THESIS

A SCHOOL-BASED PROGRAM TO PROMOTE HEALTHY BODY IMAGE AND SELF ESTEEM IN BOYS AND GIRLS

Submitted by

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WE HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER OUR SUPERVISION BY TIARE M. MACDONALD ENTITLED A SCHOOL-BASED PROGRAM TO PROMOTE HEALTHY BODY IMAGE AND SELF ESTEEM IN BOYS AND GIRLS BE ACCEPTED AS FULFILLING IN PART REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE.

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ABSTRACT OF THESIS

A SCHOOL-BASED PROGRAM TO PROMOTE HEALTHY BODY IMAGE AND SELF ESTEEM IN BOYS AND GIRLS

Early adolescence is associated with an increase in body dissatisfaction in girls and boys. A number of school-based interventions have been designed to address body dissatisfaction; however most of these programs have focused on the concerns of girls. This study aimed to build on previous research on body image concerns, self-esteem, and pubertal timing, as well as develop and measure the effectiveness of a school-based program to promote healthy body image and self esteem. Participants were fifty-five seventh grade students. Results did not reveal significant group x time interactions. However, analyses in the overall sample indicated negative associations between self esteem and body dissatisfaction, self esteem and internalization of the sociocultural ideal, as well as positive intercorrelations between body dissatisfaction, drive for muscularity, and internalization of the sociocultural ideal. In girls, BMI was positively related to body dissatisfaction and internalization of the sociocultural ideal, and drive for muscularity was found to be negatively related to self esteem.

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Early adolescence is a developmental period marked by many physiological and psychological changes that influence body image. During this period adolescents develop awareness around various physiological changes associated with puberty. These changes include substantial increases in body weight and adiposity in females and increases in weight, height, and muscle mass in males (Cash & Pruzinsky, 2002; Levine & Smolak, 1992; McGraw-Hill, 2004). Early adolescents also experience psychological changes during this period of development. Research has identified some of these changes as beginning to separate one's identity from the family unit, an increase in the importance of the peer group and heightened awareness of gender roles and sexuality (Berk, 1999; Kroger, 2007). Overall, the combination of physiological and psychological changes that occur during early adolescence may lead to increased evaluation of physical appearance and a strong desire to be perceived as attractive by peers.

Body Image Disturbance in Adolescence

Girls

Many body image issues for females emerge during adolescence (Attie & Brooks-Gunn, 1992; Attie & Brooks-Gunn, 1995; Cotrufo et al., 2007; Levine & Smolak, 1992; Phelps et al., 1993; Shisslak et al., 1998; Striegel & Franko, 2002). In the United States, puberty in girls is associated with an increase in body dissatisfaction and the perception that one is overweight (Berger et al., 2008; Cohn, 1987; Ge, 2001). Given that puberty is also associated with increases in adiposity, it is not surprising that Body Mass Index (BMI) predicts body dissatisfaction in adolescent girls (Paxton et al., 2006; Stice & Whitenton, 2002). Body dissatisfaction in adolescent girls is also suggested by research documenting the popularity of engaging in unhealthy weight control strategies such as

dieting and excessive exercise (Johnson & Wardle, 2005; Koff & Rierdan, 1991; McVey, Tweed, & Blackmoore, 2004; Moore, 1998; Moreno & Thelan, 1995; Neumark-Sztainer, Story, Hannan, Perry, & Irving, 2002; O'Dea, Abraham & Heard, 1996). Evidence indicates that body dissatisfaction in girls is associated with a host of psychological concerns, including depression, low self-esteem, anxiety, and stress (Ge, 2001; Johnson & Wardle, 2005; Killen, & Taylor, 2000; Siegel, 1999; Stice & Bearman, 2001; Stice, Hayward, Cameron, 2000). Body dissatisfaction has also been shown to be the strongest predictor in the development of eating disorder symptomology (Archibald, Graber, & Brooks-Gunn, 1999; Franko & Omori, 1999; Leon, Fulkerson, Perry, & Cudeck, 1993; Cotrufo et. al 2007).

Boys

Body image research conducted with adolescent boys is limited, despite evidence that they experience body dissatisfaction (Jones, 2004; Moore, 1990; Stanford & McCabe, 2002; Thompson et al, 1996; Pope et al, 2000). While girls experience a drive for thinness, boys tend to experience a drive for muscularity (Grogan, 2002; Hargreaves & Tiggeman, 2006; McCreary & Sasse, 2000; Pope et al, 2000). Given the lean, muscular male cultural body ideal (Mishkind, 1986; Pope et al.,1999; Pope et al., 2001), it is not surprising that body image disturbance in boys has been associated with being either underweight (i.e., lacking muscularity) or overweight (i.e., having excessive adiposity) (Cohane & Pope, 1999; Cohn & Adler, 1992; Presnell, 2003; Raudenbush & Zellner, 1997). Jones & Crawford (2005) found that concerns with muscularity and weight each contributed a unique amount of variance in body satisfaction for adolescent boys. The relationship between pubertal development and drive for muscularity, however, is

unclear. Some research suggests that drive for muscularity is more present in earlier stages of puberty, (McCabe, Ricciardelli, & Holt, 2005) whereas other research suggests there is a higher drive for muscularity in later stages of puberty (O'Dea & Abraham, 1999).

Body dissatisfaction and drive for muscularity in adolescent boys are associated with many unhealthy practices, including dieting to gain weight, exercise dependence, and anabolic steroid and ephedrine use (Cafri et al., 2006; McCabe & Ricciardelli, 2004; McCreary & Sasse, 2002; Pope et al., 2000). Although body dissatisfaction has been linked to depression in boys (Ge, 2001, Siegel, 2002), findings on its relationship with self-esteem have yielded mixed results, ranging from a significant strong negative correlation to no correlation (Cohane & Pope, 2001; Ge, 2001; Leon, Fulkerson; McCreary & Sasse, 2000; Perry, Keel, & Klump, 1999; Presnell, 2003; Stowers & Durm, 1996).

Gender Differences in Body Image

Body image research has largely focused on adolescent girls, most likely due to the fact that girls report much higher levels of body dissatisfaction (Hausenblas et al., 2001; Jones, 2004). However, Pope (2000) hypothesizes that males may experience higher levels of body image disturbance than they report. Hargreaves & Tiggeman (2006) conducted a qualitative study which supports this hypothesis. It was found that adolescent boys view body image and physical appearance as feminine issues and the discussion of these topics as socially unacceptable. Results from this study indicate that boys may have motivation to conceal body dissatisfaction. Additionally, the majority of studies on body image which included boys have assessed body dissatisfaction in terms of weight, not

muscularity (Cohane & Pope, 2000). However, Presnell et al. (2003) found that boys reported body dissatisfaction if they were either above or below the average weight, and were most satisfied when they were the average weight. Thus, weight concerns appear to be central to body dissatisfaction in girls, however, body image in boys seems to be affected by a complex number of factors that may have been overlooked by researchers.

Media Influences on Body Image

The media promotes unattainable standards of thinness in girls (Tiggeman, 2002) and muscularity in males (Pope, 2000). Media exposure to the thin-ideal has been associated with increases in body dissatisfaction for girls (Levine & Murnen, 2009; Levine & Smolak, 1992). The media's influence on body image in boys is unclear. Some studies suggest that the media influences body image in boys (McCabe, Ricciardelli, & Banfield, 2000; Smolak, Levine & Thompson, 1999) while others suggest that it does not (Hargreaves & Tiggeman, 2004). However, the muscular male ideal body type portrayed in the media is the same body type that males tend to pursue (Pope, 2000). More research is needed to explore the media's impact on body image in males.

Family and Peer Influences on Body Image

Parents and peers have also been shown to influence body image in adolescents. (Kearney & Cooke, 2002; Jones & Crawford, 2005; McCabe, Ricciardelli, & Banfield, 2000). Adolescents whose parents provide feedback about their bodies and participate in body changing behaviors tend to internalize the cultural ideal (Cash, 2002; Kearney & Cooke, 2002; McCabe & Ricciardelli, 2003). Peers also play a significant role in the development of body image during adolescence (Levine & Smolak in Cash, 2002). Peers may also influence body image through feedback about physical appearance. Research

shows that body dissatisfaction is associated with teasing by peers (Rieves & Cash, 1996). Further, both adolescent boys and girls view feedback from peers on physical appearance as important (Ricciardelli et al., 2000; Vincent & McCabe, 2000).

Programs That Address Body Image Disturbance

A number of programs have been developed to address the body image concerns of adolescents. The majority of these programs, however, have targeted body dissatisfaction in girls in the school setting. School-based programs have been popular given their relatively low cost and access to large groups. To a large extent, these programs have used sociocultural, cognitive-dissonance, and positive self-esteem-promoting approaches in order to increase protective factors and decrease risk factors for body image disturbance and eating disorders.

Sociocultural approaches to programs, which include teaching adolescents to critically examine the cultural body ideal presented in the media, have been shown to be somewhat effective in reducing body dissatisfaction for girls (Levine & Smolak, 2007). In one study, Neumark-Sztainer and colleagues (2000) conducted a media literacy program which decreased the adoption of sociocultural body ideals in Girl Scouts. In another study, Stice and colleagues (Stice, Chase, Stormer & Appel, 2001) took a cognitive-dissonance approach that required female participants to design a program with the goal of persuading others not to internalize the thin ideal. This program was initially effective in reducing body dissatisfaction but the effects were only short term. Other studies which have included media literacy have yielded moderate improvements in body image (McVey & Davis, 2002; McVey et al., 2003; O' Dea & Abraham, 2000; Varnado-Sullivan et al., 2001).

Several programs have combined sociocultural influences in addition to focusing on increasing self-esteem. One study conducted by O'Dea & Abraham (2000) reduced body dissatisfaction in adolescent males and girls through a program designed to bolster self-esteem and media literacy. In another study, McVey and Davis (2002) found that a program promoting life skills, self-esteem and media literacy temporarily improved body image satisfaction in girls.

Only one program to date has specifically targeted adolescent boys (Stanford & McCabe, 2005). This program combined strategies to promote media literacy, self-esteem enhancement, and acceptance of body differences. Results indicated that the program was successful at increasing satisfaction with current level of muscle mass, decreasing negative affect, and bolstering self-esteem.

Purpose and Rationale for Study

Although programs promoting body satisfaction in adolescents have experienced some success, it is clear that more research is needed to determine the most effective strategies for reducing body dissatisfaction. The accumulating evidence for body dissatisfaction in boys (Pope, 2000) indicates the necessity of developing programs that include this population. Although the program developed by Stanford & McCabe (2005) shows strong promise for the effectiveness of body image programs for boys, no known programs have attempted to address body image concerns equally across genders.

This pilot study sought to develop an effective intervention strategy to address body image concerns in both genders. Given that programs using media literacy and self-esteem enhancement approaches have been shown to be effective in both boys and girls, this study examined if an equal-gender focus using these strategies is effective in

reducing body dissatisfaction in a sample of seventh graders. Specifically, researchers aimed to address the societal pressures faced by both boys and girls in the curriculum content. Media literacy activities included images of both genders. Media discussions included questions about boys and girls and asked students to critically examine the pressure to be thin for females and the pressure to be lean and muscular for males. The intervention was developed as a supplement to a health curriculum already established at a middle school. Results from this study will be used to inform a revision of the program [which will be tested again for effectiveness in another study].

Hypotheses

Five hypotheses were examined in this study.

Hypothesis 1: Based on previous research supporting the association between self-esteem and body image, it was hypothesized that self-esteem would be negatively related to body dissatisfaction, drive for muscularity, internalization of the sociocultural ideal, such that participants who report higher self-esteem would have lower levels of body dissatisfaction, drive for muscularity, and internalization of the sociocultural ideal.

Hypothesis 2: Based on the literature regarding various measures of body image attitudes, it was hypothesized that there would be significant positive intercorrelations between body dissatisfaction, drive for muscularity, and internalization of the sociocultural ideal in the overall sample.

Hypothesis 3: Based on previous research on weight and body image, it was hypothesized that in girls, BMI would be positively related to body dissatisfaction and internalization of the sociocultural ideal. It was hypothesized that in boys, Body Mass Index (BMI) would not be significantly related to body dissatisfaction, drive for

muscularity, or internalization of the sociocultural ideal due the complex nature of boys' body image concerns regarding weight.

Hypothesis 4: Based on the literature regarding puberty and body image, it was hypothesized that pubertal timing would be associated with body dissatisfaction in girls, such that being further along in puberty stages would be positively related to body dissatisfaction. It was also hypothesized that pubertal timing would be related to drive for muscularity in males, although the nature of the association was not specified given that research has supported both positive and negative associations.

Hypothesis 5: It was hypothesized that there would be a significant difference between the experimental group and the control group in pre-test versus post-test measures of self-esteem, such that participants in the experimental condition would show significant increases in self-esteem, and significant decreases in body dissatisfaction, drive for muscularity, and internalization of the sociocultural ideal.

Method

Participants

Fifty-five seventh graders (n= 16 boys, 39 girls) attending a Colorado middle school participated in this study. Participants in the experimental condition (n=24) were students enrolled in seventh grade health curriculum. Participants in the control condition (n=31) were students enrolled in various seventh grade classes (health and other) who turned in their consent forms by the first data collection. Ages of participants ranged from 12 to 13 years (M = 12.45 years, SD = 0.50). The experimental group was 72% female, and 28% male. The control group was 71% female and 28% male. The larger

number of girls in this study reflected the demographics of the entire seventh grade cohort, which was predominantly female.

Ethnic composition of the participants was as follows: 67.9% Caucasian, 17.9% Multiethnic, 7.1% Latino, 3.6% African American, 3.6% American Indian/Alaskan Native, 0.0% Asian American, and 0.0% "Other".

Measures

Self-esteem. Self-esteem was assessed using the Rosenberg Self-esteem Scale (SES) (Rosenberg, 1965), the most widely used self-report measure of global self-esteem (i.e., general feelings of self-worth not specific to a situation). Many studies examining self-esteem and body image in adolescents have used this measure (Kustanski & Gullone, 1998, Steiner-Adair et. al, 2002). This scale consists of ten items, which are rated on a four-point Likert scale ranging from "strongly disagree" to "strongly agree", with higher scores indicating higher self-esteem. Items include "I feel I do not have much to be proud of" and "I take a positive attitude towards myself". The Rosenberg SES has been shown to be reliable and valid in early adolescent populations (Rosenberg, 1979). Internal consistency scores for this scale in an adolescent population have been reported at .77 to .88 (Rosenberg, 1979) and convergent validity scores have ranged from .55 to .79. The SES measure was demonstrated to have good reliability in this sample. Alpha(α) values are presented in Table 1.

Body Image. Body image was assessed through various self report measures. Global body satisfaction was measured using the Body Dissatisfaction (BD) subscale of the Eating Disorder Inventory-2 (EDI-2) (Garner, 1991; Garner, Olmsted, & Polivy, 1983). The BD subscale consists of nine items in which participants rate satisfaction of

different body sites on a 6-point Likert scale ("always," "usually," "often," "sometimes," "rarely," "never"), with higher scores indicating higher body dissatisfaction. Items include "I like the shape of my buttocks" and "I think that my stomach is just the right size." The BD subscale has been shown to be a valid and reliable measure in adolescents (Garner, Olmsted, & Polivy, 1983), with internal consistency reported at .91 in adolescent girls and .86 in adolescent males (Shore & Porter, 1990). The BD scale was demonstrated to have good reliability in this sample. Alpha(α) values are presented in Table 1.

Body image attitudes were assessed using the Drive for Muscularity Scale (DMS) (McCreary & Sasse, 2000). There are two subscales, body attitudes and body changing behaviors. For the purposes of this study, only the items measuring body attitudes were used. The body attitudes subscale of the DMS consists of 7 items measured on a 6-point Likert scale ranging from "always" to "never", with high scores indicating a high drive for muscularity. Items include "I wish I were more muscular" and "I think that my chest is not muscular enough." The DMS has been shown to have good internal consistency, ranging from .83 and .87, and strong test retest reliability (.93). Factorial validity for each subscale has been reported at .85 (Cafri & Thompson, 2004; McCreary, Sasse, Saucier & Dorsch, 2004). Wojtowicz & Von Ranson (2006) have also found support for convergent validity, discriminant validity, and concurrent validity in the DMS. The DMS measure was demonstrated to have good reliability in this sample. Alpha(α) values are presented in Table 1.

Internalization of sociocultural ideals. Internalization of sociocultural ideals was measured using the Sociocultural Attitudes Towards Appearance Questionnaire

(SATAQ), a 14 item measure with two subscales, Awareness and Internalization. Items are rated on a 5-point scale, ranging from "Definitely Agree" to "Definitely Disagree". Smolak et al. (1999) developed and validated a girl and boy version of the scale and established adequate reliability in this measure. The girl and boy versions share items (i.e., "Attractiveness is important if you want to get ahead in our culture) in addition to including different versions of items ("Photographs of thin women make me wish I was more thin" vs. "Photographs of muscular men make me wish I was more muscular"). The SATAQ was demonstrated to have good reliability in the overall sample and in girls. In boys, however, reliability was marginal during the pre-test administration. Alpha(α) levels are presented in Table 1.

Pubertal timing. Pubertal timing was assessed using the Pubertal Development Scale (PDS) (Peterson, Tobin-Richards, & Boxer, 1983), a self report measure that asks participants to report growth, skin changes, body hair, changes in voice/facial hair in boys, and breast development and menstruation in girls. Items are reported on a 4-point scale ranging from "not yet started" to "seems complete", with higher scores indicating being farther along in pubertal development. This scale has been demonstrated to have good reliability and validity (Peterson, Crockett, Richards, & Boxer, 1988; Peterson et al., 1983) and is correlated with physicians ratings of Tanner puberty stages (.61-.67) and self-report of puberty using Tanner Stages (.72.-.80). Scores are classified into five categories of development: pre-puberty, early puberty, middle puberty, late puberty and post-puberty. In this study, the PDS measure was not shown to have adequate internal consistency in the overall sample (α =.56), in girls (α =.52), or in boys (α= .58) and was eliminated from the data analyses.

Attitudes towards body image concerns in males. In order to address the stigma that might contribute to underreporting in boys, five questions were developed by the researchers of this study. Items include "I don't care or worry about the way I look" and "You fit in better if you look and dress like your friends do." Items were rated on a 5-point scale ranging from "strongly disagree" to "strongly agree", with higher scores indicating more negative attitudes towards the topic of body image. This measure was demonstrated to be reliable in this study. Alpha (α) levels are reported in Table 1.

Procedure

The program intervention consisted of three 80 minute sessions administered by a school health teacher over the course of 10 days. Meetings were arranged with the health instructor in order to ensure that he was familiar with the protocol and comfortable with the intervention topics and materials. Program effectiveness was assessed using several measures of body satisfaction and self-esteem that participants completed prior to and following the intervention. During the program's administration, the health instructor followed guidelines outlined in a PowerPoint presentation and referred to a program manual that contained detailed information about intervention procedures. Following the intervention, participants received an educational pamphlet summarizing the topics presented in the program.

Participants in the control group were administered the first set of questionnaires by a school counselor or health instructor and the second set of questionnaires nine to twelve days later. Variability in the length of time to administer the two waves of questionnaires was not perfectly uniform due to student absences and other difficulties that arose from removing students during class time in order to complete the packets.

After completing the second set of questionnaires, students in the control group received the same educational pamphlet on body image and self-esteem as the experimental group. Researchers felt that although the control group did not receive the intervention that they might possibly benefit from having access to some of the program topics.

Intervention

The first part of the intervention constituted the didactic portion of the program. It focused on introducing the program, creating media literacy, and educating participants on changing body ideals and airbrushing strategies used in advertisement images. The intervention began by providing a rationale and purpose for the program. Students learned about the definition of body image and the relevance of this topic to their age group and both genders. Information was then presented on the media and airbrushing techniques used to create the ideal body for advertisements. Two brief youtube.com videos were shown to students displaying the dramatic changes that can be made in images through airbrushing techniques. One video demonstrated the process of perfecting a photo prior to using it in an advertisement. The other video showed a man demonstrating how to use photo editing software to create the lean-muscular ideal in an image.

Next, students were divided into small groups and discussed magazine advertisements promoting the ideal male and female body. The purpose of this activity was to have students practice thinking more critically about the information presented to them in the media. During this activity, students completed a worksheet asking them to discuss the ads and how they represent stereotypes about gender. They also critically

examined the attainability of the body types represented in images, consequences of pursuing these body types and possible motives for advertising companies. Next, students viewed pictures of changing fashion trends throughout history and discussed the subjectivity of fashion standards. Following this, students were presented with pictures of changing body ideals for men and women throughout history and used the framework of fashion trends to discuss the subjectivity of attractiveness standards. Finally, students were educated on ways to improve body image by challenging the media and focusing on things they like about themselves and others aside from physical appearance. After the completion of the didactic part of the intervention, students were asked to complete a homework assignment that asked them to critically examine a commercial, magazine, or internet advertisement in terms of possible airbrushing techniques and messages promoted by the advertising companies.

The second part of the intervention began by students sharing and discussing their homework assignment to critique an advertisement. Following this discussion, students participated in two exercises to build self-esteem. In the first activity, students formed small groups and listed qualities that they would look for in a best friend and romantic partner. The groups discussed their lists in class and were prompted to discuss the importance of these qualities to them. The intended purpose of this first activity was for students to identify various characteristics that they value in people aside from physical appearance. In the second activity, students practiced giving and receiving positive feedback. They drew five index cards with names of classmates and wrote one thing they genuinely appreciated about each of the classmates they picked. Students were asked to comment on the person's qualities and not comment on fashion or the person's

appearance. The index cards were then collected by the instructor and returned to each student. It was hoped that this second activity would foster a supportive classroom environment where students received positive feedback from their peers.

The third part of the intervention required students to incorporate what they learned from the program by breaking into small groups and creating a poster to promote healthy body image in their middle school. They were provided a review sheet of tips discussed earlier in the program to promote positive body image. The intended purpose of this activity was to have students integrate the knowledge they gained from the program. Following this activity, students were given a pamphlet covering the material from the program. Finally, students were given a homework assignment that asked them to identify their strengths, unique qualities, and personal accomplishments as well as elicit positive feedback from a relative and friend.

Data Collection

Health instructors and a school counselor from the middle school were approached to determine interest in adding a segment of the health curriculum to promote healthy body image and self-esteem. Approval to administer questionnaires was obtained from the school district's Human Subjects Committee as well as the Institutional Review Board at the researchers' affiliated university.

Participants and their parents/guardians were provided with information regarding the nature of the study and were assured anonymity and confidentiality. Students and parents signed the assent and consent forms with the knowledge that they may withdraw from the study at any point. However, it should be noted that over half of the students participating in the program were not eligible to complete the study questionnaires due to

failing to turn in parental consent forms on time. Pre-test and post-test questionnaire packets were matched via a participant identification code that students created based off of three questions ("What are the first two letters of your favorite beverage?", "What are the two digits of the day you were born?", "What is the last digit of your phone number?"). Participants were asked to complete an initial questionnaire packet including demographic information as well as the Rosenberg Self-esteem Scale (SES), Body Dissatisfaction Scale (BD), Drive for Muscularity Scale (DMS), Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ), and Pubertal Development Scale (PDS). Boys were also administered the Attitudes Towards Male Appearance questionnaire, which was developed for this study. Participants in the experimental group completed the questionnaire packet at the beginning of the first session prior to being administered the intervention. The second questionnaire packet consisted of repeated measures of the SES, BD, DMS, and SATAQ. Participants in the experimental group completed the second questionnaire packet at the beginning of class following the last day of the intervention (i.e., after turning in the last homework assignment). Participants in the control group completed the questionnaire packet twice, spaced nine to twelve days apart.

Data Management and Reliability Analyses

Data management and analyses were conducted using PASW, Version 18.0. Regression imputation was used to replace 16 items of missing data. An analysis of internal consistency was conducted for the measures used in this study in the overall sample, in boys, and in girls. Means, Standard Deviations, and Reliability Estimates for Variables are reported in Table 1. The Rosenberg Self-esteem Scale (SES), Body Dissatisfaction Scale (BD), and Drive for Muscularity Scale (DMS) were reliable in the

overall sample and in boys and girls for both pre- and post- intervention administrations. The Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ) was found to be reliable in the overall sample and in girls for pre- and post- intervention. However, although the SATAQ was reliable in boys post-intervention, it did not show adequate internal consistency pre-intervention. Furthermore, the Pubertal Development Scale did not have adequate internal consistency in the overall sample, in boys, or in girls, and was eliminated from the data analyses. The Attitudes Towards Appearance in Males questionnaire demonstrated good reliability in boys, however, this survey has not been validated.

Results

Preliminary Analyses

Initial differences between intervention conditions. To determine if there were any significant differences between the experiment and control group conditions on demographic variables, an independent samples *t*-test was conducted looking at age, number of siblings, number of older siblings, number of younger siblings, and BMI. There were no significant differences between the intervention and control groups on baseline characteristics. Means, standard deviations of demographic variables for each group and the results of the independent samples *t*-test are presented in Table 2.

To determine if there were any significant differences between the experiment and control group conditions for pre-intervention variables, an independent samples *t*-test was conducted looking at baseline measures of self-esteem, body dissatisfaction, drive for muscularity, and internalization of sociocultural ideals. There were no significant differences between the intervention and control groups with respect to these variables.

Means and standard deviations of preintervention variables for each group and the results of the independent samples *t*-test are presented in Table 3.

Results suggest that participants in both groups did not significantly differ in demographic measures or baseline measures of self-esteem, body dissatisfaction, drive for muscularity, and internalization of sociocultural ideals.

Primary Analyses

Descriptive data and preintervention variable correlations.

To test the first four hypotheses, a number of Pearson bivariate correlation analyses were conducted. Intercorrelations for preintervention and outcome variables are presented in Table 4. To test the fifth hypothesis, two-way repeated measures ANOVAs were conducted.

Hypothesis 1. To test the first hypothesis that self-esteem would be negatively related to body dissatisfaction, drive for muscularity, and internalization of sociocultural ideal, a correlation analysis was conducted. In terms of the correlations in the overall sample, a significant and negative correlation was demonstrated for self-esteem and body dissatisfaction. Self-esteem was also found to be negatively related to internalization of the sociocultural ideal. No significant association was found between self-esteem and drive for muscularity in the overall sample. In girls, significant negative associations were found between self-esteem and body dissatisfaction, self-esteem and drive for muscularity, and self-esteem and internalization of sociocultural ideal. In boys, significant negative associations were found between self-esteem and the internalization of the sociocultural ideal. However, there were no significant negative correlations

between self-esteem and drive for muscularity, or self-esteem and body dissatisfaction in boys. Results are presented in Table 4.

Hypothesis 2: To test the second hypothesis, that there would be significant positive intercorrelations between body dissatisfaction, drive for muscularity, and internalization of the sociocultural ideal in the overall sample, a correlation analysis was conducted. As hypothesized, significant and positive intercorrelations were found between body dissatisfaction, drive for muscularity, and internalization of the sociocultural ideal in the overall sample. In girls, body dissatisfaction, drive for muscularity, and internalization of the sociocultural ideal were positively related. In boys, there were no significant intercorrelations between body dissatisfaction, drive for muscularity, and internalization of the sociocultural ideal. Results are presented in Table 4.

Hypothesis 3: To test the third hypothesis, which was that BMI would be positively related to body dissatisfaction and internalization of the sociocultural ideal in girls and Body Mass Index (BMI) would not be significantly related to body dissatisfaction, drive for muscularity, or internalization of the sociocultural ideal in boys, a correlation analysis was conducted. Results revealed that there were significant positive correlations between BMI and body dissatisfaction and internalization of the sociocutural ideal in the overall sample. However, BMI was not significantly correlated with any other variables in boys or in girls. Results are presented in Table 4.

Hypothesis 4: To test the hypothesis that pubertal timing would be positively correlated with body dissatisfaction in girls and drive for muscularity in boys, correlations were conducted. However, reliability analyses revealed that the scale was not

internally consistent; therefore correlations using this scale were not interpreted as meaningful.

Hypothesis 5: To test the hypothesis that there would be a significant difference between the experimental group and the control group in pre-test versus post-test measures of self-esteem, such that participants in the experimental condition would show significant increases in self-esteem, and significant decreases in body dissatisfaction, drive for muscularity, and internalization of the sociocultural ideal, separate repeated measures ANOVAs were conducted for these variables in the overall sample, in boys, and in girls. The hypothesized intervention effects would be supported in these repeated measures ANOVAs if there were significant Group x Time interactions wherein the intervention group showed increases in self-esteem and decreases in body dissatisfaction, drive for muscularity, and the internalization of the sociocultural ideal relative to the control group. It was found that there were no statistically significant Group x Time Interactions for self-esteem, body dissatisfaction, drive for muscularity, or internalization of the sociocultural ideal, in the overall sample, in boys, or in girls. Effect sizes were calculated, but the values for the sizes were negligible. Results from the ANOVAs are presented in Table 5.

Discussion

This pilot study aimed to develop, implement, and evaluate a program to increase body satisfaction and self-esteem in middle school boys and girls. The program combined a sociocultural approach which promoted media literacy and sought to increase self-esteem in early adolescents. The intervention was implemented as part of the seventh grade health curriculum and was delivered in three 80-minute sessions over the course of

ten days. Changes in measures of body image concerns and self-esteem in students participating in the intervention were compared with control group participants, who did not participate in the program but completed measures during a similar time frame. This study sought to contribute to the literature by attempting to equally emphasize both male and female body image concerns. The current study also sought to test the effectiveness of this program in early adolescent boys and girls.

In the overall sample, results revealed that self-esteem was negatively related to body dissatisfaction and internalization of sociocultural ideal, which is consistent with findings from other studies (Ricciardelli & McCabe, 2001). Additionally, BMI was found to be significantly and positively related to body dissatisfaction and internalization of the sociocultural ideal. In the overall sample, significant positive intercorrelations were found between body dissatisfaction, drive for muscularity, and internalization of the sociocultural ideal. However, drive for muscularity was not found to be significantly related to self-esteem.

Among girls, self-esteem was negatively related to body dissatisfaction, which is consistent with findings from previous studies (Ge, 2001; Johnson & Wardle, 2005; Siegel, 1999; Williams & Currie, 2000). In girls, higher levels of self-esteem were significantly related to greater drive for muscularity and internalization of the sociocultural ideal. However, contrary to previous research (Barker & Galambos, 2004; Presnell et al., 2003), BMI was not found to be significantly related to body dissatisfaction or the internalization of the sociocultural ideal in girls.

Among boys, self-esteem was found to be negatively correlated with internalization of the sociocultural ideal and attitudes towards body dissatisfaction in

males. Contrary to predictions and previous research findings (McCreary et al., 2000), there were no significant negative correlations between self-esteem and drive for muscularity or body dissatisfaction in boys. As hypothesized, there was no significant association between BMI and body dissatisfaction, drive for muscularity, or internalization of the sociocultural ideal in boys.

Results from the analysis of the intervention's effectiveness revealed no significant differences between groups from pre- to post-intervention. Participants in the two different conditions responded to items similarly on all outcome measures. Baseline measures of self-esteem, body dissatisfaction, drive for muscularity, and internalization of the sociocultural ideal did not yield significant changes following the intervention.

One possible explanation for the lack of differences between groups from pre- to post-intervention is that the small sample size lacked adequate statistical power to detect a small to medium effect. Another possible explanation is that the intervention may not have been strong enough to produce significant results. Although the number of minutes allocated to the intervention was comparable with interventions in other studies, it is likely that an intervention focusing on boys and girls may require more time in order to adequately address the unique concerns of both genders.

There were several limitations in this study. First of all, the sample size was small and had an unbalanced gender ratio. Over two-thirds of the sample (70%) was female. The sample size between group conditions was also unbalanced, which may have affected subgroup analyses. Finally, generalizability of the study is limited due to data being collected at a single site. Future studies should seek to obtain larger and more gender-balanced sample sizes and collect data at multiple sites.

Beyond sample characteristics, there were other limitations with the study design. One limitation was that the study was quasi-experimental which may have lessened internal validity due to the lack of random assignment and blinding. Additionally, because participants in the experimental group were students in a single class, there may have been other factors unaccounted for in the analyses that could have confounded the results. Factors relating to the health instructor who delivered the intervention (e.g., gender, credibility with students, deviations from the protocol) may have influenced the results of this study. Although the health instructor was given a standard, detailed protocol to follow, the degree to which he adhered to the treatment protocol is unknown. Order of topics covered within the health curriculum may have also impacted the results. This intervention took place during the beginning part of the academic term, and students may not have had enough time to develop the trusting peer relationships necessary to openly discuss a sensitive topic such as body image. Future intervention studies could use more tightly controlled designs in which the effect of the intervention is more isolated. These studies may also want to create more balance in terms of the order of the program within the larger health curriculum and adding diversification of instructor characteristics. Additional studies could also look at intervention components separately to help clarify specific mechanisms that contribute to effects.

Further, underreporting of symptoms and social desirability may have added self-measurement and self-report biases to the study. Although the researchers of this study attempted to measure attitudes towards body dissatisfaction in boys to look at possible underreporting, this variable was not controlled for in the analyses due to this measure not having established validity.

There were several limitations with measurement and data analyses in this study. First, no follow up measurements were taken beyond the post-test time point. Therefore it is difficult to determine the effect of the intervention beyond the short term. Future research should include follow-up assessments. Additionally, although various attitudes were measured in this study, how these attitudes were related to actual behaviors was not assessed.

In general, the statistical analyses used when looking at the relationship between variables were purely correlational and did not specify direction in relationships or examine possible mediating and moderating variables. Further, gender differences within each condition were not statistically examined due to the small sample size.

Findings from this pilot study do not point to specific components of the body image curriculum that could be improved upon as was originally hoped. However, the lack of significant results for the intervention calls for improvement in the study design for subsequent program administrations.

Goals for the next administration of the program will include having a larger, more gender- and group- balanced sample and collecting data at multiple sites and multiple time points. It is also hoped that the intervention effects can be strengthened by increasing the total time allocated for the program. If possible, more time will also be devoted to formally training the instructors delivering the intervention.

Another goal for future program administration is to improve the scope and quality of measurement. In particular, examining the roles of peer and family influences and behavioral variables such as body-changing strategies will allow the researchers to interpret implications of the study beyond attitudes. A measurement of adherence to the

program's protocol will also be developed and assessed. Given the significant findings with the Attitudes Towards Appearance in Males questionnaire that was developed for this study, it will also be important to validate this measure for future use. Additionally, using a more reliable measure of puberty will allow findings related to pubertal timing to be interpreted. With respect to data analyses, hypotheses with increased specificity regarding the relationship between variables will be formulated and tested through the use of more complex statistical models. Finally, adding qualitative measures may add to the richness of the study and help to inform future programs.

This study contributes to the literature on body image concerns among adolescent boys and girls. The findings provide support for the negative relationship between self-esteem and body dissatisfaction, and well as self-esteem and internalization of the sociocultural ideal. Results from this study also support associations between body dissatisfaction, drive for muscularity, and internalization of the sociocultural ideal. Although there was no effect in the intervention, this study reinforces the importance of determining reasons why some interventions are more effective than others, as well as further exploring the various factors which decrease body dissatisfaction in adolescents.

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Table 1.
Pre-intervention Means and Standard Deviations and Reliability Estimates for Variables

Variables	*M*	*SD*	Pre-intervention α	Post-intervention α
Overall (*n*= 55)				
SE	10.16	5.95	.83	.90
BD	25.24	10.80	.88	.90
DFM	17.80	7.74	.85	.87
SATAQ	39.20	11.76	.91	.91
Girls (*n*= 39)				
SE	10.48	5.95	.80	.93
BD	26.57	11.75	.87	.89
DFM	18.87	8.54	.85	.85
SATAQ	39.21	11.84	.93	.93
Boys (*n*= 16)				
SE	7.80	5.63	.91	.80
BD	18.83	9.11	.87	.91
DFM	20.94	7.12	.79	.95
SATAQ	36.17	6.58	.67	.79
ATMA	13.06	3.57	.70	----

Note. SE = Self-esteem total scale; BD = Body Dissatisfaction total scale, DFM=Drive for Muscularity total scale; SATAQ = Sociocultural Attitudes Towards Appearance total scale; ATMA = Attitudes Towards Male Appearance total scale

Table 2.

Means, standard deviations and results from independent samples t-test on demographic variables.

Variable	*M*	*SD*	*t*	*p*
Demographics				
Age			.827	.41
Exp Grp	12.50	.51		
Control Grp	12.38	.50		
No. Siblings			.182	.86
Exp Grp	1.04	.20		
Control Grp	1.03	.18		
No. Older Sibs			.200	.84
Exp Grp	1.33	1.52		
Control Grp	1.26	1.26		
No. Younger Sibs			.65	.52
Exp Grp	1.29	1.57		
Control Grp	1.06	1.03		
BMI			-.228	.82
Exp	19.58	2.59		
Control	19.75	2.75		

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

Table 3. *Means, standard deviations and results from independent samples t-test on preintervention variables.*

Variable	*M*	*SD*	*t*	*p*
Preintervention variables				
SE			-.454	.65
Exp Grp	9.74	6.04		
Control Grp	10.48	5.95		
BD			-1.034	.31
Exp Grp	23.54	9.39		
Control Grp	26.57	11.75		
DFM			-1.17	.25
Exp Grp	16.41	6.48		
Control Grp	18.87	8.54		
SATAQ			-.004	.99
Exp Grp	39.19	11.91		
Control Grp	39.21	11.84		

Note. SE = Self-esteem total scale; BD = Body Dissatisfaction total scale, DFM=Drive for Muscularity total scale; SATAQ = Sociocultural Attitudes Towards Appearance total scale

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

Table 4.
Intercorrelations for Preintervention Variables

Variable	SE	BD	DFM	SAT	BMI	ATM
Overall (*n*= 55)						
SE	------	-.65**	-.24	-.57**	-.24	------
BD	-.65**	------	.33*	.62**	.35**	------
DFM	-.24	.33*	------	.50**	.11	------
SAT	-.57**	.62**	-.50**	------	.28	------
BMI	-.24	.35**	.11	.28*	-----	------
Boys (*n*= 55)						
SE	------	-.47	-.11	-.56*	-.18	-.71**
BD	-.47	------	.39	.40	.30	.40
DFM	-11	.39	------	.46	.31	-.00
SAT	-.57**	.40	.46	------	.18	.49
BMI	-.18	.30	.31	.18	------	.25
ATM	-.71**	.40	-.00	.49	.25	------
Girls (*n*= 55)						
SE	------	-.67**	-.41*	-.57**	.31	------
BD	-.67**	------	.51**	.66**	.27	------
DFM	.41**	.52**	------	.61**	.21	------
SAT	-.57**	.66**	.61**	------	.24	------
BMI	-.18	.30	.31	.18	------	------

Note. SE = Self-esteem total scale; BD = Body Dissatisfaction total scale, DFM=Drive for Muscularity total scale; SAT = Sociocultural Attitudes Towards Appearance total scale; BMI = Body Mass Index; ATB = Attitudes Towards Male Appearance total scale
*$p < .05$. **$p < .01$.

Table 5.
Repeated Measures Anova Group x Time Interactions

Variable	*df*	*F*	*p*	ηp^2
Overall	53			
SE		.508	.48	.009
BD		.195	.66	.004
DFM		.027	.87	.001
SAT		.979	.33	.018
Boys	14			
SE		.330	.58	-----
BD		.707	.42	-----
DFM		.047	.83	-----
SAT		1.054	.32	-----
Girls	37			
SE		.191	.67	-----
BD		1.264	.27	-----
DFM		.000	.99	-----
SAT		3.003	.09	-----

Note. SE = Self-esteem total scale; BD = Body Dissatisfaction total scale, DFM=Drive for Muscularity total scale; SAT = Sociocultural Attitudes Towards Appearance total scale; BMI = Body Mass Index; ATB = Attitudes Towards Male Appearance total scale
*$p < .05$. **$p < .01$.