

A STUDY TO EVALUATE THE EFFECTIVENESS OF THE GIRLS  
IN MOTION® PROGRAM IN IMPROVING BODY  
SATISFACTION IN PREADOLESCENT GIRLS

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY  
IN THE GRADUATE SCHOOL OF THE  
TEXAS WOMAN'S UNIVERSITY

COLLEGE OF HEALTH SCIENCES

BY

MANDY GOLMAN, M.S.

DENTON, TEXAS

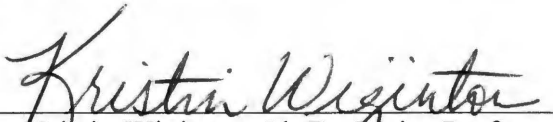
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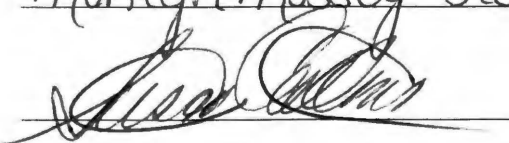
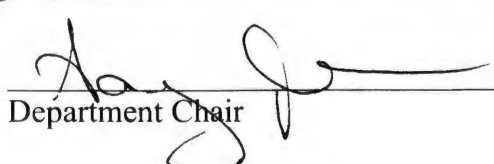
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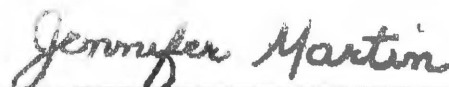
I am submitting herewith a dissertation written by Mandy Golman entitled "A Study to Evaluate the Effectiveness of the Girls in Motion® Program in Improving Body Satisfaction in Preadolescent Girls." I have examined this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy with a major in Health Studies.

  
Kristin Wiginton, Ph.D., Major Professor

We have read this dissertation and recommend its acceptance:

Marilyn Massey-Stokes  
  
  
Department Chair

Accepted:

  
Dean of the Graduate School

## ACKNOWLEDGMENTS

I gratefully acknowledge the many individuals who have contributed to this dissertation through their guidance, support, expertise, and love. Dr. Wiginton, my committee chair, thank you for all of your guidance, support and extra time in getting this dissertation completed. You truly lead by example. In addition, thank you Dr. Susan Cardenas and Dr. Marilyn Massey-Stokes for your time serving on my committee as well as your expertise and encouragement during this process. Dr. Cathey Soutter-I know I would not be in this place without your mentorship, friendship and gentle prodding to start the Ph.D. process. I cannot thank you enough.

To my friend, classmate, study mate, and travel partner Melinda Cody- I could not have made it through this whole process without our frequent study sessions, drives, encouraging phone calls and, of course, the blessed mantra from your mother.

Thank you to all of my family and friends who have been unbelievably supportive during this journey. Mom and Dad- completing this journey truly would not have been possible without all of your endless encouragement, help and support. To my husband David- thanks for holding down the home front so this dissertation could be completed and for always letting me know you were there to support me every step of the way. To my children, Macy, Jed and Grey, I hope you always know anything you dream for yourselves is possible. I love you all so very much!

## ABSTRACT

MANDY GOLMAN

### A STUDY TO EVALUATE THE EFFECTIVENESS OF THE GIRLS IN MOTION® PROGRAM IN IMPROVING BODY SATISFACTION IN PREADOLESCENT GIRLS

DECEMBER 2009

The current study evaluated the effectiveness of the Girls in Motion® program by comparing body satisfaction pre-and posttest scores of the preadolescent participants. In addition, the study examined the differences in pre-and post body satisfaction scores by ethnicity and grade. In the past, many eating disorder prevention programs have been found to be unsuccessful (Cororve-Fingeret, Warren, Cepeda-Benito, & Gleaves, 2006). Much discussion and focus recently has been towards “universal prevention” programs that not only provide protective factors such as self-esteem building and education about media influences but also prevent risk factors such as unhealthy dieting practices and body dissatisfaction (Massey-Stokes, 2008; Neumark-Steiner et al., 2006; Scime et al., 2006). Results of this study showed a significant decrease in the drive for thinness changes scores, the female body dissatisfaction change scores and the male body dissatisfaction change scores, indicating that scores for all three subscales decreased from pre to posttest. In addition, the overall model predicting a change in drive for thinness scores from location, grade level, and ethnicity was significant. African-American girls when compared to Hispanic girls, had significant reductions in their drive for thinness

scores (pre- to post test). Girls who were in the fourth grade, compared to girls in the fifth grade, had significant reductions in their female and male body dissatisfaction scores (from pre- to post test). As a result of these findings, recommendations for follow up research were suggested. In addition, recommendations were provided to increase the effectiveness of primary prevention body image programs for preadolescent girls.

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## CHAPTER I

### INTRODUCTION

In the past two decades, studies have indicated that body dissatisfaction, drive for thinness, and obsessive weight control behaviors may develop before girls reach preadolescence. Results from a study conducted 20 years ago revealed that 45% of girls in grades three through six wanted to be thinner, with 37% on a diet and 7% scoring in the eating disorder range on a test of children's eating habits (Maloney, McGuire, Daniels, & Specker, 1989). In similar studies, 42% of first, second, and third grade girls reported they wanted to lose weight (Collins, 1991) and 46% of nine to 11 year olds said they were "sometimes or very often" on diets (Gustafson-Larson & Terry, 1992). Recently, researchers estimated the prevalence of body dissatisfaction among young girls could be as high as 80% (Kelly, Wall, Eisenberg, Story, & Neumark-Sztainer, 2005). Neumark-Sztainer (2005) also found that over half of teenage girls use unhealthy weight control behaviors. These behaviors may coincide with depression and low self-esteem as well as other destructive behaviors-such as substance abuse (Kelly et al., 2005). As research has indicated that body dissatisfaction in girls is a substantial issue and is a precursor to many other health problems, further research and development of prevention programs are warranted (Kelly et al., 2005).

Primary prevention efforts are designed to promote healthy development and prevent the occurrence of body dissatisfaction and, ultimately, eating disorders (Levine &

Primary prevention efforts are designed to promote healthy development and prevent the occurrence of body dissatisfaction and, ultimately, eating disorders (Levine & Maine, 2006). Although eating disorder and body dissatisfaction programs are widespread, few have utilized a theoretical foundation, which could explain the finding that eating disorder prevention programs have been marginally successful (Cororve-Fingeret, Warren, Cepeda-Benito, & Gleaves, 2006).

Girls in Motion® is a primary prevention program which provides mentoring, physical fitness, and nutrition education for preadolescent girls. The program pairs up college-age women with girls ages 9-11 for an eight-week program centered on body image discussion, physical activity and nutrition information (Girls in Motion®, 2006). The curriculum topics include benefits of physical activity, nutrition education, media influences, and body image. As part of the curriculum, girls are encouraged by their mentors each week to set a new goal and implement a new behavior change (Girls in Motion®, 2006). Mentors check in periodically during the week for added support to the girls. At the final session, each pair sets out to accomplish a fitness goal. Upon completion, the girls celebrate their success during the Girls in Motion® Goal Celebration. The parents of the participants are asked to attend two evening workshops titled, “Instilling a Positive Body Image in Your Daughter” and “Healthy Eating Attitudes and Behaviors.” The girls are recruited either through an existing after school program or an advertised program sign up. The mentors are recruited through campus flyers and recruitment tables. The training of the mentors includes two to four educational

sessions (approximately 6-8 hours) covering the educational aspects of the curriculum as well as proper mentoring techniques (Girls in Motion®, 2006).

As stated above, many programs, such as Girls in Motion®, that have attempted to positively influence body satisfaction in preadolescent girls have not been successful; yet greater strides could be achieved with adequate attention given to the relationship between research, theory and practice (Steiner-Adair et al., 2002).

### Purpose of the Study

The purpose of this study was to evaluate the effectiveness of the Girls in Motion® program by comparing body satisfaction pre-and posttest scores of the preadolescent participants. In addition, the study examined the differences in pre-and post body satisfaction scores by ethnicity and grade.

### Hypotheses

The null hypotheses for the study were as follows:

1. There will be no significant difference in pre-and posttest body satisfaction scores among the Girls in Motion® participants.
2. There will be no significant difference in pre- and posttest body satisfaction scores between Girls in Motion® participants in the fourth grade and Girls in Motion® participants in the fifth grade.
3. There will be no significant difference in pre-and posttest body satisfaction scores of Girls in Motion® participants when compared by ethnicity.

### Delimitations

The delimitations for the study were as follows:

1. Participants in this study are limited to those preadolescent girls aged 9-12 who participated in the Girls in Motion® program.
2. Only those participants at three locations; two in Dallas, Texas and one in Elon, North Carolina will be considered.

### Limitations

The limitations of this study were as follows:

1. The data is limited to those girls who self selected to participate in the Girls in Motion® program, and, as such, results are not generalizable to the general public.
2. The data were collected over the course of five consecutive sessions of the Girls in Motion® program at three different locations. The current study did not account for differences in the teaching of the curriculum in the different locations (e.g. teachers, mentors, location, or in the improvement of curriculum delivery over the course of the five sessions).
3. This study did not account for possible exposure to similar information that may have been provided at home or school during the duration of the program.

### Assumptions

The assumptions for this study were as follows:

1. All the girls answered the questions on the pretest and posttest honestly.
2. It was assumed that the girls could read at the 3<sup>rd</sup> grade level or higher.

3. It was also assumed that the girls could read and write in English.

#### Definition of Terms

*Preadolescent girl* – The period of human development just preceding adolescence; specifically: the period between the approximate ages of 9 and 12 (Merriam-Webster's Online Dictionary, 2008).

*Body satisfaction* – The satisfaction with one's body (Drench, Noonan, Sharby, & Ventura, 2007).

*Resiliency* – A dynamic process that individuals exhibit positive behavioral adaptation when they encounter significant adversity or trauma (Luther, Cicchetti, & Becker, 2000)

*Eating disorders* – Encompass a wide range of eating behaviors and weights. Includes those who are obese, those who are too thin and starve themselves, and those who binge and purge (Drench et al., 2007).

*Self-esteem* – A person's self-esteem is how the individual perceives the self. If individuals have high self-esteem they tend to have positive emotions about themselves; conversely if they have low self-esteem they have negative emotions about themselves (Drench et al., 2007).

#### Importance of the Study

Historically, primary prevention programs have been proven to be marginally successful in the prevention of eating disorders. The key to success rests in a program founded on health education theory and the use of research for evidence-based practice. Body dissatisfaction has consistently been shown to be a significant predictor of destructive dieting and eating behaviors, as well as correlated with lowered self-esteem.

If this study can offer some insight on strategies to improve body satisfaction in preadolescent girls, it can serve as a successful, easily replicable model for a primary prevention program. In addition, this study can provide a basis for longitudinal research on the effects of a primary prevention program on long-term behavior and attitude change.



## CHAPTER II

### REVIEW OF LITERATURE

#### Body Dissatisfaction

Thomas Cash (2002), the founding editor-in-chief of the journal *Body Image* defines body image as “the multifaceted psychological experience of embodiment, especially but not exclusively one’s physical appearance....body image is body images.....it encompasses one’s body-related self-perceptions and self-attitudes, including thoughts, beliefs, feelings, and behaviors.” The terms body image, body image satisfaction, body image dissatisfaction, body image disturbance, or body dissatisfaction are found used interchangeably throughout research and literature (Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S., 1999). Body satisfaction and body dissatisfaction will be the terms utilized in this research review. Body dissatisfaction and body dissatisfaction encompass all of the factors discussed above; they define how a person feels about their body, both positively and negatively (Drench, Noonan, Sharby, & Ventura, 2007). Body dissatisfaction has become so commonplace that it has been termed “normative discontent,” (Striegel-Moore, Silberstein, & Rodin, 1986). Even though it is now so pervasive it is considered a normal affect, normal does not necessarily mean “benign” (Thompson et al., 1999).

The study of body satisfaction and conversely body dissatisfaction has received an increasing amount of attention in scientific literature. Siegel, Yancey, Aneshensel, and

Schuler (1999) described body image as, “the centrality to the mental health of teenage girls.” The prevalence of body dissatisfaction among adolescent girls continues to increase at an alarming rate. Up to 70% of adolescent girls may suffer from body dissatisfaction (Smolak & Levine, 2001) and as many as 90% of adolescent girls would choose to reduce their body size if given the opportunity (McCabe, Ricciardelli, & Ridge, 2006). In turn, 19% suffer serious consequences as a result of body dissatisfaction (Cash & Pruzinsky, 2002). This body dissatisfaction may lead teens to develop low self-esteem and destructive dieting behaviors with lifelong consequences (Scime, Cook-Cottone, Kane, & Watson, 2006). Aside from contributing to lifelong eating problems, body dissatisfaction is associated with depression and suicidal ideation in teenage girls. In a report by the American Association of University Women (AAUW), belief “in the way I look” was the defining characteristic of self-worth in Caucasian schoolgirls (as reported in Siegel et al., 1999). In a study conducted on 1800 Scottish girls, increased body size concern was found to have a significant, although weak effect on lower self-esteem scores among the 11-year old girls ( $R^2 = .038, p < .001$ ) and the 13 year old girls ( $R^2 = .024, p < .001$ ) (Williams & Currie, 2000). Franko and Striegel-Moore (2002) discussed the link between the onset of depression in girls and body dissatisfaction. This body dissatisfaction most likely is a contributing factor to the plummet of self-esteem witnessed in girls as they transition to adolescence (Franko & Striegel-Moore, 2002; Gilligan & Brown, 1992). Massey-Stokes (2008) also discusses the fact that body dissatisfaction is often the initial phase on a continuum leading to more serious issues. Researchers have found body dissatisfaction and unhealthy dieting behaviors, such as

weight restriction and purging, to be predictive of depression in adolescent girls (Paxton et al., 2006; Stice, Presnell & Bearman, 2001). Many hypotheses exist to explain the dramatic increase in body dissatisfaction over the last two decades. Most studies point to a sociocultural model of ideals and a variety of both risk factors and protective factors that influence body dissatisfaction.

### Familial and Social Influences

A sociocultural theory about body dissatisfaction states that the power of family, community, peers and culture all combine to influence body satisfaction (Thompson et al., 1999). One construct has continued to emerge as a risk for body dissatisfaction: “thin-ideal” internalization. “thin-ideal” internalization refers to “the extent to which an individual cognitively “buys into” socially defined ideals of attractiveness and engages in behaviors designed to produce an approximation of these ideals” (Thompson & Stice, 2001). This “thin-ideal” internalization convinces girls they must conform to unrealistic standards set by sociocultural influences. Several studies have proven a correlation between this internalization and body dissatisfaction and unhealthy weight control practices (Bearman, Presnell, Martinez, & Stice, 2006; Botta, 2000; Franko & Striegel-Moore, 2002; Kater et al., 2002; Thompson et al., 1999).

Studies differ in the significance the family plays in adolescent girls’ body satisfaction. Many studies discuss the relevance of a mother’s modeling and weight related concerns. One predictor of whether or not an adolescent girl will show body dissatisfaction and unhealthy weight practices is whether her mother exhibits them herself (Pike & Rodin, 1991). In interviews conducted on 40 adolescent girls and boys,

McCabe et al. (2006) found that the majority of girls reported receiving positive messages about their bodies from their mothers. Byeley, Archibald, Graber, and Brooks-Gunn, J. (2000) found a similar result in their study of 77 adolescent girls, reporting that the mothers' behavior did not dictate their daughters' behavior or body image. However, this study also verified previous research that showed the mothers' attitudes and messages influenced their daughters' body satisfaction. The daughters, whose mothers rated them heavier, expressed lower body satisfaction (Byerly et al., 2000). Byerly et al., (2000) also found that negative family relations were associated with increased dieting behaviors in girls ( $\beta = -.44$ ,  $t = -2.82$ ,  $p < .01$ ). Hahn-Smith and Smith (2001) found in their examination of 113 adolescent girls and their mothers that daughters of mothers with lower body satisfaction also had lower levels of body satisfaction ( $\beta = .22$ ,  $t(87) = 2.07$ ,  $p < .05$ ). However, they also found that mother's roles could be a protective factor and a risk factor for Hispanic and Caucasian girls (Hahn-Smith & Smith, 2001). Hahn-Smith and Smith (2001) found that Caucasian and Hispanic girls who aspired to be like their mothers had higher self-esteem and higher body satisfaction than those who did not. In addition, they also had significantly lower levels of disturbed eating than girls with lesser identification with the mother ( $\beta = -.26$ ,  $t(83) = -2.48$ ,  $p < .05$ ). Mother's attitudes also serve as a protective factor in the African American culture. One reason African American girls report lower body dissatisfaction and higher self-esteem is the support and attitudes of their mothers (Franko & Striegel-Moore, 2002).

Sibling rivalry also contributes to body dissatisfaction. Tsiantas and King (2001) found that younger sisters who were continually compared to older sisters had decreased

body satisfaction. Overall, study results indicate that families that spend time together, are closer and feel a tighter bond, tend to have healthier weight attitudes and healthier eating behaviors (Hahn-Smith & Smith, 2001; Neumark-Sztainer, 2005). A major factor to consider when looking at what influences body satisfaction in adolescent girls is that girls receive a multitude of messages, both positive and negative, from a wide variety of sources (McCabe et al., 2006; Tiggemann, & Slater, 2004). Prevention efforts must make every attempt to address these messages and the sources.

### Media and Body Dissatisfaction

One of the most widely discussed risk factors for body dissatisfaction is media exposure. Mass media, including television, movies, and magazines, has been shown to have a pervasive influence on adolescent girls and their body satisfaction (McCabe et al., 2006). In a study conducted to examine mass media exposure and weight concerns among adolescent girls, 69% reported that magazine pictures influenced their idea of the perfect body shape; and 47% reported wanting to lose weight because of magazine pictures showing the perfect body (Field, Camargo, Taylor, Berkey, & Colditz, 1999). These findings are not hard to believe considering the average model weighs 23% less than the average woman (Costin, 1996). The types of television programs that adolescent girls watch also influence their body satisfaction. Watching soap operas, movies, and music videos where women are portrayed in stereotyped roles has been correlated with increased body dissatisfaction among adolescent girls (Tiggeman & Pickering, 1996). In a more recent study, Dohnt and Tiggeman (2005) reported that girls as young as age five to eight were already being influenced by peers and the media. Adolescent girls,

especially overweight ones, describe the media as making them feel “particularly bad about not conforming to the ideal” shown continually in the media (McCabe et al., 2006). In addition, numerous interviews with adolescent girls exemplified the media’s influence on body dissatisfaction as their answers pointed to magazine articles and fashions as dictating the pressures they felt to be thin (Tiggemann, Gardiner, & Slater, 2000; Wertheim et al., 1997).

### Body Dissatisfaction and Age

According to Scime et al. (2006), risk factors such as drive for thinness and body dissatisfaction may emerge well before adolescence. As stated earlier, girls as young as five to eight are influenced by media ideals (Donht & Tiggeman, 2005). Studies have shown that girls as young as eight or nine are experienced dieters, with some reporting they would rather be dead than fat (Costin, 1996; Massey-Stokes, 2008). In an older study, of the 11 million eating disorder cases, 10% reported onset at 10 years of age or younger and 33% reported onset between the ages of 11 and 15 (Costin, 1996). Scime et al. (2006) discussed the importance of prevention efforts taking place during preadolescence before “thin-ideal”s set in. Ghaderi et al. (2005) also reported on the importance of prevention occurring before disordered eating behaviors and negative body image are normative, usually by seventh and eighth grade. Many prevention programs target older middle schoolers, such as eighth graders, or even high schoolers. These programs are too late for prevention, and tend to be an intervention, not prevention, since body ideals are already well formed. Neumark-Sztainer, Sherwood, Collier and Hannan (2000) also recommend programs for younger ages, such as 10 to 11, that focus on

promoting positive body image and media literacy. When reviewing her program, Paxton (1993) discussed age as a major factor when evaluating the ineffectiveness of her prevention program. She suggested 15 years of age is too old for prevention and that education and prevention efforts should be initiated as early as possible (Paxton, 1993). Kater et al. (2002) credits much of the success of their prevention program to the young age the curriculum targets.

When considering age and body dissatisfaction pubertal timing is critical. Early onset of puberty has been correlated with increased body dissatisfaction. McCabe and Ricciardelli (2004) reported increased body dissatisfaction among girls who matured early or even at the same time as their peers. Discomfort and self-consciousness about body changes result in decreased body satisfaction (Davison et al., 2007). When continually faced with an ultra thin ideal body in the media, the curves that come with puberty cause conflict for adolescent girls, especially the ones who are early in development (Siegel et al., 1999). In addition, weight gain that is so common for girls at the onset of puberty causes stress and body dissatisfaction (Bearman et al., 2006; Ge, Elder, Regnerus & Cox, 2001). Davison et al. (2007) also witnessed an increase in body dissatisfaction among girls who were early maturing, around age 11, and yet had gained weight within normal range for development.

### Body Dissatisfaction and Ethnicity

Historically, data has supported that certain ethnic groups were immune to body dissatisfaction; that body dissatisfaction was primarily an issue of Caucasian girls and women. Data on body dissatisfaction rates varies widely by ethnicity. Previously,

studies have shown ethnicity, other than Caucasian, to be a protective factor for body dissatisfaction (Rodriguez, Marchand, Ng, & Stice, 2008). However, multiple studies have yielded differing results. Some results indicate that body dissatisfaction and disordered eating patterns are similar among different ethnicities, while others studies demonstrate just the opposite; that different ethnicities experience vast differences in body dissatisfaction. Popular opinion is that the Hispanic culture is more tolerant of large body sizes. This acceptance may be due to the high incidence of obesity within the Hispanic population (Cachelin, Rebeck, Chung, & Pelayo, 2002). However, according to Cachelin et al. (2002), ethnicity does not prove to be an indicator of body shape preference or tolerance of obesity. Franko and Striegel-Moore (2002) conducted a thorough review of the literature of the differences in body dissatisfaction between African American girls and Caucasian girls. Their findings support that Caucasian girls have continually reported higher body dissatisfaction rates than African American girls (Franko & Striegel-Moore, 2002). In addition, Caucasian girls also report a thinner body size ideal, and are more likely to report themselves “overweight” and “trying to lose weight” than their African American counterparts even though most often the African American girls were larger (Franko & Striegel-Moore, 2002).

Interestingly, Asian, Hispanic, and American Indian girls reported as much if not more body dissatisfaction than Caucasian girls (Kelly et al., 2005). Duncan et al (2006) also found similar results. This study found the association between overweight and body dissatisfaction was highest among Asian children. In a study conducted by Robinson et al. (1996), the researchers found that Hispanic girls had the highest body dissatisfaction,



followed by Asian and Caucasian girls. African Americans were not included in this comparison.

Nishina, Ammon, Bellmore, and Graham (2006) also found that African American girls reported higher body satisfaction than other ethnic groups, including Caucasian, Latino, and Asian. In a survey of 877 teens aged 13 to 18, Siegel et al. (1999) found African American girls consistently had higher body image and self-esteem than other ethnicities, including Hispanics, Asians and American Indians. They found Hispanic girls to be at the greatest risk of high body dissatisfaction and lowered self-esteem. In their study of ninth grade girls, Croll et al. (2002) reported that Hispanic and American Indian girls had a greater level of disordered eating behaviors, such as fasting, bingeing and purging, and laxative abuse. Negative body image has also been associated with higher levels of substance abuse, especially among Mexican-American teens (Nieri, Kulis, Keith, & Hurdle, 2005).

In a review of the National Heart, Lung, and Blood Institute for Growth Study (NGHS), Striegel-Moore et al. (2000) found significant ethnic differences in the drive for thinness section of the Eating Disorder Inventory. Even though Caucasian girls were thinner, they scored higher in the drive for thinness category than African American girls (Striegel-Moore et al., 2000). However, some studies have yielded conflicting results. For example, Caldwell, Brownell, and Wilfley (1997) reported no significant differences between African American and Caucasian girls on measures of body dissatisfaction and self-esteem. Rodriguez et al. (2008) also found similar results in a comparison of a prevention program for Asian, Hispanic, and Caucasian girls. At baseline measurements,

the researchers discovered no difference in levels of body satisfaction across the different ethnicities (Rodriguez et al., 2008). Many people think body dissatisfaction and disordered eating are only significant issues for Caucasian girls; however, the broad range of research demonstrates that these issues are major problems for all ethnicities.

The differences in ethnicities and body satisfaction exist due to a variety of reasons. Social support and peer influences have been identified as protective factors for some ethnicities and risk factors for others (Bearman et al., 2006). Caucasian girls report often feeling more judged by their peers for larger body sizes and more competitiveness compared with African American girls. African American girls report more peer support (Striegel-Moore et al., 2000). Community and family influences may play a role in attitudes and behaviors. Compared to Caucasian women, African American women are more likely to consider themselves attractive even when overweight (Botta, 2000; Franko & Striegel-Moore, 2002). In addition, African American mothers tend to be more accepting of larger body sizes in their daughters (Franko & Striegel-Moore, 2002). However, in their examination of maternal influences, Hahn-Smith and Smith (2000) found no difference between the Hispanic and Caucasian girls in maternal influence or levels of body dissatisfaction. Hesse-Biber, Howling, Leavy, and Lovejoy (2004) hypothesized that African American girls have less body dissatisfaction due to their strong sense of racial identity. African American girls do not appear to internalize the “thin-ideal”s of the larger culture (Hesse-Biber et al., 2004). This cultural, social and familial support provides a protective factor for African American girls (Hesse-Biber et al., 2004). Typically, African American women report higher drive for thinness, higher

body dissatisfaction, and appear to be more affected by thin idealization when they have rejected the African-American culture (Botta, 2000).

Among adolescents, there is a correlation between self-esteem and body satisfaction (Stice et al., 2001). High self-esteem tends to increase body satisfaction and the opposite holds true: body dissatisfaction lowers self-esteem (Siegel et al., 1999). Researchers report that the self-esteem of adolescent girls plummets upon hitting adolescence. Although, studies have shown that African American girls have higher self-esteem in adolescence when compared to Caucasian girls (Franko & Striegel-Moore, 2002; Gilligan & Brown, 1992; Siegel et al., 1999; Williams & Currie, 2000). In addition, when compared to adolescent males, females have historically shown a significant drop in self-esteem as they enter adolescence (Siegel et al., 1999). When the researchers controlled for body dissatisfaction, there was no significant gender-based difference in self-esteem scores (Siegel et al., 1999).

The processing of media messages by adolescent girls may also contribute to differences in body dissatisfaction rates. Caucasian girls appear to be more susceptible to internalization of the “thin-ideal” than African-American girls (Bearman et al., 2006; Botta, 2000; Franko & Striegel-Moore, 2002). However, Botta (2000) raised interesting concerns about African American teens and television in the report, *The Mirror of Television: A Comparison of Black and White Adolescents' Body Image*. Typically, adolescents choose to watch and identify with like ethnicities and historically, representation of minorities was sparse on television. As African American representation has increased, so have images of African American women that conform

to the thin ideals. Botta (2000) stresses the importance of observing this concerning trend to assess the potential impact it will have on African American adolescent females in the future.

Media influences may also play a role in body dissatisfaction among Hispanic girls. Hispanic girls may have difficulty coping with media images because they may feel pressure to apply the American female stereotype to themselves (Miller & Pumariega, 1999). Although place of birth appears to be unrelated to body image for Hispanics, it has been shown to be a factor for foreign-born Asians (Siegel et al., 1999). Asians who were foreign born had higher body satisfaction than those who were born in the United States (Siegel et al., 1999).

Differences exist in pubertal timing and its effect on ethnicities and body satisfaction. Asian girls who matured at an earlier age did not have higher body dissatisfaction when compared with those who had later maturation (Siegel et al., 1999). In addition, early pubertal development does not appear to affect African American girls' self-esteem and body dissatisfaction scores (Ge et al., 2001). Hispanic girls who perceived they were developing about the same time as their peers felt better about themselves. If the Hispanic girls were early developers their body dissatisfaction increased, equal to the higher body dissatisfaction that early developing Caucasian girls frequently experience (Siegel et al., 1999).

#### Disordered Eating and Eating Disorders

Body dissatisfaction has been the single most predictive factor of eating disorders and disordered eating (Costin, 1996; Heinberg, Thompson, & Matzon, 2001). Gehrman,

population (Keel et al., 2003). Although eating disorders may affect a smaller percentage of young women, disordered eating and EDNOS on the spectrum effect significantly more, as many as 10-15% of young women between the ages of nine and 19 (Levine & Smolak, 2006). Disordered eating is defined as unhealthy weight control practices, but not necessarily a full-blown eating disorder (Costin 1996; NEDA, 2006). In a study of high school students, 30% of girls engaged in disordered eating behaviors such as bingeing and purging, laxative and diet pill abuse (Austin, Ziyadeh, Leliher, Zachary, & Forman, 2001). According to Neumark-Sztainer (2005), unhealthy weight control behaviors are rampant amongst teenagers and the trend is startling. Over one-half of teenage girls and nearly one-third of teenage boys surveyed reported skipping meals, fasting, smoking cigarettes, vomiting, and taking laxatives. While an assumption could be made that dieting practices would increase body satisfaction the reverse is actually true. In a study conducted by Barker and Galambos (2003), dieting attempts actually predicted an increase in body dissatisfaction.

Eating disorder research is often difficult to conduct due to the secrecy and shame associated with the behaviors (Costin, 1996; Hoek & Van Hoeken, 2003). In addition, ED treatment is extremely costly and insurance companies will only cover treatment if coupled with another diagnosis like depression or bipolar disorder (NEDA, 2006). As it is estimated that only one in 10 people suffering from an eating disorder actually receive treatment, most will go without treatment for many years, or never receive treatment at all (NEDA, 2006). Due to the severity, consequences, treatment challenges and costs of these illnesses, prevention efforts must become a public health priority.

## Overweight and Obesity

Obesity has continued to increase dramatically over the last decade for Americans of all ages. Based on estimates from the 2003-04 National Health and Nutrition Examination Survey (NHANES), which is conducted by CDC's National Center for Health Statistics, 32.2% of adults (over 66 million) were obese. Almost 5% of adults were extremely obese (CDC, 2007). The percent of children who were obese also continues to increase. "One of the most significant concerns from a public health perspective is that we know a lot of children who are overweight grow up to be overweight or obese adults," said previous CDC director Dr. Julie Gerberding. "One critical answer to this problem is that we must all work together to help our children make physical activity a life-long habit" (CDC, 2002).

Data from NHANES surveys (1976–1980 and 2003–2006) show that the prevalence of obesity has increased for children aged 2–5 from 5.0% to 12.4%; aged 6–11 years, from 6.5% to 17.0%; and aged 12–19 years, from 5.0% to 17.6% (CDC, 2009). In addition, when comparing ethnicities, the prevalence of obesity was higher among adolescent Mexican-American boys (22.1%) than among non-Hispanic white (17.3%) and black (18.5%) boys (CDC, 2009). Among females, non-Hispanic black girls had the highest prevalence of obesity (27.7%) compared to that of non-Hispanic white (14.5%) and Mexican American (19.9%) girls (CDC, 2009). Between 1994 and 2006, prevalence of obesity increased by 14.5% among non-Hispanic black girls, 10.7% among Hispanic girls, 8% among Hispanic boys, and 7.8% among non-Hispanic black boys.

Overweight and obese children can suffer many physical health problems including: diabetes, glucose intolerance/insulin resistance, hypertension, orthopedic problems, and menstrual abnormalities (American Obesity Association, 2005). In addition, overweight children suffer many emotional problems including, but not limited to: low self-esteem, depression, and negative body image. They also can suffer from many social problems, including: negative stereotyping, discrimination, teasing/bullying, and social marginalization (American Obesity Association, 2005). In fact, a study of physical, emotional, social, and school functioning quality found that obese children were 5 times more likely to self-report a low quality of life versus children of normal weight. This study found that obese children scored similarly with children undergoing cancer treatment (American Cancer Society, 2003). In a recent study of the effect of obesity among youth on suicidal behaviors, results indicate that body dissatisfaction, as measured by the perception of being overweight, has a strong impact on all suicidal behaviors for girls (Dave & Rashad, 2009). Perception of being overweight raised the risk of suicide ideation by 6.1 percentage points, suicide attempt by 3.6 percentage points, and a serious suicide attempt by 0.5 percentage points. The perception of being very overweight had a significant effect on suicide attempts by both genders (Dave & Rashad, 2009). Being overweight and obese is a significant risk factor for body dissatisfaction among children (Davison & Birch, 2001). Current research dictates that substantial overlap exists between obesity, body dissatisfaction and eating disorders (Neumark-Sztainer et al., 2006). This overlap raises the question of whether or not prevention efforts can be

combined for obesity, body dissatisfaction and eating disorders. Neumark-Sztainer et al. (2006) propose that prevention efforts can be all encompassing.

Considerable focus and attention has been given to overweight and obesity prevention. Neumark Sztainer and Van den Berg (2007) witnessed increased health in a survey of adolescent girls who did not receive weight management techniques but an overall wellness and positive body image course. At the end of the five years, the girls who participated in the positive body image program actually weighed less than the comparison group which participated in a supervised weight management program. Based on these results, Neumark-Sztainer and Van den Berg (2007) suggest not using body dissatisfaction as a motivator for change for obese adolescents. Instead, they recommend encouraging a healthful lifestyle that includes healthy eating and physical activity and promoting body acceptance regardless of size. Obesity prevention or intervention programs that stress body dissatisfaction or unhealthy restrictive practices are not recommended for long-term success. Two innovative programs, *Planet Health* and *New Moves* have managed to incorporate both nutrition and physical fitness fundamentals with positive body image affirmations (Gortmaker et al., 1999; Neumark-Sztainer et al., 2006).

### Body Dissatisfaction and Physical Activity

A positive link between girls' self-esteem and sports is a crucial element of the Girls in Motion® program. Jaffee and Wu (1995) released findings that girls' involvement in physical activity is a factor that influences body satisfaction. In addition, participation in physical activity was found to be related to self-satisfaction, confidence



and perceived competence. Many other studies found similar effects (Fisher & Thompson, 1994; Koff & Bauman, 1997; Tucker & Mortell, 1993). Unfortunately, as girls move from grade school to high school, they drop out of sports at a rate six times higher than boys (Women's Sports Foundation, 1998).

Duncan, Al-Nakeeb, Nevill, and Jones (2006) found a significant association between physical activity and body dissatisfaction in children. Results from their study of 276 children (166 boys and 110 girls) indicated that as physical activity increased, so did body dissatisfaction ( $F[1,269] = 13.36, p < 0.01$ ) (Duncan et al., 2006). This result was also reported in the *Project GRAD* program, a physical activity and body image intervention program targeted to college students (Duncan et al., 2006; Zabinski, Calfas, Gehrman, Wilfley, & Sallis, 2001). Zabinski et al. (2001) found at the end of *Project GRAD* that the intervention group increased their drive for thinness from pretest ( $M=6.2, SD=5.9$ ) to posttest ( $M=7.2, SD=6.4$ ) ( $p < .02$ ).

A few theories exist as to why an increase in physical activity can also increase body dissatisfaction. Some researchers suspect that these interventions raise awareness and sensitivity of body shape in general, and as participants begin to see changes they begin to desire more significant change (Duncan et al., 2006; Gehrman et al., 2006). Self-selection into the program may also be a factor. Girls who already are susceptible to negative body image or disordered eating may have been more attracted to the *Project GRAD* program or similar programs (Zabinski et al., 2001).

Many studies have shown a relationship between the decrease in physical activity for adolescent girls and body and appearance consciousness (Davison, Werder, Trost,

Baker, & Birch, 2007). Davison et al. (2007) found a weak inverse relationship between early physically developed girls and a decrease in physical activity ( $r=-.16$ ,  $p<.10$ ) for breast stage and ( $r=-.15$ ,  $p<.10$ ) for Pubertal Development Scale scores. This change may be the result of lower body esteem and dissatisfaction.

Duncan et al. (2006) stressed the importance of considering many factors when designing interventions aimed at increasing physical activity and body satisfaction to prevent the negative effects discussed earlier. Davison et al. (2007) recommend focusing on team building instead of competitiveness in adolescent girls' physical activity programs. In addition, they recommend gender separated physical activity programs to reduce girls' self-consciousness during the developing years of puberty (Davison et al., 2007). The President's Council on Physical Fitness and Sports (1997) issued a report, *Physical Activity and Sports in the Lives of Girls*, which made these recommendations on behalf of young girls and adolescents:

1. Involvement in physical activity, exercise and sport promotes psychological well-being; the therapeutic use of physical activity and exercise for improving the mental health of adolescent girls; and goes beyond traditional treatment and mental health problems.
2. Parents, coaches and teachers must be aware of girls' motives for participating in sports and physical activity. Girls participate not only for competitive reasons, but to get in shape, to be social, improve skills and have fun. All motives, not just those related to highly competitive activity, must be respected and validated.

3. Involvement in sports and physical activity has tremendous potential to enhance a girl's sense of competence and control. Therefore, leaders should incorporate cooperative as well as competitive opportunities to learn physical skills in a non-threatening environment.
4. Physical activity and exercise have been shown to be a mood enhancer and an anxiety reducer, thereby acting as a natural, cost-effective intervention for the mental health of adolescent girls (p. 16-17).

#### Health Education Theory and Body Dissatisfaction

Two theories are utilized for the basis of Girls in Motion®. The first is Bandura's Social Cognitive Theory (SCT), which is frequently used as a basis for health education programs and interventions. In addition, SCT has proven to be a useful theoretical foundation in many health education programs with children (Gortmaker et al., 1999). One major construct of SCT is reciprocal determinism; SCT defines human behavior as a triadic, dynamic, and reciprocal interaction of personal factors, behavior, and the environment (Bandura, 1986). In addition, Bandura first proposed the construct of self-efficacy: a person's confidence in performing a certain behavior and in overcoming barriers (Bandura, 1986). Other key concepts of SCT discussed are reinforcement, behavioral capability, observational learning, and self-control. Reinforcement is responding to the participants' behavior in such a way that it increases or decreases the desired behaviors. Observational learning is defined as the acquisition of behaviors that occur by watching others' behavior (Bandura, 1986). Behavioral capability promotes mastery of a skill through understanding the behavior and the skills needed to perform it

(Bandura, 1986). The construct of self-control stresses self-monitoring of behavior with goals and rewards (Bandura, 1986). Bandura discusses the importance of an environment that not only reinforces or punishes behaviors but also includes an opportunity for someone to observe actions of others and learn benefits and consequences of the behaviors (Bandura, 1986). The construct of reciprocal determinism was utilized in the Girl Scout program, *Free to be Me* (Neumark-Sztainer, Sherwood, Collier, & Hannan, 2000). This disordered eating primary prevention program designed for Girl Scout troops encouraged girls to take action to positively influence the environment around them and in turn, empower them, utilizing media literacy training (Neumark-Sztainer et al., 2000). Lastly, SCT was also utilized in an obesity reduction intervention, *Planet Health* (Gortmaker et al., 1999). The *Planet Health* program observed positive results in reducing obesity among girls (OR=0.47; 95% confidence interval, 0.24-0.93; P = .03) by increasing perceived competency at performing new skills and behaviors and therefore increasing self-efficacy (Gortmaker et al., 1999).

The Girls in Motion® program utilizes many constructs of SCT in its delivery. The girls who participate in Girls in Motion® gain mastery over behaviors during the program through observational learning of the mentors. For example, the mentors demonstrate and model the benefits and enjoyment of physical activity, healthy eating and overall positive body image. Reinforcements are provided through positive feedback from both the group and mentors, as well as prizes for goals achieved. The construct of self-control is utilized when the girls set personal goals each week for themselves. Finally, by learning about and performing the desired behaviors, such as healthy snack

making, stretching and a variety of different physical activities many times during the program, the goal is for the participants to gain mastery (behavioral capability) and self efficacy in implementing dietary changes or participating in physical activities (Girls in Motion®, 2006).

The second theory utilized as a basis for Girls in Motion® is the Relational-Cultural Theory (RCT). RCT was developed by the teachings of Jean Baker Miller at Wellesley college (Jordan & Hartling, 2002). RCT suggests that growth-fostering relationships are critical and disconnections are the source of psychological problems (Steese, Dollette, Phillips, & Hossfeld, 2006). Gilligan and Brown (1992) state that "connection and responsive relationships are essential for psychological development." They also suggest that girls must have the opportunity to experience authenticity within their relationships with peers and adults, to counter the "crisis of connection" which is a hallmark of adolescent female development (Steese et al., 2006). RCT also explores the problems that come without connection, stating that adolescent girls especially will lose parts of themselves to stay in a relationship, just for the sake of connection, sometimes to their detriment (Jordan & Hartling, 2002). RCT constructs were utilized as a basis for a primary prevention program targeting nine to 14 year old Mexican American girls from a low-income area in South Texas. The program *Girl World* stressed connection with female volunteers and participation in sports as hallmarks of the prevention efforts (Kelly, Bobo, McLachlan, Avery, & Burge, 2006). RCT constructs were also the basis for the *Girls' Circle* program targeting girls 10-17 from various ethnic backgrounds. This

program found success in utilizing the constructs of social support, high expectations and identification with one's one ethnicity or culture (Steese et al., 2006).

Research suggests that adolescents who have endured hardship are more resilient if they have a relationship with at least one caring, pro-social adult in their community (Steese et al., 2006). In the Girls in Motion® program, mentors provide this support, as they are instrumental in the delivery of the curriculum (Girls in Motion®, 2006). While a few studies have been conducted utilizing RCT, further research is recommended to understand if RCT based programs can impact body dissatisfaction and disordered eating patterns for the long term (Steese et al. 2006).

### Primary Prevention

The success of an eating disorder prevention program is contingent on the translation of theory into research and practice (Steiner-Adair et al., 2002). Considering the broad lifelong consequences of eating disorders, the lack of attention to primary prevention programs is surprising. Historically, programs have been didactic, primarily relaying eating disorder information and warning signs information (Scime et al., 2006). These programs were often found to be not only ineffective, but also harmful. It was often found that girls at risk for developing eating disorders saw these types of programs as “how to have an eating disorder” classes (Killen et al., 1993). Although body dissatisfaction and education surrounding media and its influence have recently been added to prevention programs, successful behavior modification has not been reported (Scime et al., 2006). Previous studies have shown that knowledge is attainable, but behavior change is more difficult to obtain (Steiner-Adair et al., 2002). This research

exemplifies the need for different types of programs or added program components.

While reviewing the literature, a few primary prevention programs highlighted below stand out as promising.

An innovative eating disorder primary prevention program, *Girls' Circle*, was created with the RCT constructs (Steese et al., 2006). The *Girls' Circle* model aims to increase protective factors and reduce risk factors among adolescent girls (Steese et al., 2006). The program facilitates resiliency development in girls via high expectations; caring and support; positive identification with one's own cultural ethnic, or racial group; and meaningful participation within their communities (Steese et al., 2006). Results of a preliminary study conducted on 63 girls ranging in age from 10 to 17 revealed the girls who participated in the program had a significant increase in social support ( $t(53) = -4.07$ ,  $p < .05$ ), body image ( $t(53) = -2.02$ ,  $p < .05$ ), and self-efficacy ( $t(53) = -5.27$ ,  $p < .05$ ) after completion of the program (Steese et al., 2006).

A similar program, *Full of Ourselves: Advancing Girl Power, Health and Leadership* is a school based eating disorder primary prevention program that resulted in knowledge attainment ( $t(203) = 14.6$ ,  $p < .001$ ); and weight-related body esteem ( $F[1,367] = 5.15$ ,  $p < .05$ ), but yielded no significant behavior change (Steiner-Adair et al., 2002). This eight-week program focused on increasing self-esteem and promoting positive body image via mentorship and knowledge attainment (Steiner-Adair et al., 2002). Scime et al. (2006) reported on another primary prevention program that utilized an innovative approach and resulted in promising data. The *Girls' Group* program provides eating disorder education, along with yoga practice and self-esteem building exercises to small

groups of fifth graders (Scime et al., 2006). This program consists of 10, 90 minute after school sessions that focus on yoga and discussions surrounding healthy eating, coping skills, media and cultural pressures. Participation (n=29) in the program resulted in significant reduction in drive for thinness from pretest (M = 6.20, SD = 5.57) to posttest (M= 4.45, SD = 4.76;  $t(28) = 2.91, p=.01$ ) as well as a significant reduction in body dissatisfaction from pretest (M = 9.59, SD = 7.27) to posttest (M =6.31, SD = 6.51;  $t(28) = 3.99, p<.01$ ). According to Scime et al. (2006) building up self-esteem and competency can provide a protective factor against body dissatisfaction and eating disorders. Although, it is important to note that this finding is based on analysis of a very small population (n=29) and making a bold statement of effect is unwarranted. Ultimately, the developers of this program stressed the importance of a multi-dimensional approach to eating disorder prevention (Scime et al., 2006).

Another disordered eating prevention program is *Free to be me*, which has been implemented with Girl-scouts. This program consists of six 90-minute sessions consisting of education about body development, body image and self-esteem, and media influences. The evaluation included assessment of dieting behaviors, body-related knowledge and attitudes, and media knowledge and attitudes and behaviors. Evaluation measures consisted of the following: body satisfaction measurements with the Body Satisfaction Scale; a dieting assessment question to measure dieting behaviors; a six item scale adapted from the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ) to measure media knowledge attitudes and behaviors; and self efficacy measured by a seven question Likert scale created for this particular study (Neumark-



Sztainer et al., 2000). The results were based on surveys of 226 girls (mean age=10.6) and indicated modest effects on body image attitudes and no significant effect on dieting behaviors. However, this program did result in a positive influence on media attitudes and behaviors ( $p=.004$ ). The developers of this program stressed the importance of not labeling the intervention as ineffective. Long-term effects of short primary prevention programs are often not observable; therefore, it is the recommendation that longer-term interventions be implemented and evaluated (Neumark-Sztainer et al., 2000).

Ghaderi et al. (2005) found similar results with the primary prevention program, *Everybody's Different*. In the *Everybody's Different* program, 77 fifth grade boys and 87 fifth grade girls were recruited from two different schools. The children attended nine weekly 50 to 80 minute sessions during school. The purpose of this program was to improve body image by increasing self-esteem. This study found no significant differences in the pre and posttest scores between the intervention and control groups. However, in previous studies of this program, modest effects were witnessed in the immediate aftermath, but not consistently in follow-up (Ghaderi et al., 2005; O'Dea & Abraham, 2000).

*Eating Smart, Eating for Me (ESEM)* is an eating disorder prevention program designed for fourth and fifth grade boys and girls (Smolak & Levine, 2001). This program consisted of 10 one-hour workshops relating to nutrition and exercise, unhealthy weight control practices and body esteem (Smolak & Levine, 2001). This program's evaluation utilized 519 adolescents (248 boys and 252 girls) and was conducted immediately upon the completion of the program, with a follow-up study two years later.

Positive short-term knowledge gains were witnessed ( $F[2,422]=6.84, p=.001$ ), but no gains were observed in attitudes and behaviors (Smolak & Levine, 2001). Upon the two-year follow-up evaluation, the participants in this program were more knowledgeable and utilized fewer unhealthy weight management techniques than the control group (Smolak & Levine, 2001).

Lastly, one of the most thorough primary prevention programs, *Healthy Body Image: Teaching Kids to Eat and Love Their Bodies, Too!*, witnessed promising results in influencing knowledge, attitudes, and future behaviors (Kater, Rohwer, & Londre, 2002). This 11-session elementary school based program, developed by Kater, includes lessons about normal development, body acceptance, media literacy, healthy eating, and being physically active. This study included a sample of 415 boys and girls aged 9-13. Significant changes were observed from the pre and posttest survey responses among girls pertaining to knowledge ( $p<.001$ ) and media awareness ( $p<.001$ ). Scores for body size prejudice ( $p=.048$ ) and self-image ( $p=.048$ ) also improved from pretest. No significant effects were observed for body image (Kater et al., 2002).

According to Massey-Stokes (2008), primary prevention programs that include the promotion of positive body image, healthy eating and physical activity will be the most effective. Neumark-Steiner et al. (2006) also discuss moving towards “universal prevention” programs that not only provide protective factors such as self-esteem building and education about media influences but also prevent risk factors such as unhealthy dieting practices and body dissatisfaction. Scime et al. (2006) also suggest components that foster protective factors such as self-esteem and competency should be

included as critical elements of any primary prevention program. Based on current research, primary prevention models need to focus on targeting risk factors as well as promoting a variety of healthy lifestyles and behaviors (Scime et al., 2006).

One major challenge of primary prevention is evaluation efforts. Often, the impact of primary prevention may not emerge until several years later (Kelly et al., 2006). Kelly et al. (2006) discussed how many primary prevention programs do not match well within experimental evaluation frameworks. Levine and Smolak (2001) also reported on the challenge of evaluating primary prevention programs. Several prevention programs demonstrate positive results in the short term, but results are not maintained, or are hard to measure in a follow up (Levine & Smolak, 2001). The goals of primary prevention programs can be difficult to measure. Is the goal behavior change or preventing the problem before onset? Addressing short-term change or prevention versus long-term change or prevention is also a critical piece of the evaluation puzzle (Kelly et al., 2006; Levine & Smolak, 2001). Levine and Smolak (2001) stressed the importance of clearly defined goals and studies that reflect them. Lastly, as stated above, many eating disorder prevention programs have resulted in negative or nonsignificant findings. Care must be taken when implementing these types of programs (Killen et al., 1993; Levine & Smolak, 2001; Paxton, 1993). While additional research and improvements still need to be pursued, body dissatisfaction and eating disorder prevention programs have made significant improvements over the past decade (Neumark-Sztainer et al., 2006).

## CHAPTER III

### METHODOLOGY

#### Population and Sample

This study utilized secondary data collected from participants who signed up to participate in five consecutive sessions of the Girls in Motion® after school program conducted at three different locations. The participants were recruited from local area schools, after school programs, community centers, churches and synagogues. Two locations were in Dallas, Texas, and one location was in Elon, North Carolina. The sample consisted of one session of Elon University participants, and one session at Brookhaven College in Dallas, and seven sessions at Southern Methodist University (SMU) in Dallas. Each group consisted of 10-15 girls, with an approximate total of 225 participants. However, due to collection errors, and participant attrition, the usable sample was 98 participants.

#### Protection of Human Participants

For the initial study, Institutional Review Board (IRB) approval was sought and granted by Southern Methodist University. Texas Woman's University IRB granted exempt status approval for the current study (see Appendix A). Before the program began, the parents and their participating daughters attended an orientation session. During this session, the parents and child provided informed consent for participation.

### Data Collection Procedures

As stated above, before the program began, parents and their daughters attended an orientation session. After informed consent was provided during the orientation session, participants completed all pretests. In addition, demographic data were collected, such as age, grade, school attended, parents' occupation, and ethnicity. The participants met once a week for eight weeks, with each session lasting one hour and ten minutes. Each session consisted of warm up games and stretching, physical activity and discussion with mentors and in small groups, the making of a healthy snack, and a wrap up discussion. Topics for each of the sessions included: benefits of physical activity, physical activity goal setting, healthy eating, nutritional goal setting, body image, peer pressure and media influences. During the last session, participants celebrated their achievement of goals during the sessions. In addition, at the conclusion of the last session, the participants completed the posttest. Once collected, data were stored in a locked cabinet in the Girls in Motion® office and were only accessible by the statistician.

### Instrumentation

The Body Image Survey was administered before and after the eight-week program. The Body Image Survey is a combination of the Drive for Thinness subscale, the Female Body Satisfaction subscale, and the Male Body Satisfaction subscale of the EDI-2. This survey is a 22-item self report questionnaire that measures drive for thinness; female concerns and body dissatisfaction; and male concerns and body dissatisfaction. In

prior research, all subscales demonstrated adequate reliability scores: drive for thinness ( $r=.88$ ); female body satisfaction ( $r=.87$ ); and male body satisfaction ( $r=.82$ ) (Zabinski et al., 2001).

### Data Analysis

The demographic data was described using frequencies and percentages. Crosstabulations with Pearson's Chi Square ( $\chi^2$ ) were used to investigate the relationships among the demographic variables, which were all categorical variables. Means and standard deviations were determined for pretest and posttest subscale scores, and also for the change scores. The change scores were created by subtracting each of the pretest subscale scores from the posttest scores. In addition, Pearson's correlation coefficients were conducted to examine the relationship among the subscale scores.

Dependent sample *t*-tests (with a test value of 0) were conducted on each of the change scores to determine whether or not there was a significant decrease in scores from pretest to post test. In addition, the data file was split by each of the demographic variables (ethnicity, grade, and study location), and dependent sample *t*-tests were conducted on each level of the demographic variables to examine for significant differences in scores based on ethnicity, grade, and study location. In addition, one-way ANOVAs were conducted on the subscale change scores by ethnicity, grade and study site. Tukey's post hoc tests were used to identify significant differences among the three ethnicity categories.

## CHAPTER IV

### RESULTS

The purpose of this study was to evaluate the effectiveness of the Girls in Motion® program by comparing body satisfaction pre-and posttest scores of the preadolescent participants. In addition, the study examined the differences in pre-and post body satisfaction scores by ethnicity and grade. This chapter presents the findings of the analyses.

#### Demographics

The sample of the current study included 104 participants. As shown in Table 1, over one third of the participants were registered in Spring 2008 (34.6%), while equal numbers were registered in Fall 2007 (13.5%) and Fall 2006 (13.5%). Of the remaining proportion of the sample, there were 11.5% in Spring 2005, equal proportions in Spring 2006 (9.6%) and Fall 2004 (9.6%), and another 7.7% in Spring 2007. As no differences were found by semester, it was not included as a comparison in further analyses. A majority of participants attended the intervention program at SMU (72.1%), 23.1% were at the Elon location and 4.8% were at the Brookhaven (BH) location. Due to the fact that there were not enough participants for the BH and Elon locations, those two locations were collapsed to create a single location score (Not SMU) in further analyses. A majority of participants were in the fifth grade (70.7%) with the remaining participants in the fourth grade. Finally, a majority of participants were Caucasian girls (65.4%), 15.4%

were African- American girls and 13.5% were Hispanic girls. The relationship between ethnicity and grade level was analyzed using crosstabulations with Pearson's Chi Square. No significant association was found between these two demographics, *ns*.

Table 1

*Frequencies and Percentages for Categorical Demographic Variables*

	n	%
Semester/Year		
2004 Fall	10	9.6
2005 Spring	12	11.5
2006 Spring	10	9.6
2006 Fall	14	13.5
2007 Spring	8	7.7
2007 Fall	14	13.5
2008 Spring	36	34.6
Location of Data Collection		
BH	5	4.8
SMU	75	72.1
Elon	24	23.1
Grade		
4th Grade	29	29.3
5th Grade	70	70.7
Ethnicity		
African American	16	15.4
Caucasian	68	65.4
Hispanic	14	13.5
Other	1	1.0

*Note.* Frequencies not adding to 104 and Percentages not summing to 100 reflect missing data



### Body Image Descriptives

The Body Image Survey measured three factors: drive for thinness, female body dissatisfaction, and male body dissatisfaction. The Body Image Survey was administered to the girls before they began the eight-week Girls in Motion® program (pretest measure) and after the completion of the program (posttest measure). As seen in Table 2, the drive for thinness score at Time 1 ranged from 0.00 to 18.00, with a mean drive for thinness score of 4.40 ( $SD = 4.70$ ). The girls' pretest female body dissatisfaction scores ranged from 0.00 to 27.00, with a mean pretest score of 5.57 ( $SD = 7.11$ ) and their pretest male dissatisfaction scores ranged from 0.00 to 18.00, with a mean pretest score of 5.20.

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Table 2

*Means and Standard Deviations for Drive for Thinness, Female Body Dissatisfaction, and Male Body Dissatisfaction Pre and Post Subscale Scores*

---

	<i>n</i>	Mean	<i>SD</i>	Min	Max
Drive for Thinness Pretest	100	4.40	4.70	0	18
Female Body Diss. Pretest	100	5.57	7.11	0	27
Male Body Diss. Pretest	100	4.19	5.20	0	18
Drive for Thinness Posttest	97	2.59	3.08	0	15
Female Body Diss. Posttest	97	3.51	5.03	0	23
Male Body Diss. Posttest	97	2.58	3.57	0	15

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As also seen in Table 2, the posttest drive for thinness scores ranged from 0.00 to 15.00, with a mean posttest score of 2.59 ( $SD = 3.08$ ). The girls' posttest female body dissatisfaction scores ranged from 0.00 to 23.00, with a mean posttest score of 3.51 ( $SD = 5.03$ ) and their posttest male dissatisfaction scores ranged from 0.00 to 15.00, with a mean posttest score of 2.58 ( $SD = 3.57$ ). Due to the skewed distributions of the pre and post scores, change scores were calculated and used as the outcome measure for further analyses. Logarithmic transformations of the skewed data were also calculated, however the transformed distributions were still too skewed to run parametric analyses, therefore change scores were deemed the most appropriate measure.

A change score was calculated for each of the Body Image Subscales (i.e., drive for thinness, female body dissatisfaction, and male body dissatisfaction). These change scores were calculated by subtracting each pretest scores from the appropriate posttest score. As shown in Table 3, the drive for thinness change score ranged from -17.00 to 12.00, with a mean change score of -1.92 ( $SD = 4.45$ ), indicating that overall scores decreased from pretest to posttest. The female body dissatisfaction change score ranged from -26.00 to 18.00, with a mean change score of -2.16 ( $SD = 6.50$ ) and the male body dissatisfaction score ranged from -18.00 to 14.00, with a mean change score of -1.72 ( $SD = 4.92$ ), indicating that the overall male and female body dissatisfaction scores also decreased from pretest to posttest.

Table 3

*Means and Standard Deviations for Drive for Thinness, Female Body Dissatisfaction, and Male Body Dissatisfaction Subscale Change Scores*

	<i>n</i>	Mean	<i>SD</i>	Min	Max
Drive for Thinness Change	96	-1.92	4.45	-17	12
Female Body Diss. Change	96	-2.16	6.50	-26	18
Male Body Diss. Change	96	-1.72	4.92	-18	14

Pearson's product moment correlations were conducted to examine the relationships between the three body image change scores and also test the strength of the relationships between those calculated variables. As shown in Table 4, drive for thinness change scores were positively significantly correlated with female body dissatisfaction change scores ( $r = .439, p < .01$ ) and male body dissatisfaction change scores ( $r = .438, p < .01$ ), indicating that as girls' drive for thinness scores decreased, their female body dissatisfaction scores and their male body dissatisfaction scores decreased. Furthermore, female body dissatisfaction change scores were positively significantly correlated with male body dissatisfaction change scores ( $r = .771, p < .01$ ), indicating that as girls' female body dissatisfaction scores decreased, their male body dissatisfaction scores also decreased.

Table 4

*Pearson's Product Moment Correlations among Drive for Thinness, Female Body Dissatisfaction, and Male Body Dissatisfaction Subscale Change Scores*

	Drive to be Thin Change	Female Body Diss. Change
Female Body Diss. Change	.439 **	
Male Body Diss. Change	.438 **	.771 **

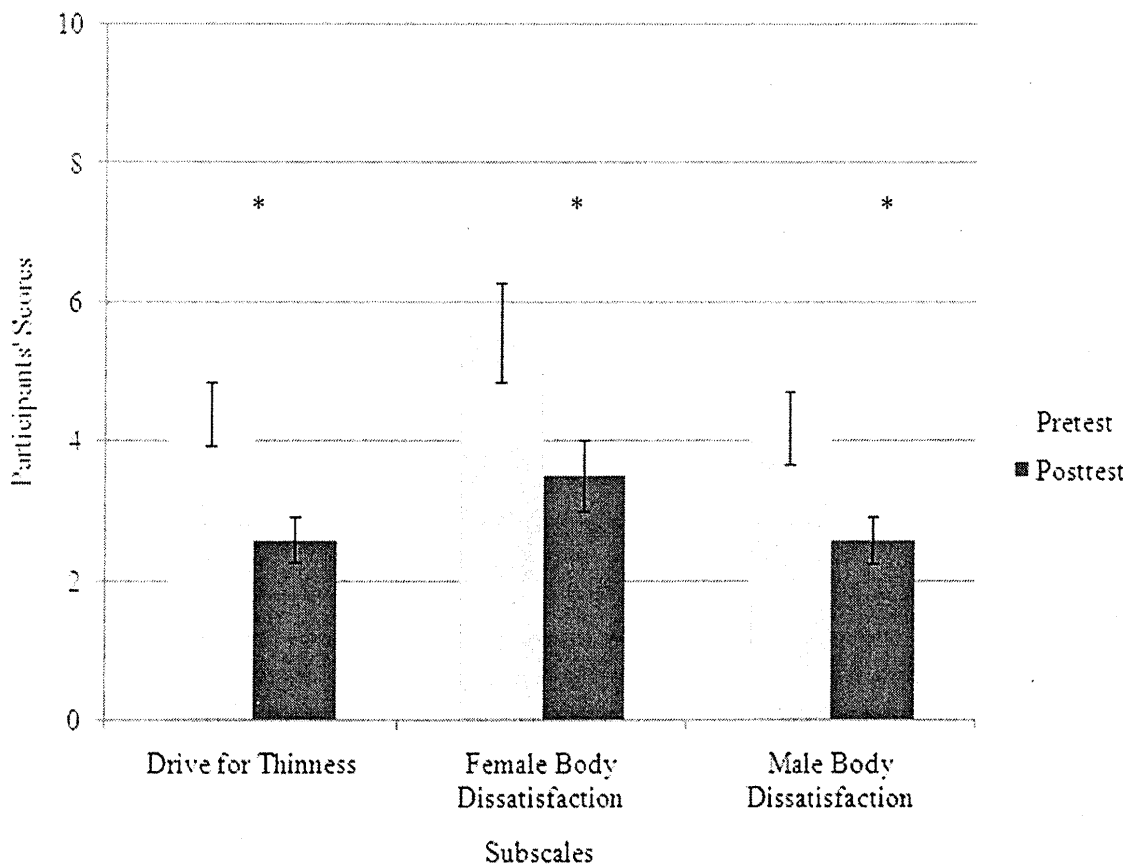
*Note.* \*\*  $p < .01$

### Primary Analyses

One-sample t-tests with a test value of zero were conducted on the subscale change scores as well as the subscale change scores by ethnicity and by grade. The purpose of these analyses was to test if the group means were significantly different than zero (i.e., whether or not the means for each individual group increased or decreased significantly from pretest to posttest). Analyses of variance (ANOVAs) were also conducted to examine the effect of the ethnicity and grade on the subscale change scores. Tukey's post hoc analyses were conducted in order to determine the significant differences between group means.

*Hypothesis One: Body Image Change Scores.*

As shown in Figure 1, drive for thinness scores significantly decreased from pre-intervention to post-intervention ( $M = -1.92$ ,  $SD = 4.45$ ),  $p < .01$ . Girls' female body dissatisfaction scores also significantly decreased across time ( $M = -2.16$ ,  $SD = 6.50$ ),  $p < .01$ , as well as their male body dissatisfaction scores ( $M = -1.72$ ,  $SD = 4.92$ ),  $p < .01$  (see Table 5).



*Figure 1: Overall Subscale Pre- and Posttest Scores*

*Note:* \* indicates significant difference between pre and post scores

Table 5

*Means and Standard Deviations for Drive for Thinness, Female Body Dissatisfaction, and Male Body Dissatisfaction Change Scores*

	<i>n</i>	<i>Mean</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Subscale Change Scores					
Drive for Thinness Change	96	-1.92	4.45	4.22	.000
Female Body Diss. Change	96	-2.16	6.50	3.25	.002
Male Body Diss. Change	96	-1.72	4.92	3.42	.001

*Hypothesis Two: Body Image Change Scores by Grade.*

In order to examine hypothesis two, one sample *t*-tests (with test value = 0) were conducted to examine if each grade level had significant changes in body image scores. As shown in Table 6, fourth grade girls had a significant decrease in their drive for thinness scores from pre-intervention to post-intervention ( $M = -2.85$ ,  $SD = 5.16$ ),  $p < .01$ , as well as their female body dissatisfaction scores ( $M = -4.27$ ,  $SD = 7.03$ ),  $p < .01$ , and their male body dissatisfaction scores ( $M = -3.50$ ,  $SD = 5.75$ ),  $p < .01$ . Fifth grade girls also experienced a significant decrease in drive for thinness scores from pre-intervention to post-intervention ( $M = -1.57$ ,  $SD = 4.14$ ),  $p < .01$ . Girls in the fifth grade, however, did not have a significant change in female body dissatisfaction scores from pre-intervention to post-intervention.

Table 6

*Means and Standard Deviations for Drive for Thinness, Female Body Dissatisfaction, and Male Body Dissatisfaction Change Scores by Grade*

	<i>n</i>	<i>Mean</i>	<i>SD</i>	<i>t</i>	<i>p</i>
4th grade					
Drive for Thinness Change	26	-2.85	5.16	2.81	.009
Female Body Diss. Change	26	-4.27	7.03	3.10	.005
Male Body Diss. Change	26	-3.50	5.75	3.10	.005
5th grade					
Drive for Thinness Change	70	-1.57	4.14	3.18	.002
Female Body Diss. Change	70	-1.37	6.16	1.86	.067
Male Body Diss. Change	70	-1.06	4.45	1.99	.051

One-way ANOVAs were conducted to examine the effect of grade level on the body satisfaction change scores. Grade level did have a significant effect on male body dissatisfaction change scores,  $F(1, 94) = 4.86, p < .05$  (see Table 7). Fourth-grade girls had a significantly greater decrease in their male body dissatisfaction scores ( $M = -3.50, SD = 5.75$ ) than girls in the fifth grade ( $M = -1.06, SD = 4.45$ ). Finally, grade level did not have an effect on girls' drive for thinness change scores or female body dissatisfaction change scores, *ns*.

Table 7

*Means and Standard Deviations for Drive for Thinness, Female Body Dissatisfaction, and Male Body Dissatisfaction Change Scores by Grade*

	N	Mean	SD	Min	Max	F	p
Drive for Thinness Change						1.57	.214
4th Grade	26	-2.85	5.16	-14	4		
5th Grade	70	-1.57	4.14	-17	12		
Female Body Diss. Change						3.88	.052
4th Grade	26	-4.27	7.03	-22	4		
5th Grade	70	-1.37	6.16	-26	18		
Male Body Diss. Change						4.86	.030
4th Grade	26	-3.50 <sup>a</sup>	5.75	-18	5		
5th Grade	70	-1.06 <sup>b</sup>	4.45	-12	14		

*Note.* Superscripts indicate differences between means

*Hypothesis Three: Body Image Change Scores by Ethnicity.*

One sample *t*-tests (with test value = 0) were also conducted to examine if each ethnicity had a significant change in body image scores. As shown in Table 8, African American girls had a significant decrease in their drive for thinness scores from pre-intervention to post-intervention ( $M = -5.00$ ,  $SD = 5.37$ ),  $p < .01$ . A significant decrease was also found for African-American girls in the female body dissatisfaction scores ( $M = -4.00$ ,  $SD = 6.72$ ),  $p < .05$  and male body dissatisfaction scores ( $M = -3.50$ ,  $SD = 5.56$ ),  $p$



< .05. Caucasian girls also experienced significant decreases in their drive for thinness scores from pre-intervention to post-intervention ( $M = -1.42$ ,  $SD = 3.92$ ),  $p < .01$ , their female dissatisfaction scores ( $M = -1.97$ ,  $SD = 6.14$ ),  $p < .05$  and their male dissatisfaction scores ( $M = -1.52$ ,  $SD = 4.12$ ),  $p < .01$ . Hispanic girls, on the other hand, did not have a significant decrease in their drive for thinness scores, their female body dissatisfaction scores nor their male body dissatisfaction scores, all *ns*. Figure 2 shows the changes in drive for thinness scores across ethnicity, Figure 3 shows the changes in female body dissatisfaction change scores across ethnic groups and Figure 4 shows the changes in male body dissatisfaction change scores across the three ethnic groups.

Table 8

*Means and Standard Deviations for Drive for Thinness, Female Body Dissatisfaction, and Male Body Dissatisfaction Change Scores by Ethnicity*

	<i>n</i>	<i>Mean</i>	<i>SD</i>	<i>t</i>	<i>p</i>
African American					
Drive for Thinness Change	16	-5.00	5.37	3.73	.002
Female Body Diss. Change	16	-4.00	6.72	2.38	.031
Male Body Diss. Change	16	-3.50	5.56	2.52	.024
Caucasian					
Drive for Thinness Change	65	-1.42	3.92	2.91	.005
Female Body Diss. Change	65	-1.97	6.14	2.58	.012
Male Body Diss. Change	65	-1.52	4.12	2.98	.004

Table 8, continued

*Means and Standard Deviations for Drive for Thinness, Female Body Dissatisfaction, and Male Body Dissatisfaction Change Scores by Ethnicity*

	<i>n</i>	<i>Mean</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Hispanic					
Drive for Thinness Change	14	-.07	3.54	.08	.941
Female Body Diss. Change	14	-.71	7.98	.34	.743
Male Body Diss. Change	14	-.14	6.95	.08	.940

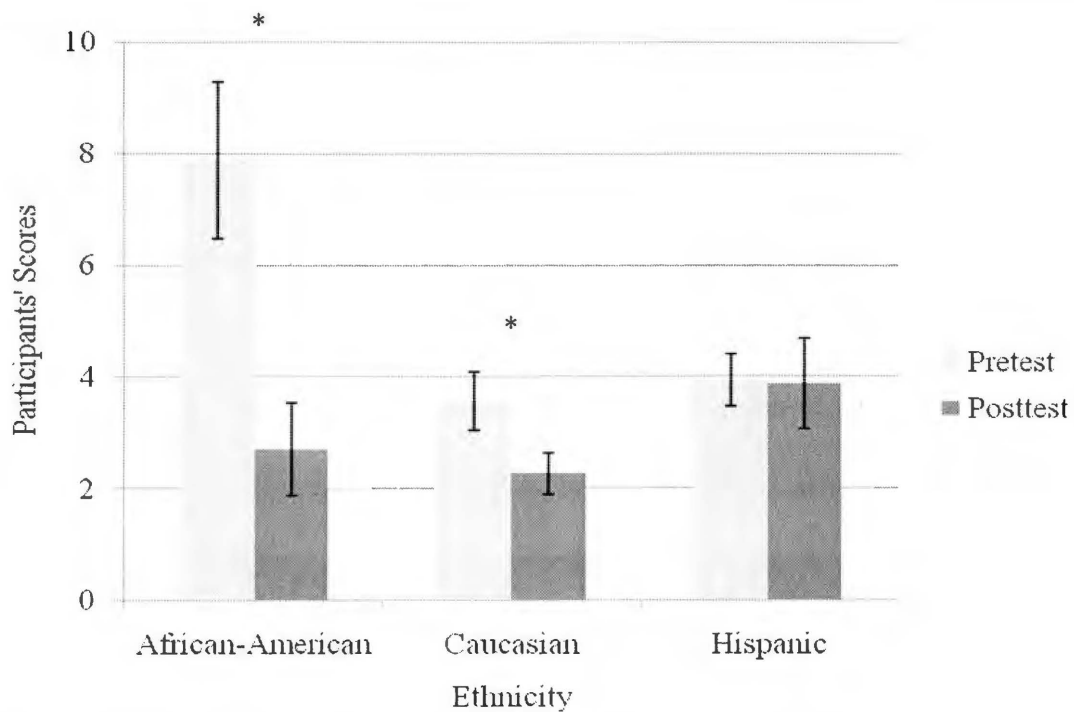


Figure 2: Pre- and Posttest Scores for Drive for Thinness Subscale by Ethnicity

Note: \* indicates significant difference between pre and post scores

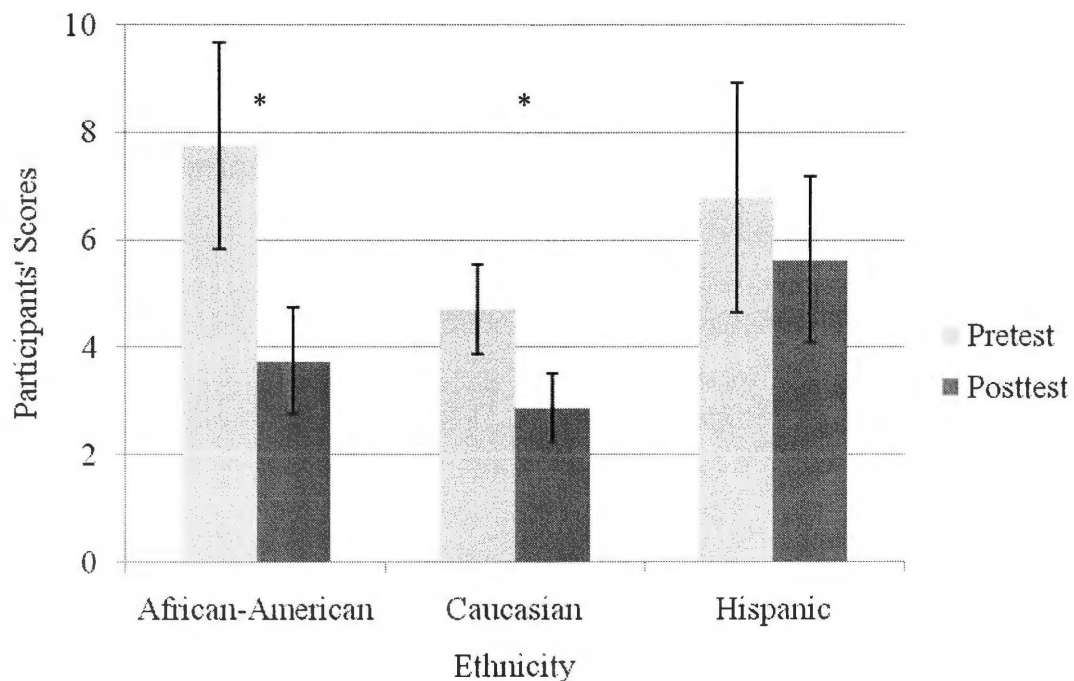
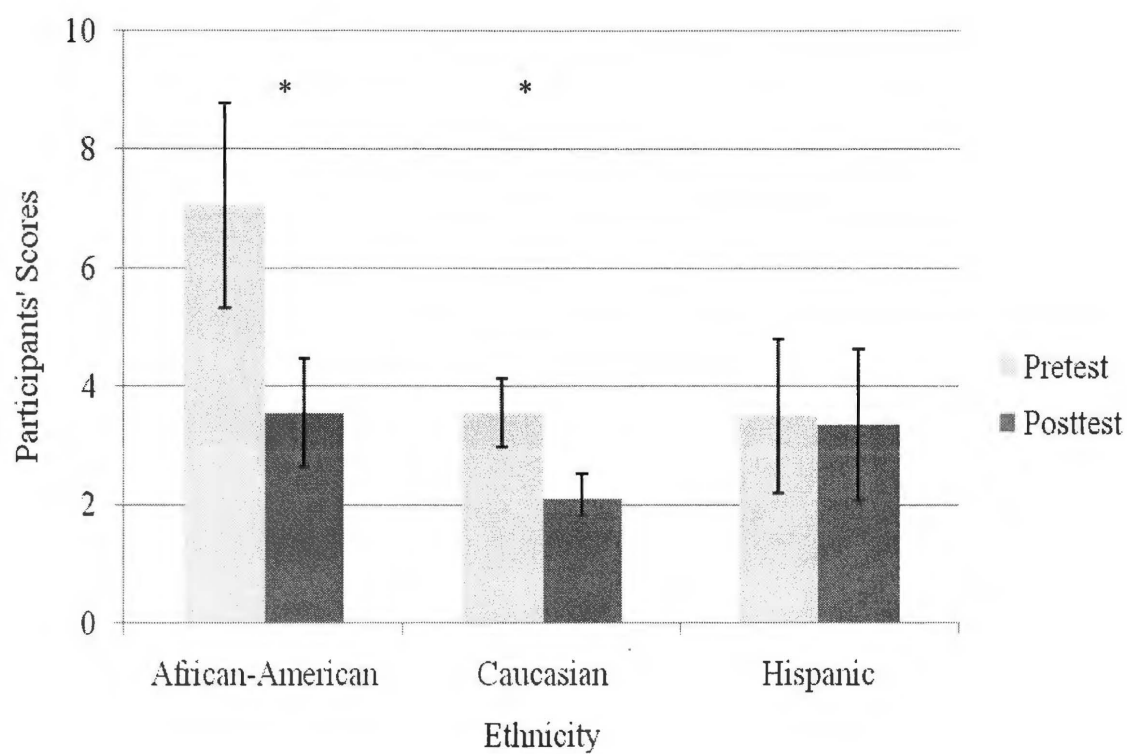


Figure 3: Pre- and Posttest Scores for Female Body Dissatisfaction Subscale by Ethnicity

Note: \* indicates significant difference between pre and post scores

Separate one-way ANOVAs were conducted to examine the effect of ethnicity on the body image change scores. As shown in Table 9, ethnicity had a significant effect on drive for thinness change scores,  $F(2, 92) = 6.26, p < .01$ . African American girls had a significantly greater decrease in their drive for thinness scores from pre-intervention to post-intervention ( $M = -5.00, SD = 5.37$ ) than Caucasian girls ( $M = -1.42, SD = 3.92$ ) or Hispanic girls ( $M = -0.07, SD = 3.54$ ). Ethnicity did not have a significant effect on female body dissatisfaction change scores or male body dissatisfaction change scores, all *ns*.



*Figure 4: Pre- and Posttest Scores for Male Body Dissatisfaction Subscale by Ethnicity*

---

*Note:* \* indicates significant difference between pre and post scores

Table 9

*Means and Standard Deviations for Drive for Thinness, Female Body Dissatisfaction, and Male Body Dissatisfaction Change Scores by Ethnicity*

	<i>n</i>	Mean	<i>SD</i>	Min	Max	<i>F</i>	<i>p</i>
Drive for Thinness Change						6.26	.003
African-American	16	-5.00 <sup>a</sup>	5.37	-17	0		
Caucasian	65	-1.42 <sup>b</sup>	3.92	-14	12		
Hispanic	14	-.07 <sup>b</sup>	3.54	-10	3		
Female Body Diss. Change						1.01	.370
African-American	16	-4.00	6.72	-22	3		
Caucasian	65	-1.97	6.14	-26	18		
Hispanic	14	-.71	7.98	-17	12		
Male Body Diss. Change						1.85	.163
African-American	16	-3.50	5.56	-14	3		
Caucasian	65	-1.52	4.12	-15	7		
Hispanic	14	-.14	6.95	-18	14		

*Note.* Superscripts indicate differences between means

#### Location Differences

Additional analyses were conducted in order to test the effect of the program location on subscale scores. Crosstab analysis using Pearson's chi-square and Cramer's *V* tests were conducted to examine the relationships between categorical independent variables. As shown in Table 10, there was a significant association between ethnicity and the location at which the data was collected,  $\chi^2(2) = 11.27, p < .01$ , Cramer's *V* = .34.

A greater percentage of African-American girls attended the program at a location other than SMU (35.7%), compared to African-American girls who attended the program at SMU (8.6%). A greater percentage of Caucasian girls attended the program at SMU (74.3%), when compared with other locations (57.1%). There was no significant association between the grade level and location,  $\chi^2(1) = .53$ , *ns* Cramer's  $V = .07$ .

Table 10

*Frequencies and Percentages for Grade and Ethnicity by Study Site*

	Not SMU		SMU		$\chi^2$	<i>p</i>
	n	%	n	%		
Ethnicity					11.27	.004
African-American	10	35.7	6	8.6		
Caucasian	16	57.1	52	74.3		
Hispanic	2	7.1	12	17.1		
Grade					.53	.468
4th Grade	7	24.1	22	31.4		
5th Grade	22	75.9	48	68.6		

One sample *t*-tests (test value = 0) were conducted to examine if each location (SMU, Brookhaven, Elon) had a significant decrease in body satisfaction scores. As shown in Table 11, girls who completed the Girls in Motion® program at a location other than SMU had a significant decrease in their drive for thinness scores ( $M = -3.55$ ,  $SD = 5.30$ ),  $p < .01$ . They also had a significant decrease in their female body dissatisfaction scores ( $M = -4.14$ ,  $SD = 8.74$ ),  $p < .05$  and their male body dissatisfaction scores ( $M = -$

3.66,  $SD = 5.86$ ),  $p < .01$ . Girls who attended the Girls in Motion® program at SMU also had a significant decrease in their drive for thinness scores ( $M = -1.21$ ,  $SD = 3.91$ ),  $p < .05$ , and in their female body dissatisfaction scores ( $M = -1.30$ ,  $SD = 5.09$ ),  $p < .05$ . The participants did not, however, have a significant decrease in their male body dissatisfaction scores, *ns*.

Table 11

*Means and Standard Deviations for Drive for Thinness, Female Body Dissatisfaction, and Male Body Dissatisfaction Change Scores by Study Site*

	<i>n</i>	<i>Mean</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Not SMU					
Drive for Thinness Change	29	-3.55	5.20	3.68	.001
Female Body Diss. Change	29	-4.14	8.74	2.55	.017
Male Body Diss. Change	29	-3.66	5.86	3.36	.002
SMU					
Drive for Thinness Change	67	-1.21	3.91	2.53	.014
Female Body Diss. Change	67	-1.30	5.09	2.09	.041
Male Body Diss. Change	67	-.88	4.24	1.70	.094

One-way ANOVAs were conducted to examine the effect of location on girls' body satisfaction scores. Location had a significant effect on girls' drive for thinness change scores,  $F(1, 94) = 5.91$ ,  $p < .05$  (see Table 12). Girls who attended the program in a location other than SMU had a significantly greater decrease in their drive for thinness scores ( $M = -3.55$ ,  $SD = 5.20$ ) than girls who attended the program at SMU ( $M = -1.21$ ,

$SD = 3.91$ ). Additionally, location had a significant effect on female body dissatisfaction change scores,  $F(1, 94) = 3.98, p < .05$ . Girls who participated at a location other than SMU had a significantly greater decrease in their female body dissatisfaction scores ( $M = -4.14, SD = 8.74$ ) than those who attended the program at SMU ( $M = -1.30, SD = 5.09$ ). Finally, location had a significant effect on male body dissatisfaction change scores,  $F(1, 94) = 6.82, p = .01$ . Girls who attended at the other location had a significantly greater decrease in male body dissatisfactions scores ( $M = -3.66, SD = 5.86$ ) than those participants who attended the SMU location ( $M = -.88, SD = 4.24$ ).

Table 12

*Means and Standard Deviations for Drive for Thinness, Female Body Dissatisfaction, and Male Body Dissatisfaction Change Scores by Study Site*

	N	Mean	SD	Min	Max	F	p
Drive for Thinness Change						5.91	.017
Not SMU	29	-3.55	5.20	-17	3		
SMU	67	-1.21	3.91	-16	12		
Female Body Diss. Change						3.98	.049
Not SMU	29	-4.14	8.74	-26	18		
SMU	67	-1.30	5.09	-17	12		
Male Body Diss. Change						6.82	.010
Not SMU	29	-3.66	5.86	-15	6		
SMU	67	-.88	4.24	-18	14		



## Predictive Analyses

### *Drive for Thinness Change Scores*

A multiple linear regression was conducted to predict girls' drive for thinness change scores from ethnicity, grade level, and location of study site. As shown in Table 13, the overall model predicting drive for thinness change scores was significant,  $F(4, 90) = 3.97, p < .01$ , explaining 11.2% of the variance, ( $R^2 = .112$ ). Furthermore, being an African American girl, compared to being a Hispanic girl, significantly predicted drive for thinness scores,  $Beta = -.145, p < .01$ . African American girls were significantly more likely to have a greater change in their drive for thinness change scores than Hispanic girls were.

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Table 13

*Summary of Multiple Regression Analysis Predicting Drive for Thinness from Demographic Variables*

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	<i>B</i>	<i>SE</i>	<i>Beta</i>	<i>t</i>	<i>p</i>
Caucasian	-1.353	1.22	-.145	-1.11	.271
African American	-4.600	1.59	-.396	-2.90	.005
5th Grade	1.344	.97	.136	1.39	.168
SMU	1.156	.98	.121	1.17	.244

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### *Female Body Dissatisfaction Scores*

A separate multiple linear regression was conducted to predict girls' female body dissatisfaction change scores from ethnicity, grade level, and study site location. The overall model predicting female body dissatisfaction change scores was not significant,  $F(4, 90) = 2.34, p = .061$ , and predicted 9.4% of the variance, ( $R^2 = .094$ ). As shown in Table 14, when compared to fourth grade girls, fifth grade girls were more likely to have a smaller change in female body dissatisfaction change scores,  $Beta = .219, p < .05$ . Fifth grade girls had significantly less change than fourth grade girls did in female body dissatisfaction.

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Table 14

*Summary of Multiple Regression Analysis Predicting Female Body Dissatisfaction from Demographic Variables*

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	<i>B</i>	<i>SE</i>	<i>Beta</i>	<i>t</i>	<i>p</i>
Caucasian	-1.302	1.88	-.093	-.69	.491
African American	-2.609	2.45	-.150	-1.07	.289
5th Grade	3.236	1.49	.219	2.17	.032
SMU	2.543	1.52	.179	1.67	.097

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### *Male Body Dissatisfaction Scores*

Finally, a separate multiple linear regression was conducted to predict girls' male body dissatisfaction change scores from ethnicity, grade level and study site location. The overall model predicting male body dissatisfaction scores was significant,  $F(4, 90) = 3.39, p < .05$ , explaining 13.1% of the variance, ( $R^2 = .131$ ). Furthermore, as shown in Table 15, being a fifth grade girl, when compared to being a fourth grade girl, significantly predicted a smaller change in male body dissatisfaction change scores,  $Beta = .236, p < .05$ . Fifth grade girls scores changed significantly less than fourth grade girls. Finally, attending the program at SMU, compared to attending the program elsewhere, significantly predicted a smaller change in male body dissatisfaction change scores. Girls who attended the program at SMU changed significantly less than those who attended the program at a different location,  $Beta = .215, p < .05$ .

Table 15

*Summary of Multiple Regression Analysis Predicting Male Body Dissatisfaction from Demographic Variables*

	<i>B</i>	<i>SE</i>	<i>Beta</i>	<i>t</i>	<i>p</i>
Caucasian	-1.393	1.39	-.133	-1.00	.318
African American	-2.691	1.80	-.206	-1.49	.139
5th Grade	2.619	1.10	.236	2.39	.019
SMU	2.304	1.12	.215	2.06	.042

## Summary

The results of the present study showed a significant decrease in the drive for thinness changes scores, the female body dissatisfaction change scores and the male body dissatisfaction change scores, indicating that scores for all three subscales decreased from pre to post test. In addition, the overall model predicting a change in drive for thinness scores from location, grade level, and ethnicity was significant. African-American girls, compared to Hispanic girls, had significant reductions in their drive for thinness scores (pre- to post test). Girls who were in the fourth grade, compared to girls in the fifth grade, had significant reductions in their female and male body dissatisfaction scores (from pre- to post test). These findings are discussed in Chapter 5.

## CHAPTER V

### CONCLUSIONS AND RECOMMENDATIONS

#### Summary

The purpose of this study was to evaluate the effectiveness of the Girls in Motion® program in improving body satisfaction among preadolescent girls. Analyses involved the comparison of body satisfaction and drive for thinness subscale pre-and posttest scores of the participants. In addition, the study examined the differences in pre-and post body image scores by ethnicity and grade. This study utilized secondary data collected from participants who signed up to participate in five consecutive sessions of the Girls in Motion® after school program conducted at three different locations. The facilitators administered The Body Image Survey before and after the eight-week program. The Body Image Survey is a combination of the Drive for Thinness subscale, the Female Body Satisfaction subscale, and the Male Body Satisfaction subscale of the EDI-2. This survey is a 22-item self report questionnaire that measures drive for thinness; female concerns and body dissatisfaction; and male concerns and body dissatisfaction.

#### Conclusions and Discussion

*Hypothesis 1: There will be no significant difference in pre-and posttest body satisfaction scores among the Girls in Motion® participants.*

This hypothesis is rejected because a significant decrease (-2.16, SD=6.50) in the female body dissatisfaction subscale score was observed from the pretest (5.57, SD=7.11)

the drive for thinness subscale scores was observed from the pretest 4.40 ( $SD = 4.70$ ) to the posttest (2.59,  $SD = 3.08$ ) for all participants. In addition, the drive for thinness change scores were positively correlated with the female body satisfaction change score, indicating that girls who had a greater change in their drive for thinness score also had a greater change in their female body dissatisfaction score.

The results of this study indicate that the Girls in Motion® primary prevention program succeeded in reducing body dissatisfaction and drive for thinness, as measured by the EDI-2 subscales. These results are important for observed change in drive for thinness. The change in male and female body dissatisfaction scores indicates that the participants benefitted from the curriculum, and that the curriculum is effective in changing attitudes and perceptions. The fact that the subscales are positively correlated further exemplifies that the overall messages of the program were understood and influential in their effect.

Although many programs have not reported changes in body dissatisfaction or drive for thinness (Gehrman et al., 2006; Killen et al., 1993; Neumark-Sztainer et al., 1995; Paxton, 1993; Smolak et al., 1998), the *Full of Ourselves* program (Steiner-Adair, 2002) and a few others (O'Dea & Abraham, 2000; Paxton, 2002; Scime et al., 2006) have reported similar findings to this study on body satisfaction. The effects of the Girls in Motion® program appeared to be similar to the studies that observed positive changes in body dissatisfaction and drive for thinness.

Several factors may account for these findings. First, as Scime et al. (2006) points out, this program targeted fourth and fifth graders. Many of the previously evaluated

programs targeted middle school girls, high school girls or college age women. Once thin ideal internalization is ingrained, it is more difficult to influence than to prevent in the first place; or the intervention must take place early enough to retrain the attitudes and beliefs about ideal body shapes and sizes (Ghaderi et al., 2005; Kater et al., 2002; Neumark-Sztainer et al., 2000; Paxton, 1993). Secondly, the curriculum for this program was created specifically for preadolescents, not adapted from programs for middle or high school students. Kater et al. (2002) credit much of the success of the curriculum *Healthy Body Image: Teaching Kids to Eat and Love Their Bodies Too!* to the age appropriateness of the lessons. This detail is important in the delivery of the program. Feedback from parents and students in the Girls in Motion® program highlight the positive influence of an age-appropriate curriculum. Comments from a parent included, “my daughter couldn’t wait to get to Girls in Motion® every session to see what healthy snack she could create that day.” Other parents commented on how their daughters “enjoyed the fitness games so much they recreated them at home.” During the last session, the facilitator guided the preadolescent group in a discussion about the program. When asked what they liked best, their comments included, “I love being on a college campus...makes me feel cool!” “My mentor makes me feel so special.” “Good snacks.” “The games.” The fitness games, snacks, and mentors were clearly overwhelming favorites of the girls. When asked to state the most important thing they learned from the program, comments included, “to love my body just the way it is,” “how to take care of myself,” “to eat colorful foods,” and “every body is different.” These comments further illustrate that the girls received the intended messages.

Thirdly, mentorship was a key component of the program delivery. The college age mentors facilitated individual or small group discussions with the girls. Additionally, mentors checked in periodically during the week for added support to the girls (Girls in Motion®, 2006). Feedback from parents and girls, as well as mentors, stressed the significance of using college age women to deliver the information. The preadolescent girls could relate to their mentors and had more fun in the process. Relational-cultural theory stresses the importance of connectedness and authenticity in relationships for girls and comments from parents and girls clearly communicated that the majority of girls felt connected to the group (Steese et al., 2006). Many mentors and girls met outside the program for other fun activities and continued their relationships after the program. Follow up study is recommended with the mentors and is discussed further in the Recommendations for Future Research section of this paper.

Lastly, the Girls in Motion® program stresses the self-efficacy and observational learning components of Social Cognitive Theory (Girls in Motion®, 2006). In addition to learning about and observing different fitness activities, the girls participated in the activities during each session. Part of the curriculum included the preparation of healthy snacks that can be easily replicated at home. Participants learned about media influences and practiced interpreting different advertisements in magazines that targeted their age group. They were encouraged and given the opportunity to take action and write letters to advertisers that promoted messages that did not make them feel good about themselves. Each week within the curriculum, girls were encouraged by their mentors to set a goal and implement a new behavior change (Girls in Motion®, 2006). One element that is not



Each week within the curriculum, girls were encouraged by their mentors to set a goal and implement a new behavior change (Girls in Motion®, 2006). One element that is not included in the curriculum of the program *Full of Ourselves* is an opportunity to put skills into action each week (Steiner-Adair et al., 2002). This action component is one area where Girls in Motion® succeeds.

*Hypothesis 2: There will be no significant difference in pre- and posttest body satisfaction scores between Girls in Motion® participants in the fourth grade and Girls in Motion® participants in the fifth grade.*

This hypothesis is accepted because there was no significant difference between the grade levels on the female body satisfaction subscale change scores. In addition, there was no significant effect of grade level on the drive for thinness subscale change scores. However, there was a trend for fourth graders to have greater change in their scores than the fifth graders.

In the current study, no significant differences were observed between the grade levels in the drive for thinness scores. Deleel et al. (2009) found a different result when comparing nine and 10 year old participants. This study found no significant difference between the two ages in body dissatisfaction, but did find that the 10-year-old participants had a greater drive for thinness. The researchers interpreted this difference as the beginning of the thin ideal awareness in the girls (Deleel et al., 2009).

The current study observed a significant decrease in drive for thinness and female body dissatisfaction scores (from pre- to post test) in fourth grade girls. For fifth grade girls, there was also a significant decrease in the drive for thinness scores. Although there

was not a significant decrease in the female and male body dissatisfaction change scores (from pre- to post test) there was a trend for greater decrease. The decrease in female body dissatisfaction among fourth graders was marginally greater than the fifth graders. The fourth graders decrease in female body dissatisfaction was marginally greater than the fifth graders female body dissatisfaction change score. This larger decrease in scores among the fourth graders could be attributed to early intervention. As stated earlier, even by the fifth grade, thin ideals have been introduced (Scime et al., 2006). Girls as young as five to eight are influenced by media ideals (Donht & Tiggeman, 2005). This younger group may have been more receptive to the information and their ideals were less formed and easier to influence compared to an older age group (Ghaderi et al., 2005; Scime et al., 2006). Deleel et al. (2009) demonstrated how even one year can make a difference in the girls' thin ideal awareness and internalization. The earlier these ideals can be challenged the better the outcomes (Ghaderi et al., 2005; Kater et al.; 2000; Neumark-Sztainer et al., 2000; Paxton, 1993; Scime et al., 2006).

Research suggests that as girls begin pre-puberty and pubertal changes, decreases in body satisfaction are witnessed (Davison et al., 2007). In addition, weight gain that commonly occurs at the onset of puberty causes stress and body dissatisfaction in girls (Bearman et al., 2006; Ge, Elder, Regnerus, & Cox, 2001). Davison et al. (2007) also witnessed an increase in body dissatisfaction among girls who were early in their maturation, around age 11, and had gained weight within normal range for development.

*Hypothesis 3: There will be no significant difference in pre-and posttest body satisfaction scores of Girls in Motion® participants when compared by ethnicity.*

This hypothesis is partially rejected. There was a significant effect of ethnicity on drive for thinness subscale change scores, such that African American girls had a significantly greater decrease in their drive for thinness scores from pre-test to posttest than Caucasian girls or Hispanic girls. There was no significant effect of ethnicity on the female or male body satisfaction subscale scores. Caucasian and African-American girls had a significant decrease in pre- to post test drive for thinness scores as well as their female body dissatisfaction scores and their male body dissatisfaction scores. However, Hispanic girls did not have a significant decrease in their pre- to post test drive for thinness scores, their female body dissatisfaction scores, nor their male body dissatisfaction scores.

When looking at the raw data, while no significant change was observed for the Hispanic girls, there was a trend in a positive direction. The observed score of high body dissatisfaction in Hispanics is not surprising given the data found in the literature. As stated earlier, many studies found that Hispanic girls report as much if not more body dissatisfaction than Caucasian girls (Kelly et al., 2005). This result is especially alarming given the current state of Hispanic girls, with nearly one in five considered obese (CDC, 2009). Many consider Hispanic women to be at greater risk than any other ethnicity for developing body dissatisfaction and eating disorders (Alegria et al., 2007; Franko & George, 2008). Franko and George (2008) found a similar result in their pilot of a program for college age Latina women. They witnessed significant change on a weight

concern questionnaire, but no change in the drive for thinness subscale or restrained eating questionnaire (Franko & George, 2008). As such, among Hispanic girls, dieting may not be a covariate linked to body dissatisfaction as is found among Caucasian girls. Foods representative of the Hispanic culture tend to be higher in fat and calories, and family events tend to center around the preparation and eating of large family meals (Franko & George, 2008).

Another factor that could have influenced the lack of change in scores among the Hispanic girls could be the lack of Hispanic mentorship. During the course of the program, only two college age mentors who participated in the program were Hispanic. Based on Relationship-Cultural Theory discussed earlier, perhaps the Hispanic girls who participated felt no connection to their Caucasian mentor. They did not necessarily see “likeness” in their mentors and felt less social support as a result (Jordan & Hartling, 2002). The program *Girls Circle*, which focused on primarily an all-Hispanic group experienced considerable more success with their Hispanic population (Steese et al., 2006). A study of the participants in the 10-week *Girls Circle* program reported increases in body image and increases in the feeling of social support provided by the program and positive correlations between the two variables (Steese et al., 2006). A second consideration in the lack of difference between pre and posttest scores of the Hispanic girls is the cultural relevance of the curriculum/program. Alegria et al., (2007) suggests that the risk factors and disordered eating patterns of the Hispanic culture may be different and may need different criteria and assessments to understand the Hispanic eating disorder/disordered eating and negative body image experience. Some questions to

consider are: Is this curriculum culturally competent/culturally sensitive? Were the mentors culturally sensitive? Could more cultural sensitivity training provide the mentors with better skills to reach these girls? One barrier in healthcare for Hispanic girls is the cultural gender roles and expectations of their family and friends (COSSMHO, 1999). This curriculum could have resulted in conflict for them. Thirty-six percent of Hispanic girls surveyed said they sometimes did not get medical care when they needed it because they did not want to tell their parents about the problem they were having (Schoen et al., 1997). Given the apparent lack of acceptance by the Hispanic girls, thorough examination should be conducted to assess if the curriculum needs improvement in its cultural competence/cultural sensitivity. Lastly, one cannot discount the importance of sample size when discussing this statistic. Fourteen girls made up the Hispanic sample. Additional research needs to be conducted to examine if this result is the cost of a small sample or if the same result would be true utilizing a larger sample.

Hispanic girls lead the nation in the top three behavioral threats to females: teen pregnancy, substance abuse and depression (COSSMHO, 1999). Additionally, a more recent Women's Sports Foundation (2006) report confirmed that Hispanic girls have greater risks of cigarette smoking, marijuana use, binge drinking, teen pregnancy, disordered eating, and suicide. Overall, given the high risk of Hispanic girls psychosocial and health problems, it is critical to find a program that reaches them and addresses their concerns adequately.

African American girls had the highest scores for drive for thinness and body dissatisfaction at pretest (see Figures 2-4). This finding contradicts the majority of data

found in the literature; as stated earlier, when compared with Caucasians and Hispanics, African American girls consistently reported having higher body satisfaction (Franko & Striegel-Moore, 2002). Yet, recent trend analyses show that prevalence of obesity among African American girls has increased 14.5% over the last decade with nearly one in three (27.7%) African American girls now considered obese (CDC, 2009). Some studies did report results similar to this study (Cachelin et al., 2002; Croll et al., 2002; Franko & Striegel-Moore, 2002; Kelly et al., 2005; Nishina et al., 2006; Siegel et al., 1999; Striegel-Moore et al., 2000). In the study conducted by Franko and Striegel-Moore (2002), even when the African American girls were larger, they still did not score high on the drive for thinness scale. Deleel et al. (2009) found significant differences in ethnicity and eating disturbances but similar to this study, found no significant differences in regards to body dissatisfaction between the minority group and Caucasian group. This study found that minorities had higher eating disturbance than the Caucasian group but found no differences in body dissatisfaction between the minority group and Caucasian group (Deleel et al., 2009). Gentiles and Harrison (2006) discussed the importance of not discounting the African American girls' drive for thinness and body dissatisfaction. In their study of 61 African American adolescent girls, they found that the African American girls still had negative body image based on peer influence and perception (Gentles & Harrison, 2006). The smaller girls believed that their friends thought they should be larger, and the larger girls believed that their friends thought they should be smaller (Gentles & Harrison, 2006). While the African American girls in this study had the highest drive for thinness and body dissatisfaction scores, they also had the greatest

change score, which provides further evidence for the success of the Girls in Motion® program. As stated with the Hispanic ethnicity data, small sample size could have been a factor in the high scores. With such a small sample it is possible a few high scores could skew the entire group. However, what this study and previous studies illustrate with regard to ethnicity and body satisfaction is that no ethnic group is immune to body dissatisfaction. (Cachelin et al., 2002; Gentles & Harrison, 2006).

### Limitations

Although the results of this study are encouraging, several limitations of the study need to be mentioned. First, almost half of the data needed to be removed from the analysis due to incomplete information or collection error. In some cases participants took the pretest but not the posttest or vice versa. In addition, ethnicity data was not available for many participants. Since this data was removed, the final sample size was about half of what it was predicted to be. In addition, this data is limited only to those girls who self selected (or whose parents selected) them to participate in the Girls in Motion® program, or girls who were brought in as part of an existing afterschool program. While the program was advertised as a general fitness, nutrition, and positive body image program, parents who were already concerned about their daughters, or had body image concerns themselves may have been more likely to enroll their daughters in the program.

In addition, at the SMU location, many of the girls came by van from an existing afterschool program and many problems arose from this situation. Meeting with the parents of those girls to obtain parental consent proved to be quite challenging. Many of

them did not have transportation to attend the parent meeting held at Southern Methodist University (SMU). Research assistants attempted to hold meetings at the afterschool locations with marginally successful results. Secondly, the same groups of girls did not always attend every session each week. Therefore, some pretests and some posttests for some of the girls were mismatched and had to be discarded.

Thirdly, the girls who were brought by van were often late causing the girls to sometimes miss up to half of the program. The partnership with the afterschool program was initiated because of the demographic profile of the SMU area. SMU is located in an upper middle class primarily Caucasian neighborhood. Although researchers conducted recruitment at several schools and community centers with more diverse ethnicities, transportation was a hurdle that could not be remedied. Therefore, a partnership with inner city afterschool programs that could provide transportation was the way to diversify the participants. Two area youth serving agencies agreed to drive a van of girls to the SMU location. When the Brookhaven College location was added, there were two schools with a very diverse population within a few miles of the program. Yet, transportation still proved to be a barrier. School nurses and counselors did a great job recruiting but many of the girls did not have transportation home if they did not take the bus from school. If these programs continue, transportation is an issue that must be addressed for the greatest diversity and to reach the populations necessary.

Another problem is the large variance in the results from the different locations. This variance may be attributed to a few factors. First, varying teaching methods and environments could account for differences in program delivery and success. Secondly,



the majority of the sample is from SMU, with only one session of data from Brookhaven College and one session of data from Elon University. This lack of data is primarily the result of collection error and data that was not usable. Therefore, when examining the results it is important to note the large differential in sample size between locations.

Lastly, since the data is a result of several consecutive sessions at SMU, teaching styles and proficiency could drastically differ from the first session to the last session. In addition, the college-age mentors deliver the bulk of the curriculum. Variance in their mentorship abilities could also account for differences in the participants' scores.

#### Recommendations for Future Research

As discussed earlier in the paper, while significant changes were witnessed from the pre and posttest drive for thinness and body dissatisfaction subscales, follow up research is necessary to address whether any of the changes witnessed were sustained. Recommendations for future follow up include a six-month and one-year repeat of assessments. Girls in Motion® also facilitates a one-week summer camp which utilizes the same curriculum and format as the eight week program. A comparison of the two formats to determine if the camp produces the same results would provide complimentary information since the camps are very popular, easily replicated and low cost to facilitate.

While the point of this particular study was to assess if participation in the Girls in Motion® program increased body satisfaction among preadolescent girls, conducting other assessments at the beginning and end of the program would be useful for further program evaluation. For example, since the program contains a component to promote self-efficacy in physical activity, perhaps an evaluative tool to assess increased levels of

fitness or perceptions of physical fitness would be useful. The same theory can be applied to assessing nutrition information. Perhaps a pre and posttest nutritional assessment would be useful to determine if the participants understood and retained the information. Future research could also assess for correlation between physical fitness self-efficacy and body satisfaction. For future research, an additional measurement to obtain is BMI. Utilizing the BMI scores could provide further insight into body satisfaction scores. To assess the role of pubertal timing in the changes in body dissatisfaction scores, longitudinal studies should be conducted to follow the girls through their adolescent development. Additionally, it would be worthwhile to compare the same group of girls in fourth and fifth grade, and then conduct a one-year and five-year follow up.

Future research could also include mentor assessments to determine if the mentors witness any change in their own body satisfaction due to participation in the program. This email was received from a mentor over the summer after serving as a mentor for two sessions of Girls in Motion®: “Hi....just dropping you a note from summer school in Italy. I just had an interesting experience. All the girls here (Americans) are sitting around talking about how fat they feel from eating all the bread and pasta, etc...as I was sitting there with them it occurred to me that I do not feel the same way! What a new and shocking feeling to realize that I actually feel ok about my body and how I look! Just wanted you to know how grateful I am to Girls in Motion®. I know I am supposed to be helping the little girls, but I think I have been helped the most.” Analyzing whether this is a unique experience or more of an expected outcome could be useful since college is a

typical time of onset for eating disorders. Perhaps participating in this program as a mentor provides a protective factor against the onset of unhealthy weight practice.

In addition, when assessing body satisfaction among females in the future, utilization of the male satisfaction subscale questions would not be necessary. Although the scores correlated with the other scores and further pointed at trends, it is designed for boys and just gave the participants more questions to answer.

### Implications for Health Education

The results of this study can provide insightful implications into primary prevention programs. A primary prevention program based on social cognitive theory can be utilized in preventing risk factors associated with the development of body dissatisfaction. Whether the program is for eating disorders, substance abuse or pregnancy prevention, this study raises the potential of mentorship and social support providing a key component to health education programs. In addition, this study also exemplifies prior research that current primary prevention models need to focus more on promoting healthy lifestyles and behaviors as well as targeting specific risk factors (Scime et al., 2006). Another implication is the enjoyment of the program participants. The majority of the participants and parents found the program useful and enjoyable. It is possible to facilitate a prevention program that is both enjoyable for participants and that provides a positive learning environment.

As discussed earlier, the accessibility challenges faced during this program, such as transportation and program attendance, need addressing in health education. Health education primary prevention programs often face funding challenges, especially when

compared to intervention programs. However, prioritizing funding to increase accessibility can ward off many of the attendance problems. Lastly, the results also remind health educators to always be considerate of cultural sensitivity/cultural competence when planning effective programs.

### Summary

This study attempted to examine the impact of a primary prevention nutrition, physical fitness, and positive body image program on body satisfaction of its participants. This program produced overall positive and promising results. It is recommended that follow up programming be continued with the participants to build upon and reinforce the messages that were modeled and received from the mentors. With continued reinforcement, hopefully the entrance into adolescence will be marked with a strong sense of self and positive body image instead of the lowered self-esteem and negative body image that is normative for many adolescent girls. With the right information and attitude, girls may forego the unhealthy weight management and dieting practices that are so pervasive throughout the country.

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## APPENDIX A

### Institutional Review Board (IRB) Approval



**Institutional Review Board**  
Office of Research and Sponsored Programs  
P.O. Box 425619, Denton, TX 76204-5619  
940-898-3378 Fax 940-898-3416  
e-mail: IRB@twu.edu

April 6, 2009

Ms. Mandy Golman  
7522 Northaven  
Dallas, TX 75230

Dear Ms. Golman:

*Re: A Study to Evaluate the Effectiveness of the Girls in Motion Program in Improving Body Satisfaction in Preadolescent Girls*

The above referenced study has been received and reviewed by the Texas Woman's University Institutional Review Board (IRB) and has been determined to be exempt from further review because it has been reviewed and approved by an IRB at Southern Methodist University in Dallas, Texas.

Another review by the TWU IRB is required if your project changes in any way, and the TWU IRB must be notified immediately regarding any adverse events. If you have any questions, feel free to call the TWU Institutional Review Board at the phone number listed above.

Sincerely,

Dr. David Nichols, Chair  
Institutional Review Board – Denton

cc: ✓ Dr. Kristin Wiginton, Health Studies  
Graduate School

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