfaction among preadolescent females is cause for concern due to the negative outcomes associated with this perceptions, including negative self-perception, depressed mood and disordered eating (Dittmar et al., 2006).

Findings reported by Dittmar et al. (2006) focused on the existence of a sensitive period between ages 7 1/2 and 8 1/2 during which young females are exposed to and internalize the desirable qualities associated with aspirational role models (Dittmar et al.,

2006). Once internalization of this standard is complete, positively altering an individual's body image is difficult, as ideas and beliefs surrounding physical attractiveness are engrained and difficult to modify (Irving, 2000; Neumark-Sztainer et al., 2000; Smolak, Levine, & Schermer, 1998a; Smolak, Levine, & Schermer, 1998b; Stice & Shaw, 2004).

Monteiro-Gaspar et al. (2011) studied the impact that physical activity has on body image dissatisfaction in preadolescent and adolescent children. Their findings suggested physical activity might serve as a protective factor against body image dissatisfaction in a preadolescent and adolescent female population, a conclusion that does align with previous research (Burgess et al., 2006). The purpose of the study, therefore, was to determine if female participants, 7 to 8 1/2 years of age reported higher levels of body image satisfaction and self-esteem after voluntarily participating in Feelin' Good Mileage Club when compared to female participants 8 1/2 to 10 years of age.

Interpretation of Findings

Initial research by Dittmar et al. (2006) utilized the sociocultural model to investigate whether an average age of internalization was present in preadolescent females. Interpretation of the findings reported by Dittmar et al. (2006) focused on the idea that there may be a sensitive period between ages 7 1/2 and 8 1/2 at which young females are exposed to and internalize the desirable qualities associated with aspirational role models (Dittmar et al., 2006). The current study was an extension of this research and sought to confirm the notion that an average age of internalization exists. If an average age of internalization existed, the younger group and the older group could respond differently to the physical activity intervention. Specifically, body image

satisfaction in participants 8 1/2 years of age or older should be static and less likely to be influenced by the intervention implemented. On the contrary, body image satisfaction in younger participants was fluid and more likely to change as a result of the intervention.

Despite a strong theoretical basis for the study, the results of this study suggest that participation in Feelin' Good Mileage Club did not significantly influence changes in body image satisfaction and self-esteem in the 7 to 8 1/2 year-old group or the 8 1/2 to 10 year-old group. Based on this finding, this study does not provide further support for the idea that an average age of internalization exists.

Results of the current study suggest the physical activity intervention did not significantly influence either group of females who participated. It was possible the projected age of internalization needs to be studied further to determine if 8 1/2 years of age is the most accurate projected age of when internalization of the ultra-thin body ideal does occur for most preadolescent females. It is also possible that frequency and duration of the intervention was not sufficient enough to significantly alter body image satisfaction and self-esteem, a conclusion that has been reported similar studies (Gehrman et al., 2006)

Body Image and Physical Activity

A consensus has yet to be reached regarding the influence of physical activity on preadolescent females' body image satisfaction. Multiple studies have demonstrated the effectiveness of a physical activity intervention in altering body image satisfaction in young females. (Ames, 2013; Golman, 2009; Monteiro-Gaspar et al., 2011; Olive, Byrne, Cunningham, & Telford, 2012; Rauscher, Kauer, & Wilson, 2013). However, others have

not documented this phenomenon (Duncan, Al-Nakeeb, Nevill, & Jones, 2004; Gehrman et al., 2006).

A few of the studies demonstrating significance included a much larger sample when compared to the current study. Olive et al. (2012) studied the largest sample, which included 821 subjects. Ames (2013) and Golman (2009) each reported significant findings after studying approximately 225 participants. Rauscher et al. (2013) also reported significant results after including 138 subjects in their study. Of the studies reporting nonsignificant findings Duncan et al (2004) studied 277 participants and Gehrman et al. (2006) studied 84 participants. Overall, the sample of participants included in each of the studies listed were considerably larger compared to the current study. Contradictory findings present in the literature make it difficult to speculate whether or not the outcome of the current study would have been different had the researcher studied a larger sample. The small sample size is a limitation of this study, however, the group means did progress in different directions, which was consistent with the researcher's hypothesis. Significant differences between the experimental group and experimental check group may have been identified if a larger sample was studied. Also, it is possible the intervention implemented may not have been sufficient in duration and/or frequency to alter this construct.

Additionally, the developmental stages assessed in similar studies did not align perfectly with the current study. Olive et al. (2012), Golman (2009) and Ames (2013) focused on similar populations, while other researchers examined the effects of physical activity in slightly older populations (Duncan et al., 2004; Gehrman et al., 2006; Monteiro-Gaspar et al., 2011). This distinction is important because an individual's

understanding of body image is partially dependent on age. It is not until 4 to 6 years of age that children begin comparing themselves to their peers (Smolak, 2011). Around age 8, children begin to engage in self-evaluation, comparing his or her qualities, abilities and characteristics to those of same-aged peers (Smolak, 2011). During early adolescence self-evaluations are heavily influenced by cultural messages and societal endorsements present within the adolescent's environment (Croll, 2005). Given the various levels of understanding, it was difficult to compare study outcomes when sample alignment was not present.

The current study utilized the Figure Rating Scale for Children (Collins, 1991). Measures utilized in similar studies included the Body Dissatisfaction subscale of the Eating Disorders Inventory-2 (Garner, Olmstead, & Polivy, 1983), the Children's Body Image Scale (Truby & Paxton, 2002), and the full as well as a revised version of the Body Esteem Scale (Mendelson & White, 1982). The lack of consensus in relation to significant findings could limit one's ability to determine if one assessment tool was more effective in measuring body image satisfaction in a preadolescent population.

The Children's Body Image Scale is most similar to the Figure Rating Scale for Children, however, the figures included in this assessment more accurately reflect participant BMI through the utilization of mathematically appropriate gradations of body size (Trudy & Paxton, 2008). According to Gehrman et al. (2006), the Body Dissatisfaction subscale of the EDI-2 required participants to indicate their satisfaction level in response to nine identified body parts. Each body part was rated on a 6-point scale, yielding a total score representative of their overall body dissatisfaction. The Body Esteem Scale examined how an individual perceived their appearance based on the

ratings provided in response to 24 dichotomous questions (Duncan et al., 2004). Example questions included: "I wish I were thinner" and "I worry about the way I look." This scale was unique, given a Likert-type response style format was not utilized, but rather dichotomous questions (Duncan et al., 2004). Despite these differences, similar interpretations and conclusions were being identified, which in turn may be partially attributing to the inconsistent findings.

Self-Esteem and Physical Activity

Results of the current study suggest that physical activity did not significantly influence self-esteem. Raustorp, Stahle, Gudasic, Kinnunen and Mattsson (2005) produced similar findings demonstrating the presence of a weak relationship. Parfitt, Pavey and Rowlands (2009) demonstrated the presence of a slightly stronger relationship when physical activity was separated into various levels of intensity. Furthermore, a program review conducted by Holt and Ricciardelli (2008) also reported findings demonstrating the effectiveness of body image intervention programs on children's self-esteem. These inconsistencies call into question the stability of this construct. Trzesniewski, Donnellan and Robins (2003) published one of the most frequently cited articles focusing on the stability of this construct across the lifespan. It has been reported by Harter that children do not acquire the ability to accurately verbalize how they feel about themselves until age 8 (as cited in Marsh, Ellis, & Craven, 2002). On the contrary, a confirmatory factor analysis conducted by Marsh, Craven, and Debus demonstrated support for the belief that 6-8 year-old children are able to provide a consistent rating of global self-worth as evident by strong reliability coefficients (as cited in Marsh et al., 2002). Varying viewpoints can affect sample selection, the identification and utilization

of appropriate assessment tools as well as interpretation of findings, which is why the need for further research and consistent findings is vital.

Frequency of Intervention

With regard to the frequency of the intervention, participants were allowed to participate in Feelin' Good Mileage Club multiple times per day over a 10-week period. Previous research indicated physical activity had a greater influence on body image satisfaction when participants were allowed to participate in the physical activity intervention multiple times per week (Campbell & Hausenblas, 2009). Despite the increase in opportunities for participation, Feelin' Good Mileage Club did not significantly influence body image satisfaction or self-esteem in either group. Similar findings were reported by Gehrman et al. (2006) after allowing participants to participate in a physical activity intervention over an 8-week period. Gehrman et al. (2006) theorized the lack of significance could have been affected by the frequency and duration of the intervention not reaching a sufficient level. Even though the duration of the intervention employed in the current study was two weeks longer than the intervention employed by Gehrman et al. (2006), it was possible 10 weeks was too short to positively influence participant body image satisfaction and self-esteem. If this interpretation of the data was accurate, future researchers would need to implement interventions for a longer period of time in order to identify at which point the intervention is sufficient in altering body image satisfaction and self-esteem in this population.

Perceived Current Body Image and Body Mass Index

Findings of the current study revealed 8 1/2 to 10 year-old participants selected a pre-test current body image figure that more closely aligned with their pre-test body mass

index compared to the 7 to 8 1/2 year-old participants. Specifically, older participants with a higher BMI at the start of the study selected a larger figure to represent their perceived current body image whereas older participants with a lower BMI at the start of the study selected a thinner figure to represent their perceived current body image. Kostanski and Gullone (2004) reported similar findings for a preadolescent female population between 7 and 10 years of age. This finding does need to be assessed further, however, if continual support is evident, future researchers may need to reevaluate strategies utilized in grouping and comparing participants, especially when adhering to a developmental perspective.

Harter's Global Self-Worth Subscale

Concerning Harter's Global Self-Worth Subscale (2012), many of the participants reported a high pre-test score, which resulted in little or no growth on the post-test. As reported previously, Harter's Global Self-Worth Subscale (2012) includes six questions displayed in a Likert scale format. The highest score possible per question equals four, resulting in a grand total equal to or less than 24. Descriptive statistics calculated for participants 7 to 8 1/2 years of age indicated the most common pre-test self-esteem score reported equaled 23. Similar results were calculated for participants 8 1/2 to 10 years of age with the most common pre-test score equaling 24. Ames (2013) reported similar findings after utilizing this scale. She theorized high pre-test scores could have partially attributed to minimal shifts in participant self-esteem. Administering the questions consecutively without unrelated or distractor questions included intermittently may have resulted in similar or identical answers reported for all six questions. This, in turn, may have attributed to the high pre-test scores.

Population and Sample Characteristics

Certain sample characteristics may have decreased the likelihood that significant differences were present with regard to each of the dependent variables. After recruitment of participants and participant attrition, a total of 52 females completed the study. Due to the complexity of this study, a larger sample of participants was difficult to obtain. This limited the researcher's ability to align the experimental group and the experimental check group on potential predictor variables identified in the literature. Descriptive information representative of the population was collected through the United States Census Bureau and the Colorado Department of Education. Descriptive data revealed that the population the experimental group and the experimental check group were sampled from differed in regard to ethnicity, annual household income and highest level of education obtained by the participant's caregiver(s). According to Wertheim et al. (2004), sociocultural influences have the ability to impact or alter the feelings and beliefs that an individual holds about her perceived body in relation to the beauty ideal promoted within these environments (Wertheim et al., 2004). Identified sociocultural influences include media influences, familial influences and peer-related influences. Individual factors have also been identified within the literature as being highly correlated with body image dysfunction; specifically body mass index (BMI), early maturation, ethnicity, and individual psychological factors (DeLeel et al., 2009; Erickson & Gerstle, 2007; Smolak, 2009; Wertheim et al., 2004). An independent *t*-test confirmed significant differences were present in the way the younger and older participants responded to the body image satisfaction, $t(50) = 4.11, p = .000$, and self-esteem pre-test measures, $t(50) = -2.08, p = .042$. These results may be reflective of possible group differences in relation to the

above predictor variables. Due to the researcher's limited ability to more closely align the experimental group and experimental check group on the identified individual and sociocultural factors, potential covariates were not controlled for. This, in turn, hinders the strength of the conclusions drawn.

Educator Buy-In

Findings of the current study demonstrate the importance of educator buy-in when implementing an intervention in an educational setting. The culture that was created and reinforced by the educators involved in the daily implantation and maintenance of Feelin' Good Mileage Club appeared to have an impact on participant buy in and duration of participation. Regarding overall attrition, of the 65 participants who received parental consent and met the inclusion criteria at the beginning of the study, only 58.50% remained enrolled in the study for the entire 10 weeks. An attrition rate of 41.5% occurred between the pre- and post-test for one of two reasons: participants transferred schools prior to completing the study (3%) or participants did not complete a minimum of one mile per week for a minimum of 7 weeks (38%). Grade level attrition rates were also examined. A total of 10 teachers, 2 teachers from each grade level, had a least 1 student serving as a participant in this study. Class attrition rates ranged from 0% to 100% with an average attrition rate of 37.7%. Grade level attrition rates ranged from 15.5% to 89%.

Erwin, Beighle, Morgan, and Noland (2011) assessed the impact of educator buy-in and compliance in relation to the amount of physical activity elementary aged children participated in. Specifically, educators were provided training on various physical activity breaks that could be implemented in the classroom throughout the school day. The researchers recommended that the educators implement a minimum of one activity break

per day. Similar to the current study, results demonstrated that when the educators followed the researchers recommendation, higher levels of physical activity were reported for participants enrolled in that particular classroom (Erwin et al., 2011). On the contrary, participants who were not provided with at least one physical activity break per day reported similar activity levels as compared to the control group. Findings reported by Erwin et al. (2011) as well as findings of the current study demonstrate how educator buy-in can positively or negatively influence the level at which point participants actively participate in the intervention.

This study did not adhere to a theory or include essential components associated with successful program implementation and effectiveness. According to Heidorn and Centeio (2012), given the significant amount of time that teachers are expected to devote to core academic subjects, extracurricular programs may be viewed as less important or burdensome. The importance of utilizing core components when implementing an extracurricular physical activity program has been outlined in the literature (Heidorn & Centeio, 2012) and if included may have increased the participant completion rate. According to Heidorn and Centeio (2012), it would be beneficial to allow the adults to actively participate in the intervention. If a staff-oriented approach was included in this study, an increased awareness could have been developed surrounding the various benefits associated with increasing the frequency and duration of one's daily physical activity (Heidorn & Centeio, 2012). When staff members experience an increase in their overall health and wellness, they are often in a better position to support children who are working towards a similar goal (Heidorn & Centeio, 2012).

Furthermore, the inclusion of challenges or competitions could have increased the study's overall participant completion rate. According to Stiehl and Galvan (2005), challenges encourage individuals to continually attempt novel or difficult tasks, strengthening their abilities in the process. This, in turn, increased an individual's self-confidence and willingness to attempt future endeavors (Stiehl & Galvan, 2005). Challenges could have been created to focus on age or grade level, potentially decreasing attrition rates of specific classes and grade levels.

Implications

The following practice implications have been identified based on the findings of the current study. Research implications have also been identified and presented in this section.

Practice Implications

Results of this study demonstrate significant changes in body image satisfaction and self-esteem were not present for 7 to 8 1/2 year-old participants or 8 1/2 to 10 year-old participants who participated in Feelin' Good Mileage Club. As stated previously, this outcome suggests voluntary participation in Feelin' Good Mileage Club alone does not suffice as an effective body image prevention or early intervention program for females in a primary educational setting. Additionally, teacher buy-in and support partially attributed to the considerable range in class and grade level attrition rates. This study further demonstrated the importance of adhering to a theory associated with successful program implementation and effectiveness.

Research Implications

As reported previously in utilizing Harter's Global Self-Worth Subscale, many of the participants reported a high pre-test score. This resulted in little or no growth on the post-test, a finding that was also reported by Ames (2013). Research implications reflect the need to either administer Harter's Self-Perception Profile for Children Inventory in its entirety when obtaining a measure of self-esteem or utilize other measures of self-esteem when assessing this construct in similar populations.

Additionally, results of this study provided further evidence for finding demonstrating that older females demonstrate a more representative understanding of their current body image as measured by self-report body image satisfaction assessments and BMI. Research implications include the need for increased awareness on behalf of the researcher when comparing self-reported body image satisfaction in younger and older females. Likewise, when comparing younger and older participants, increased caution may need to be demonstrated when interpreting and presenting findings to the public.

Limitations

Limitations included the inability to increase the study's sample through the recruitment of additional participants. Multiple factors restricted the researcher from implementing Feelin' Good Mileage Club in a second elementary school, including limited time, personnel and financial resources.

A second limitation was the inability to more closely align the two groups on potential predictor variables identified in the literature. Two committee members on the researcher's dissertation committee provided contact information of potential participants

for the experimental check group, all of who resided in the Northern Colorado region. The various demographic differences between the Northern Colorado and Southern Colorado regions prevented the researcher from controlling for these variables in the analyses.

The final limitation directly relates to the design of the study. Specifically the process developed for participants to submit the Popsicle sticks proved to be problematic. Older participants in grades 3, 4, and 5 demonstrated a tendency to submit Popsicle sticks to their classroom teacher when they had acquired a total of 20 Popsicle sticks rather than when they had acquired a total of 4 Popsicle sticks as instructed. This pattern resulted in an unanticipated obstacle for the researcher in determining if each participant completed the minimum number of miles necessary to remain enrolled in the study. A decision was made to credit any participant for participating the previous week if they submitted multiple miles on a Monday. If this study is replicated it is recommended the researchers develop safeguards to discourage participants from stockpiling Popsicle sticks or alter the study design to eliminate this as a possibility.

Areas of Future Research

It is recommended that future researchers continue to investigate the presence of an average age of internalization. Rather than studying two groups, older and younger than 8 1/2 years of age, it may be beneficial to establish group membership by exact age or grade. Investigating individual commonalities and differences in regards to internalization of the ultra-thin body ideal would also be beneficial. Questions should be addressed surrounding the internalization process, specifically identifying what is typical given the individual's development stage. This, in turn, would allow researchers to

determine if there are periods of the internalization process that are more dependent on an individual's personality and/or personal experiences rather than developmental commonalities.

It is also recommended that future researchers control for other factors external to the intervention that could potentially attribute to reported changes in body image satisfaction and self-esteem. Examples include ethnicity, parent education level, socioeconomic status as well as sport membership and affiliation. Adhering to a program theory or model associated with successful program implementation and effectiveness would also likely increase educator buy-in and support.

Finally, it is recommended future researchers work towards identifying the most effective measures for detecting changes in preadolescent females' body image and self-esteem. The development of additional measures may also be a future direction if subsequent findings identify this as an area of need.

Summary

This study was an extension of research published by Dittmar et al. (2006) seeking to confirm the hypothesis that an average age of internalization exists. This study was unique because group membership was based on the average age of internalization proposed by Dittmar et al. (2006). The purpose of the study was to determine if female participants, 7 to 8 1/2 years of age, reported higher levels of body image satisfaction and self-esteem after voluntarily participating in Feelin' Good Mileage Club when compared to female participants 8 1/2 to 10 years of age. Results of this study revealed participation in Feelin' Good Mileage Club did not significantly influence changes in body image satisfaction and self-esteem in either group. This outcome

suggested voluntary participation in physical activity alone would not suffice as an effective body image prevention or early intervention program for females in a primary educational setting.

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APPENDIX A
EXPERIMENTAL GROUP PARTICIPANT
CONSENT FORM

Invitation to participate in the study.

I/We are asking you to decide if you are willing to participate in a research study titled *The Influence of Mileage Club on Females' Body Image and Self-Esteem*. Shanda Crowder, who is currently working towards her school psychology doctoral degree at the University of Northern Colorado, is conducting this research. Dr. Michelle Athanasiou, a current professor of School Psychology at the University of Northern Colorado, is serving as the research advisor for this study.

Purpose of the study. The purpose of the study is to examine the influence that physical activity, specifically participation within Mileage Club, has on the wellbeing of preadolescent females (e.g., body image satisfaction and self-esteem).

Description of the Procedure for the Study. If you agree to be in this study, you will be asked to answer a total of eight questions (e.g., two questions regarding body image satisfaction and six questions regarding self-esteem). Questions are similar to this sample question: *"Some kids are very happy being the way they are BUT other kids wish they were different?"* It should take approximately 5-10 minutes to answer all eight questions. The researcher will read the instructions and questions to you. The researcher will also mark your answers on the answer sheet to ensure that the correct responses are marked. You will be asked to answer these eight questions during your classroom recess time to ensure that you do not miss classes. You will be asked these questions individually, which means other students will not know your answers to any of these questions. You will be asked these questions two times during the fall semester, once in late August or early September and once in late November or early December. Lastly, the physical education teacher measures your height and weight two times per year in order to calculate your Body Mass Index. This information will be provided to the researcher for analysis purposes. Please know that when the researcher reports information, it will be reported for the entire group of participants, never for any one individual. After you answer the eight questions in late August or early September you will be invited to participate within Mileage Club throughout the fall and spring semesters. You will determine how much or how little you would like to participate. You will be allowed to acquire miles during all scheduled classroom recess breaks, as well as your lunch recess break. You can acquire miles by walking or running laps within the designated course on the school's property. Please note that all students will be invited to participate within Mileage Club, even if the caregiver or student decides to not participate within this study.

Confidentiality. The researcher will treat all information gathered for this study as confidential. This means that only the researcher and the research advisor will have access to the information you provide. An identification number will be used on all paperwork. Only the researcher will have the list that matches this number with your name, and this list will be kept in a secure setting. In addition, when the researcher reports information, it will be reported for the entire group of participants, never for any one individual.

I am required to inform you that there are two exceptions to the promise of confidentiality. Any information revealed concern suicide, homicide, or child abuse or neglect is required by law to be reported to the proper authorities.

Voluntary Participation and Right to Withdraw. Your participation in this study is voluntary. There will be no consequences if either you decide to opt out of this study. If you find any questions uncomfortable you will have the right to skip questions or discontinue at any time.

Compensation. At specified milestones, you will be able to earn charms. The charms will serve two purposes: 1) reward for their progress in Mileage Club thus far; and 2) serve as an incentive for the student to continue participating in Mileage Club. You will also be given a necklace at the beginning of the study. You will be encouraged to keep all acquired charms on their necklace. All charms available to participants within the study have been matched with a specific milestone. After you earn a charm the charm and the necklace are yours to keep, regardless of future participation.

Potential Risks and Benefits. Benefits include potential increases in your student's physical health and psychological wellbeing. The risks of this study appear to be minimal. However, some of the questions ask you to share something about your personal feelings. You have the right to skip question or discontinue at any time. Regarding student participation within Mileage Club, the risks are no greater than those normally encountered during regular recess participation. If you become too fatigued or uncomfortable, you may choose to stop participating within Mileage Club at any time. In the unlikely event of an injury, we will contact the appropriate medical authorities.

Contacts and Questions and Concerns: If you have any questions or concerns about this research project or about your rights as a participant, you may contact the following people:

Primary Researcher: Shanda Crowder
Phone Number: xxx-xxx-xxxx
E-mail: crow6908@bears.unco.edu

Research Advisor: Dr. Michelle Athanasiou, Ph.D.
Phone Number: 970-351-2356
Email: michelle.athanasiou@unco.edu

Additionally, if you have any concerns about your student's selection or treatment as a research participant, please contact the Office of Sponsored Programs, Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-2161.

APPENDIX B
EXPERIMENTAL CHECK GROUP PARTICIPANT
CONSENT FORM

Invitation to participate in the study.

I/We are asking you to decide if you are willing to participate in a research study titled The Influence of Mileage Club on Females' Body Image and Self-Esteem. Shanda Crowder, who is currently working towards her school psychology doctoral degree at the University of Northern Colorado, is conducting this research. Dr. Michelle Athanasiou, a current professor of School Psychology at the University of Northern Colorado, is serving as the research advisor for this study.

Purpose of the study. The purpose of the study is to examine the influence that physical activity, specifically participation within Mileage Club, has on the wellbeing of preadolescent females (e.g., body image satisfaction and self-esteem).

Description of the Procedure for the Study. If you agree to be in this study, you will be included in the control/experimental check group. The control/experimental check group only participates within the assessment portion of the study. You will be asked to answer a total of eight questions (e.g., two questions regarding body image satisfaction and six questions regarding self-esteem). Questions are similar to this sample question: "*Some kids are very happy being the way they are BUT other kids wish they were different?*" It should take approximately 5-10 minutes to answer all eight questions. The researcher will read the instructions and questions to you. The researcher will also mark your answers on the answer sheet to ensure that the correct responses are marked. You will be asked to answer these eight questions during a time that is convenient for you. Please note your participation will not result in any missed class time. It is also important to note that you will be asked these questions individually, which means other students will not know your answers to any of these questions. You will be asked these questions on two occasions separated by a 10-week span. Lastly, the researcher will measure your height and weight for the purpose of calculating your Body Mass Index. The researcher will collect this information at the first testing session only. This information is collected for analysis purposes. Please know that when the researcher reports information, it will be reported for the entire group of participants, never for any one individual.

Confidentiality. The researcher will treat all information gathered for this study as confidential. This means that only the researcher and the research advisor will have access to the information you provide. An identification number will be used on all paperwork. Only the researcher will have the list that matches this number with your name, and this list will be kept in a secure setting. In addition, when the researcher reports information, it will be reported for the entire group of participants, never for any one individual.

I am required to inform you that there are two exceptions to the promise of confidentiality. Any information revealed concern suicide, homicide, or child abuse or neglect is required by law to be reported to the proper authorities.

Voluntary Participation and Right to Withdraw. Your participation in this study is voluntary. There will be no consequences if either you decide to opt out of this study. If you find any questions uncomfortable you will have the right to skip questions or discontinue at any time.

Compensation. You will receive a necklace and a charm of your choice as a thank you for participating within this study. The necklace and charm will be allocated to you at the end of the first testing session. A second charm will be allocated to you at the end of the second testing session. After you earn a charm the charm and the necklace are yours to keep, regardless of future participation.

Potential Risks and Benefits. The benefits to you for participating in this study include gaining satisfaction knowing that you have made a meaningful contribution to the research that assesses the positive effects of physical activity. This growth in the research will help practitioners and educators develop more effective prevention and intervention programs that aim to combat obesity as well as body image dissatisfaction present within preadolescent populations.

The risks of this study appear to be minimal. However, some of the questions ask you to share something about your personal feelings. You have the right to skip question or discontinue at any time.

Contacts and Questions and Concerns: If you have any questions or concerns about this research project or about your rights as a participant, you may contact the following people:

Primary Researcher: Shanda Crowder

Phone Number: xxx-xxx-xxxx

E-mail: crow6908@bears.unco.edu

Research Advisor: Dr. Michelle Athanasiou, Ph.D.

Phone Number: 970-351-2356

Email: michelle.athanasiou@unco.edu

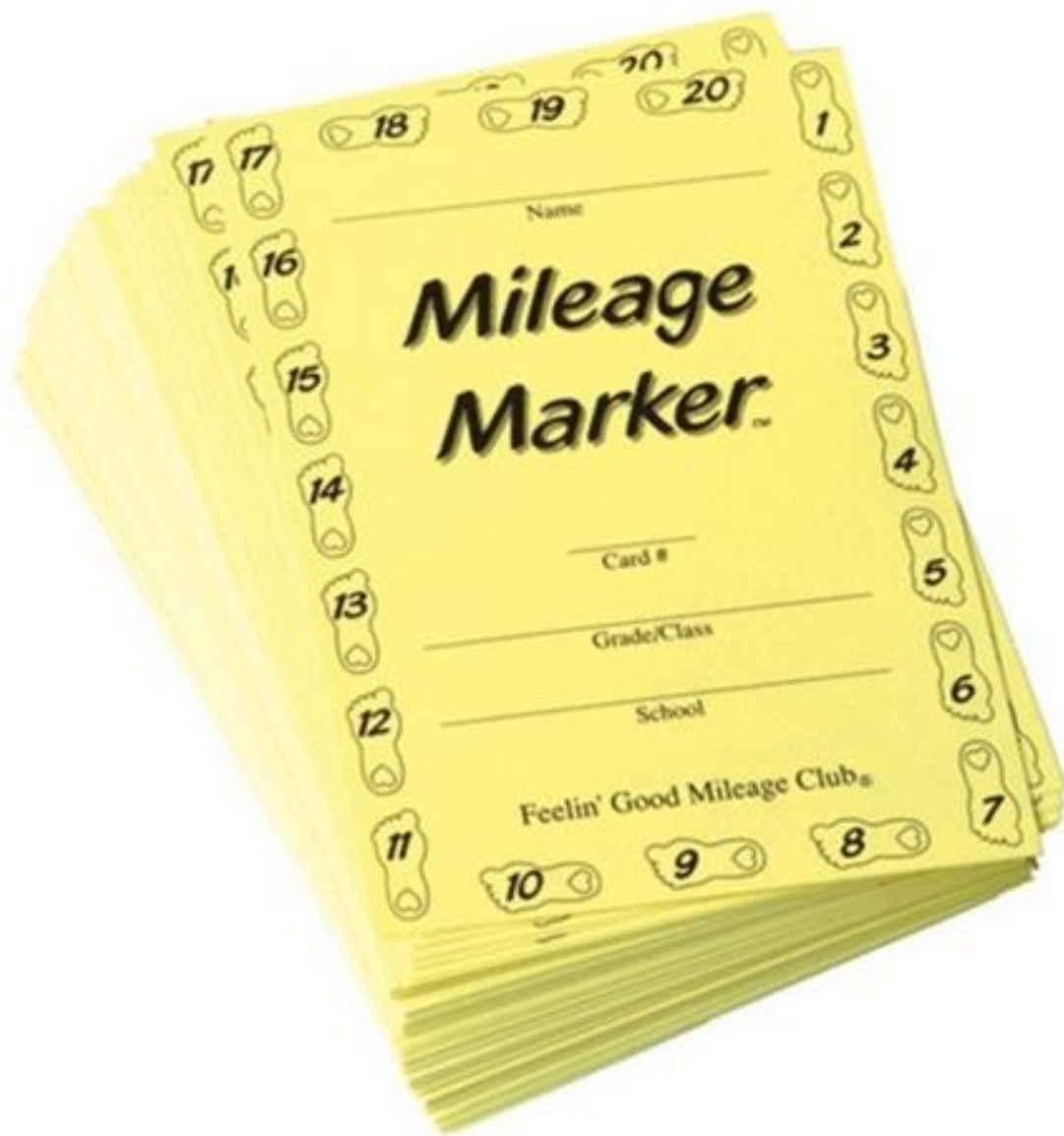
Voluntary Participation and Right to Withdraw. Participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if you would like to participate in this research. A copy of this form will be given to you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact the Office of Sponsored Programs, Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-2161.

Participant Signature

Printed Name

Date

APPENDIX C
MILEAGE TRACKER CARDS



APPENDIX D
INSTITUTIONAL REVIEW BOARD APPROVAL

UNIVERSITY of
NORTHERN COLORADO



Institutional Review Board

DATE: September 12, 2013

TO: Shanda Crowder, B.S. Psychology
FROM: University of Northern Colorado (UNCO) IRB

PROJECT TITLE: [458095-4] The Influence of Mileage Club on Females' Body Image and Self-Esteem

SUBMISSION TYPE: Amendment/Modification

ACTION: APPROVED

APPROVAL DATE: September 11, 2013

EXPIRATION DATE: May 22, 2014

REVIEW TYPE: Expedited Review

Thank you for your submission of Amendment/Modification materials for this project. The University of Northern Colorado (UNCO) IRB has APPROVED your submission. All research must be conducted in accordance with this approved submission.

This submission has received Expedited Review based on applicable federal regulations.

Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require that each participant receives a copy of the consent document.

Please note that any revision to previously approved materials must be approved by this committee prior to initiation. Please use the appropriate revision forms for this procedure.

All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the appropriate forms for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of May 22, 2014.

Please note that all research records must be retained for a minimum of three years after the completion of the project.

If you have any questions, please contact Sherry May at 970-351-1910 or Sherry.May@unco.edu. Please include your project title and reference number in all correspondence with this committee.

APPENDIX E
SCHOOL DISTRICT INSTITUTIONAL REVIEW
BOARD APPROVAL

Reply Reply All Forward         



Research Proposal

Brenda Krage [brenda.krage@pueblocitieschools.us]

To: Crowder, Shanda

Monday, May 20, 2013 10:35 AM

- You replied on 8/28/2013 4:41 PM.

Shanda,
I am pleased to inform you that your research proposal has been approved.

--

Brenda Krage, Ph.D.
Assistant Superintendent
Learning Services

Direct: (719) 253-6243
Fax: (719) 253-6246
Assistant: (719) 253-6242

CONFIDENTIALITY NOTICE

THIS E-MAIL IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR INDIVIDUALS TO WHICH IT IS ADDRESSED AND CONTAINS INFORMATION THAT IS PRIVILEGED, CONFIDENTIAL AND EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAW. IF THE READER OF THIS MESSAGE IS NOT THE INTENDED RECIPIENT, YOU ARE HEREBY NOTIFIED THAT ANY DISSEMINATION, DISTRIBUTION OR COPYING OF THIS COMMUNICATION IS STRICTLY PROHIBITED. IF YOU HAVE RECEIVED THIS COMMUNICATION IN ERROR, PLEASE DELETE THIS E-MAIL AND NOTIFY ME THAT YOU HAVE DONE SO.
THANK YOU.

APPENDIX F
EXPERIMENTAL GROUP CAREGIVER CONSENT FORM

Invitation to participate in the study.

I/We would like your permission to invite your student to participate in a research study titled *The Influence of Mileage Club on Females' Body Image and Self-Esteem*. Shanda Crowder, who is currently working towards her school psychology doctoral degree at the University of Northern Colorado, is conducting this research. Dr. Michelle Athanasiou, a current professor of School Psychology at the University of Northern Colorado, is serving as the research advisor for this study.

Purpose of the study. The purpose of the study is to examine the influence that physical activity, specifically participation within Mileage Club, has on the wellbeing of preadolescent females (e.g., body image satisfaction and self-esteem).

Description of the Procedure for the Study. First your student will complete a consent form, which is similar to this Parent Consent Form. Your student will then be asked to answer a total of eight questions (e.g., two questions regarding body image satisfaction and six questions regarding self-esteem). Questions are similar to this sample question: *"Some kids are very happy being the way they are BUT other kids wish they were different?"* It should take approximately 5-10 minutes to answer all eight questions. The researcher will read the instructions and questions to the your student and will also indicate your student's answers on the protocol to ensure that the correct responses are marked. Students will be asked to answer these eight questions during their classroom recess time to ensure that they will not miss classes. It is important to note that students will be asked these questions individually, which means other students will not know your student's answers to any of these questions. Your student will be asked these questions two times during the fall semester, once in late August or early September and once in late November or early December. Lastly, the physical education teacher measures every student's height and weight two times per year in order to calculate their Body Mass Index. This information will be provided to the researcher for analysis purposes. Please know that when the researcher reports information, it will be reported for the entire group of participants, never for any one individual. After your student answers the eight questions in late August or early September they will be invited to participate within Mileage Club throughout the fall and spring semesters. Students will determine how much or how little they would like to participate. Student's will be allowed to acquire miles during all scheduled classroom recess breaks, as well as their lunch recess break. Student's can acquire miles by walking or running laps within the designated course on the school's property. Please note that all students will be invited to participate within Mileage Club, even if the caregiver or student decides to not participate within this study.

Confidentiality. The researcher will treat all information gathered for this study as confidential. This means that only the researcher and the research advisor will have access to the information your student provides. An identification number will be used on all paperwork. Only the researcher will have the list that matches this number with your student's name, and this list will be kept in a secure setting. In addition, when the researcher reports information, it will be reported for the entire group of participants, never for any one individual.

I am required to inform you that there are two exceptions to the promise of confidentiality. Any information revealed concern suicide, homicide, or child abuse or neglect is required by law to be reported to the proper authorities.

Compensation. At specified milestones, students will be able to earn charms. The charms will serve two purposes: 1) reward for their progress in Mileage Club thus far; and 2) serve as an incentive for the student to continue participating in Mileage Club. Students will also be given a necklace at the beginning of the study. Students will be encouraged to keep all acquired charms on their necklace. All charms available to participants within the study have been matched with a specific milestone. After a participant earns a charm the charm and the necklace are theirs to keep, regardless of future participation.

Potential Risks and Benefits. Benefits include potential increases in your student's physical health and psychological wellbeing. The risks of this study appear to be minimal. However, some of the questions ask your student to share something about her personal feelings. Your student has the right to skip question or discontinue at any time. Regarding student participation within Mileage Club, the risks are no greater than those normally encountered during regular recess participation. If your child becomes too fatigued or uncomfortable, they may choose to stop participating within Mileage Club at any time. In the unlikely event of an injury, we will contact the appropriate medical authorities.

Contacts and Questions and Concerns: If you have any questions or concerns about this research project or about your student's rights as a participant, you may contact the following people:

Primary Researcher: Shanda Crowder
Phone Number: xxx-xxx-xxxx
E-mail: crow6908@bears.unco.edu

Research Advisor: Dr. Michelle Athanasiou, Ph.D.
Phone Number: 970-351-2356
Email: michelle.athanasiou@unco.edu

Additionally, if you have any concerns about your student's selection or treatment as a research participant, please contact the Office of Sponsored Programs, Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-2161.

Voluntary Participation and Right to Withdraw. Participation is voluntary. You may decide not to allow your child to participate in this study and if (s)he begins participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if you

would like to participate in this research. A copy of this form will be given to you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact the Office of Sponsored Programs, Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-2161.

Authorization: My child is a student at _____

I am the parent/primary caregiver/legal guardian of my child and I have read and understand the foregoing description of the research project. I have asked for and received satisfactory explanation of any language that I did not fully understand. I consent to my child participating in this study. I understand that I may withdraw my consent at any time and that my child may withdraw her consent at any time. I have retained a copy of the cover letter and have returned a signed copy of the consent form.

Parent/Primary Caregiver/Legal Guardian
of Participant Signature

Printed Name

Date

Address

Telephone Number

Child's Full Name

Child's Birth Date

Has your child previously participated in Mileage Club while attending a different educational setting? Yes No

Does your child speak and understand English fluently? Yes No

APPENDIX G
EXPERIMENTAL CHECK GROUP CAREGIVER
CONSENT FORM

Invitation to participate in the study.

I/We would like your permission to invite your student to participate in a research study titled The Influence of Mileage Club on Females' Body Image and Self-Esteem. Shanda Crowder, who is currently working towards her school psychology doctoral degree at the University of Northern Colorado, is conducting this research. Dr. Michelle Athanasiou, a current professor of School Psychology at the University of Northern Colorado, is serving as the research advisor for this study.

Purpose of the study. The purpose of the study is to examine the influence that physical activity, specifically participation within Mileage Club, has on the wellbeing of preadolescent females (e.g., body image satisfaction and self-esteem).

Description of the Procedure for the Study. It is important to note that your student will be included in the control/experimental check group so they will only participate in the assessment portion of the study. First your student will complete a consent form, which is similar to this Parent Consent Form. Your student will then be asked to complete two questionnaires, the Figure Rating Scale for Children and the Self-Perception Profile for Children Inventory – Global Self-Worth Subscale. Questions on each of these questionnaires are similar to this question: *“Some kids are very happy being the way they are BUT other kids wish they were different. Which kinds of kids are most like you?”* It should take approximately 5-10 minutes to answer all eight questions. Students will be asked to complete each of these questionnaires during a time that is convenient for them. Please note your student's participation will not result in any missed class time. It is also important to note that students will be asked these questions individually, which means other students will not know your student's answers to any of these questions. Your student will be asked to complete each of these questionnaires a second time, approximately 10 weeks after the first administration. Finally, the researcher will take your student's height and weight for the purpose of calculating their Body Mass Index (BMI). Body mass index is a method utilized to accurately determine an individual's weight status (i.e., underweight, normal weight, overweight). The BMI calculations utilized within this study are age and gender specific and have been endorsed by the Center for Disease Control and Prevention (CDC). The researcher will collect this information at the first testing session only. Your child's BMI estimates and questionnaire responses will then be utilized in the data analysis portion of this research. Three statistical models will be utilized to assess the data (i.e., correlational analysis, analysis of variance and multivariate analysis of variance). Please know that when the researcher reports information, it will be reported for the entire group of participants, never for any one individual.

Confidentiality. The researcher will treat all information gathered for this study as confidential. This means that only the researcher and the research advisor will have access to the information your student provides. An identification number will be used on all paperwork. Only the researcher will have the list that matches this number with your student's name, and this list will be kept in a secure setting. In addition, when the researcher reports information, it will be reported for the entire group of participants, never for any one individual.

I am required to inform you that there are two exceptions to the promise of confidentiality. Any information revealed concern suicide, homicide, or child abuse or neglect is required by law to be reported to the proper authorities.

Compensation. Your student will receive a necklace and a charm of their choice as a thank you for participating within this study. The necklace and charm will be allocated to your student at the end of the first testing session. A second charm will be allocated to your student at the end of the second testing session. After your student earns a charm the charm and the necklace are theirs to keep, regardless of future participation.

Potential Risks and Benefits. The benefits for participation within this study include gaining satisfaction knowing that your student has made a meaningful contribution to the research that assesses the positive effects of physical activity. This growth in the research will help practitioners and educators develop more effective prevention and intervention programs that aim to combat obesity as well as body image dissatisfaction present within preadolescent populations. The risks of this study appear to be minimal. However, some of the questions ask your student to share something about her personal feelings. Your student has the right to skip question or discontinue at any time.

Contacts and Questions and Concerns: If you have any questions or concerns about this research project or about your student's rights as a participant, you may contact the following people:

Primary Researcher: Shanda Crowder
Phone Number: xxx-xxx-xxxx
E-mail: crow6908@bears.unco.edu

Research Advisor: Dr. Michelle Athanasiou, Ph.D.
Phone Number: 970-351-2356
Email: michelle.athanasiou@unco.edu

Voluntary Participation and Right to Withdraw. Participation is voluntary. You may decide not to allow your child to participate in this study and if (s)he begins participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if you would like to participate in this research. A copy of this form will be given to you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact the Office of Sponsored Programs, Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-2161.

Parent/Primary Caregiver/Legal Guardian
of Participant Signature

Printed Name

Date

Address

Telephone Number

Child's Full Name

Child's Birth Date
(month/day/year)

Has your child previously participated in Mileage Club while attending a different
educational setting? Yes No

Does your child speak and understand English fluently? Yes No

Authorization: I am a student at _____.

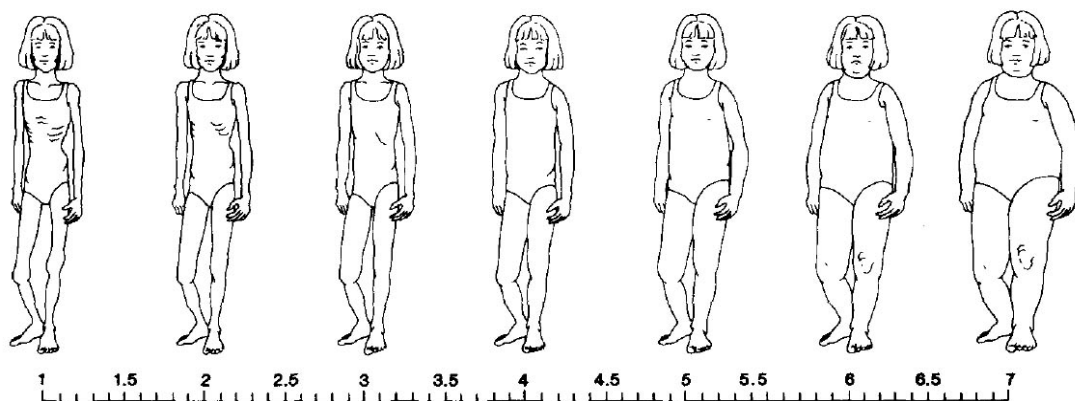
I have read and understand the description of the research project. I have asked for and received satisfactory explanation of any language that I did not fully understand. I agree to participate in this study. I understand that I may withdraw my consent at any time and that my child may withdraw my consent at any time. I have retained a copy of the cover letter and have returned a signed copy of the consent form.

Participant Signature

Printed Name

Date

APPENDIX H
THE FIGURE RATING SCALE FOR CHILDREN



Please select the figure that best corresponds to your current appearance (1-7) _____

Please select the figure that best corresponds to your "ideal" body (1-7) _____

APPENDIX I

**SELF-PERCEPTION PROFILE FOR CHILDEN INVENTORY--
GLOBAL SELF-WORTH SUBSCALE**

Participant Number _____

	Really True for me	Sort of True for me				Sort of True for me	Really True for me
1.	<input type="checkbox"/>	<input type="checkbox"/>	Some kids are often unhappy with themselves	BUT	Other kids are pretty pleased with themselves	<input type="checkbox"/>	<input type="checkbox"/>
2.	<input type="checkbox"/>	<input type="checkbox"/>	Some kids don't like the way they are leading their life	BUT	Other kids <i>do</i> like the way they are leading their life	<input type="checkbox"/>	<input type="checkbox"/>
3.	<input type="checkbox"/>	<input type="checkbox"/>	Some kids are happy with themselves as a person	BUT	Other kids are often not happy with themselves	<input type="checkbox"/>	<input type="checkbox"/>
4.	<input type="checkbox"/>	<input type="checkbox"/>	Some kids like the kind of person they are	BUT	Other kids often wish they were someone else	<input type="checkbox"/>	<input type="checkbox"/>
5.	<input type="checkbox"/>	<input type="checkbox"/>	Some kids are very happy being the way they are	BUT	Other kids wish they were different	<input type="checkbox"/>	<input type="checkbox"/>
6.	<input type="checkbox"/>	<input type="checkbox"/>	Some kids are not very happy with the way they do things	BUT	Other kids think the way they do things is fine	<input type="checkbox"/>	<input type="checkbox"/>