Improving the Body Image, Eating Attitudes, and Behaviors of Young Male and Female Adolescents: A New Educational Approach that Focuses on Self-Esteem

Jennifer A. O'Dea[1]* and Suzanne Abraham[2]

[1]Faculty of Education, University of Sydney, Sydney, Australia
[2]Department of Obstetrics and Gynecology, University of Sydney, Sydney, Australia

Accepted 15 July 1999

Abstract: **Objective:** *This study examines the effect of an interactive, school-based, self-esteem education program on the body image and eating attitudes and behaviors of young male and female adolescents following the program and after 12 months.* **Method:** *All 470 eligible students (63% female) aged 11–14 years volunteered to participate. The intervention group students participated in the program, whereas the control group students received their scheduled personal development and health class.* **Results:** *The program significantly improved the body satisfaction of the intervention students and significantly changed aspects of their self-esteem; social acceptance, physical appearance, and athletic ability became less important for the intervention students and more important for control students. Female intervention students rated their physical appearance as perceived by others significantly higher than control students and allowed their body weight to increase appropriately by preventing the age increase in weight-losing behaviors of the control students. One year after the intervention, body image and attitude changes were still present. These findings also held for the 116 students (63% females) with low self-esteem and higher anxiety, who were considered at risk for the development of eating disorders. These students also had significantly lower drive for thinness and greater body satisfaction following the intervention and the decreased importance of physical appearance to their self-esteem was present at 12 months. Control at-risk students significantly decreased their body weight, whereas the weight of the intervention at-risk students significantly increased. The intervention program was effective, safe, having no effect on measures of students' anxiety or depression, and was rated highly by students.* **Discussion:***This is the first controlled educational intervention to successfully improve body image and to produce long-term changes in the attitudes and self-image of young adolescents. This new approach to prevent the development of eating disorders by improving self-esteem may be effective, particularly if reinforced by teachers and family. © 2000 by John Wiley & Sons, Inc.* Int J Eat Disord 28: 43–57, 2000.

Key words: *eating disorders; prevention; education; body image*

**Correspondence to:* Dr. J. O'Dea, Faculty of Education, University of Sydney, Building A35, NSW 2006, Australia. E-mail odeaj@edfac.usyd.edu.au

INTRODUCTION

The development of school-based educational programs to help in the prevention of eating disorders and to improve the body image of female adolescents has been proposed by several authors (Better Health Commission, 1986; Shisslak, Crago, Neal, & Swain, 1987; Scarano & Kalodner-Martin, 1994; Button, Loan, Davis, & Sonuga-Barke, 1997). The school environment is a suitable place to implement health promotion programs because adolescent students are accessible and motivated to become involved in educational activities. School curricula include the discussion of health, lifestyle, and personal development issues as mandatory subjects.

There have been three major randomized and controlled school-based interventions to improve the body image and prevent eating disorders among adolescent females (Killen et al., 1993; Paxton, 1993; Neumark-Sztainer, Butler, & Palti, 1995). These studies were conducted in the United States, Australia, and Israel, respectively.

Each of these interventions employed a similar information-based strategy that focused on providing female secondary school students with information about eating disorders and related issues in a traditional structured classroom setting. The topics covered in lessons included facts about the potential dangers of caloric restriction, facts about healthy eating, and analysis of the sociocultural construction of body image ideals and expectations about the "perfect body." The results of these interventions showed that the information-based approach to the primary prevention of eating disorders is likely to improve knowledge of eating disorders and problem eating, but is unlikely to affect the beliefs, attitudes, intent, and behaviors that influence the development of eating problems. The results of these major interventions also showed that the information-giving approach to body image education was fundamentally flawed. This approach has been shown repeatedly to be ineffective in improving the body image and eating behaviors and attitudes of adolescent females. It may also be harmful as it increases the participants' knowledge of eating disorders. The information-giving approach has the potential to create adverse effects such as the glamorization and normalization of eating disorders and to introduce young people to dangerous practices by providing information about dangerous methods of weight control (starvation, vomiting, laxative abuse). Authors have warned of the potential to do more harm than good when attempting to prevent eating disorders by way of preventative education (Garner, 1985; Carter, Stewart, Dunn, & Fairburn, 1997; Mann et al., 1997).

A new approach to the prevention of eating disorders is required. In this study, a self-esteem-based approach was implemented to test whether a new school-based self-esteem strategy could improve the body image and eating attitudes and behaviors of young male and female adolescents by improving their self-esteem. The intervention was also designed to evaluate whether the education program was safe for use among adolescents and whether it was appropriate for both young male and female adolescents and for adolescents considered at risk for the development of eating disorders.

METHODS

Participants

A total of 470 secondary students, 173 males(37%) 297 females (63%), aged 11.1–14.5 years, participated in the study. The students attended two schools: one was a govern-

ment, coeducational school and the other a nongovernment girls' school. All students who were enrolled in Years 7 and 8 at the schools participated in the study. The students were randomly allocated to control or intervention groups according to school class groups. No students refused to participate and none were excluded from the study. Data from all students were obtained after the intervention (100% retention rate). A total of 5 students (1.1%; 3 male, 2 female) did not participate in the 12-month follow-up as they had moved interstate or overseas and could not be contacted. Consent was obtained from the school principals, parents, and students. Approval for the study protocol was obtained from the state Department of School Education and the University of Sydney Human Ethics Committee.

The Educational Program

The aim of the educational program was to improve body image by building general self-esteem. The program titled, "Everybody's Different" (O'Dea, 1995), was designed for delivery in secondary school classes by the students' regular teacher. The educational intervention program was based on the educational theories of cooperative, interactive, and student-centred learning. These theories have been proven to enhance student learning, behaviors and attitudes, and skill development (Hill & Hill, 1990) as well as to enhance student self-esteem (Johnson & Johnson, 1989; Slavin, 1991; Kagan, 1992; Sharan & Sharan, 1992). This educational approach features the use of group work, team work, games, play, drama, and a "content-free" curriculum (Kagan, 1992) in order to foster a positive sense of self, student involvement, vicarious learning, exchange of feed back, and a positive environment in which the students feel that they cannot fail. The Everybody's Different program consisted of nine consecutive weekly lessons of 50–80-min duration with additional home-based activities. An outline of the nine lessons is given in Table 1. The students were encouraged to discuss the content of the weekly lessons with their parents, grandparents, friends, and siblings. For example, lessons 6 and 7 suggest stu-

Table 1. An outline of the Everybody's Different program

Lesson 1: Dealing with stress
Relaxation tape. Ways of dealing with stress. Feeling good in your body.
Lesson 2: Building a positive sense of self
Building your self-esteem. Identifying your unique features and self-image and how it might be destroyed. "I am OK" self-esteem-building activity.
Lesson 3, 4, 5: Stereotypes in our society
Collage posters of stereotypes. Male and female stereotypes.
Being an individual—being yourself. Learning to accept and value differences.
Lesson 6: Positive self-evaluation
Exploring individuality. What is unique about you?
Self-advertisement activity. Learning to value uniqueness.
Lesson 7: Involving significant others
Ways of improving your self-image. Receiving positive feedback from others. Hand outline activity. Learning to seek positive feedback from significant others.
Lesson 8: Relationship skills
How other people affect our self-image. Dealing with relationships. Video of self-esteem. Role plays.
Lesson 9: Communication skills
Games and activities to build self-esteem.
Pictionary game. Program evaluation by students and teachers.

Note: Everybody's Different (O'Dea, 1995) is an educational program focusing on self-esteem development and designed for delivery in a cooperative classroom by teachers. Each lesson is approximately 50–80 min with additional home-based activities such as family discussion of lessons and positive parental input.

dents communicate with their families and learn to elicit positive feedback from people they believe are important to them. The education program was developed in conjunction with teachers, principals, school counsellors, youth workers, parents' groups, and pediatricians. It was pretested in classes with students from a secondary school.

Questionnaires

To assess the impact of the intervention, all participants completed the appropriate junior or adolescent versions of the following questionnaires on three occasions: the Eating Disorders Inventory (EDI; Garner et al, 1983); the Self-Perception Profile for Adolescents (Harter, 1982); the Depression Inventory (Junior; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961); the State-Trait Anxiety Inventory (STAI Junior; Speilberger, Gorsuch, & Lushene, 1970); and demographic, food habits, and body image questionnaires (O'Dea, Abraham, & Heard, 1996).

There were six Physical Appearance Ratings (O'Dea et al, 1996) on a scale of 0 to 10 (10 being perfect). Students were asked to rate themselves (self score) and how they believed that other people, the opposite sex, their best friend, and their mother and father would rate them. Mean (standard deviation) Physical Appearance Ratings were calculated for the six subscales including Self, Other People, Opposite Sex, Best Friend, Mother, and Father.

Student Evaluation of the Program

An anonymous evaluation questionnaire was completed by students and was used to assess student perception of program aims, knowledge, enjoyment, and the self-perceived value of lessons to students. A self-report scale was used to examine changes to students' beliefs, attitudes, self-concept, and values as a direct result of their participation in the education program. Students were presented with 10 opposing statements (e.g., "I can see more aspects of myself that I like" or "I can see less aspects of myself that I like") and they were asked to circle any that applied to them as a result of the education program. Students were instructed to leave the question blank if they believed that neither statement applied to them.

Procedure

The completion of questionnaires and weight/height assessment were conducted before the educational intervention (baseline). The questionnaires were completed again after the intervention (3 months after baseline) and the questionnaires and weight/height assessment were completed at the 12-month follow-up. Students at both schools were randomly allocated to control or intervention groups by school class groups. To minimize a potential training effect and students giving what they believed to be the "correct" answer, a distinct separation in time, class topic, and personnel was made between the education program and the completion of questionnaires. The questionnaires and participation in the education program were presented to the students as completely separate and unrelated activities. Each student was allocated an identification number to ensure confidentiality and anonymity. The students in the intervention group were told that they would be covering a unit of work about personal development and stress reduction. They were also told that the program was aimed at improving their self-image and communication skills and helping them to deal with some of the stresses of secondary school. The

program was integrated into the regular school personal development and health curriculum. The education program was made available to the students in the control group after the 12-month follow-up. The teachers were told that the aim of the education program was to build general self-esteem and that the program objectives matched those of the personal development and health curriculum. The teachers, including the teachers delivering the intervention, and the students remained unaware of the aim to examine the effect on body image and eating attitudes and behaviors over the total time of the study.

Analysis

Descriptive statistics were used to examine the data by gender and grouping (control/intervention). Comparative analyses used chi-square contingency tables. Analysis of covariance (ANCOVA) was used to compare difference between groups over time and to control for group differences at baseline (I). The baseline measure was used as a covariate. The change in scores over time was analyzed after the intervention (I→II) and over the 12-month study period (I→III). The covariates used were gender, group (control or intervention), standard body weight (SBW; <90% SBW, 90–109.9% SBW, ≥110% SBW; Hamil et al., 1979), and puberty (self-report, pre or postpubertal/menarchial). The high-risk group was defined as students in the lowest tertile of self-esteem (global self-worth less than 2.6) and with the highest Trait Anxiety (Button et al., 1997; ≥31.9 for males and ≥35.0 for females). The statistical analyses were undertaken using SPSS Base 7.5 for Windows and a $p < .05$ was considered to be statistically significant.

RESULTS

Eating Disorder Attitudes

Students' descriptive details and baseline measures for the EDI subscales, Drive for Thinness, Body Dissatisfaction, and Interoceptive Awareness, as well as the psychological variables are given in Table 2. The educational intervention had a positive impact on the male and female students' degree of body satisfaction (Fig. 1). Mean Body Dissatisfaction (BD) subscale scores for the intervention group decreased significantly during the intervention and those of the control group increased (I→II; $F = 8.6$, $df = 1,463$, $p < .01$). This group effect was consistent but not statistically significant at the 12-month follow-up (I→III).

Physical Appearance Ratings

The Physical Appearance Ratings of students in the intervention group increased on all six subscales, whereas those of students in the control group did not change. The change in Physical Appearance Ratings between control and intervention groups was statistically significant for the Father subscale, $F = 9.4$, $df = 1,463$, $p < .01$. This trend was consistent at the 12-month follow-up, but was not statistically significant.

The Physical Appearance Ratings of the female intervention group increased on all six of the Physical Appearance Rating scales and those of the control group decreased. The change in the female students' Physical Appearance Ratings is given in Figure 2. There were significant group interactions for the Self , Mother, and Father scores. The mean (standard deviation) Physical Appearance Ratings that female intervention students gave

Table 2. Description of students at baseline

	Male (n = 173)		Females (n = 297)	
	M	(*SD*)	*M*	(*SD*)
Age (years)	13.0	(0.6)	12.9	(0.6)
Weight (kg)	50.7	(11.3)	49.9	(10.7)
Height (cm)	158.9	(0.1)	156.0	(0.1)
Body mass index	20.0	(3.4)	20.4	(3.6)
Standard body weight (%)	103.5	(17.9)	108.4	(20.7)
Drive for Thinness	2.0	(3.6)	5.1	(5.9)
Body Dissatisfaction	5.7	(6.6)	10.1	(8.3)
Interoceptive Awareness				
Global Self-Worth	2.8	(0.7)	2.8	(0.6)
State Anxiety	30.5	(7.1)	31.1	(7.6)
Trait Anxiety	31.9	(8.3)	35.0	(7.6)
Depression	46.4	(11.9)	48.8	(11.8)
Physical Appearance	6.5	(3.1)	5.9	(3.6)
Rating (Self-Rating)	%	(n)	%	(n)
Post pubertal	59.7	(103)	57.2	(170)
Currently trying to lose weight	13.3	(23)	27.2	(81)

themselves (Self score; $F = 4.0$, $df = 1,295$, $p < .05$) and the scores they believed their mother ($F = 4.4$, $df = 1,295$, $p < .05$) and father ($F = 22.1$, $df = 1,295$, $p < .001$) would give them all improved significantly after the intervention when compared to the control students. The Father score was also significant at the 12-month follow-up, $F = 9.4$, $df = 1,295$, $p < .01$. There was a significant two-way interaction between SBW and group for the scores female students believed their fathers would give them. The scores of female students in the intervention group increased significantly among all SBW groups and those of the female control group decreased among all SBW groups, $F = 3.3$, $df = 2,294$, $p < .05$. There were no interactions with pubertal status and Physical Appearance Ratings.

Anthropomorphic Changes

There were no significant differences in the anthropomorphic measurements (height, weight, SBW) or pubertal status between control and intervention groups at baseline (Table 3; $p > .05$). The SBW of the control group decreased and that of the intervention group increased significantly during the study period (I→III), $F = 3.98$, $df = 1,469$, $p < .05$. There were significant differences in the mean (standard deviation) change in SBW among normal-weight (SBW 90–109.9%) females in the control and intervention groups. The mean (standard deviation) SBW of females of normal body weight in the control group decreased significantly by 2.3(7.1)% compared with the normal-weight females in the intervention group whose SBW increased by 0.71 (6.97)%; $F = 5.53$, $df = 1,113$, $p < .05$. There were no significant differences in the change in SBW between females of SBW <90% or SBW ≥110% and no differences between male students or females from the two different schools ($p > .05$). There was no difference at any time between control and intervention groups in the number of male or female students who were pre or postpubertal. At the 12-month follow-up, 85% of the female control group and 77% of the female intervention group were postmenarchial ($\chi^2 = 2.67$, $df = 1$, $p > .05$). Among males, 63% of the male control group and 57% of the male intervention group were postpubertal ($\chi^2 = 0.77$, $df = 1$, $p > .05$).

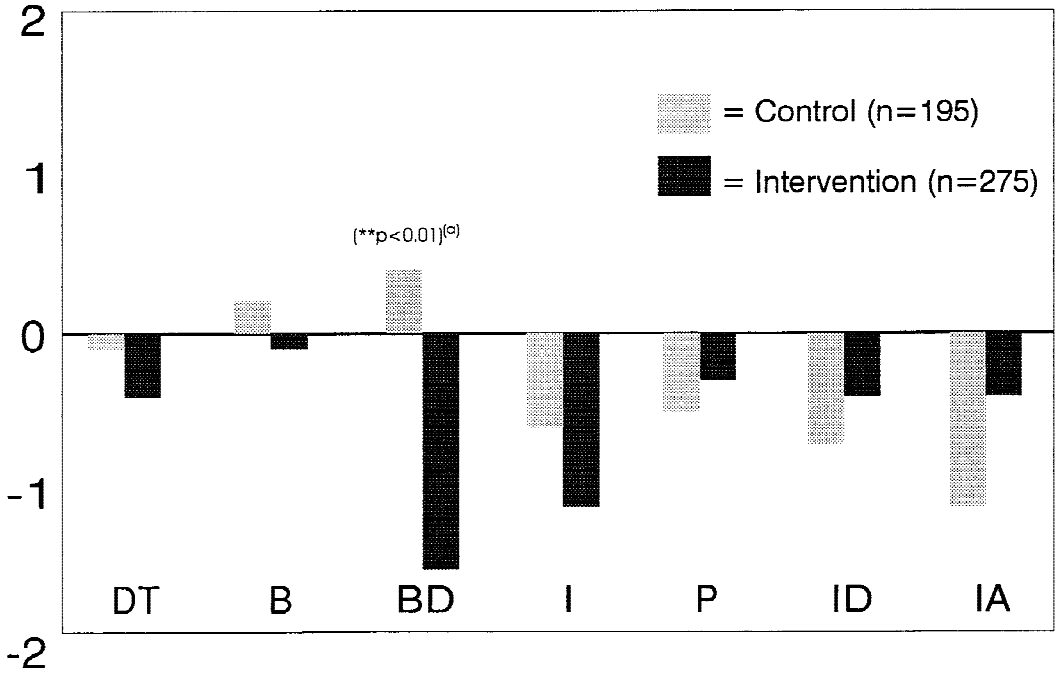

Figure 1. The change [(a)] in intervention and control students' Eating Disorder Inventory (EDI) subscale scores after the intervention.
[a]The change in scores was analyzed using repeated measures analyses of covariance (ANCOVA) using the baseline (I) measure as a covariate in order to control for group differences.

Self-Concept

The intervention had a short and long-term impact on the importance of Social Acceptance (peer group acceptability, popularity). The importance of social acceptance became significantly less important to students who participated in the intervention, but more important to students in the control group, $F = 4.47$, $df = 1,463$, $p < .05$ (Table 3). This group effect was still present at the 12-month follow-up, $F = 4.90$, $df = 1,463$, $p < .05$. Postpubertal students of low SBW (<90%) and high SBW (≥110%) (three-way interaction) who participated in the intervention considered athletic competence to be less important after the intervention and those in the control group considered it to be more important, $F = 5.1$, $df = 2,462$, $p < .05$. This three-way group effect was significant at the 12-month follow-up, $F = 2.84$, $df = 2,462$, $p < .05$). Physical appearance became more important to students in the control group at the 12-month follow-up, but became less important to those in the intervention group, $F = 5.1$, $df = 1,463$, $p < .05$.

Current Weight Losing Behaviors

There were no significant differences between the number of students who reported currently trying to lose weight at baseline and at 3 and 12 months. The number of female students in the control group who reported currently trying to lose weight increased significantly by 8% during the intervention period (26.8–34.6%, McNemar χ^2 3.85, $df = 1$, $p < .05$). The number of female students in the intervention group who reported currently

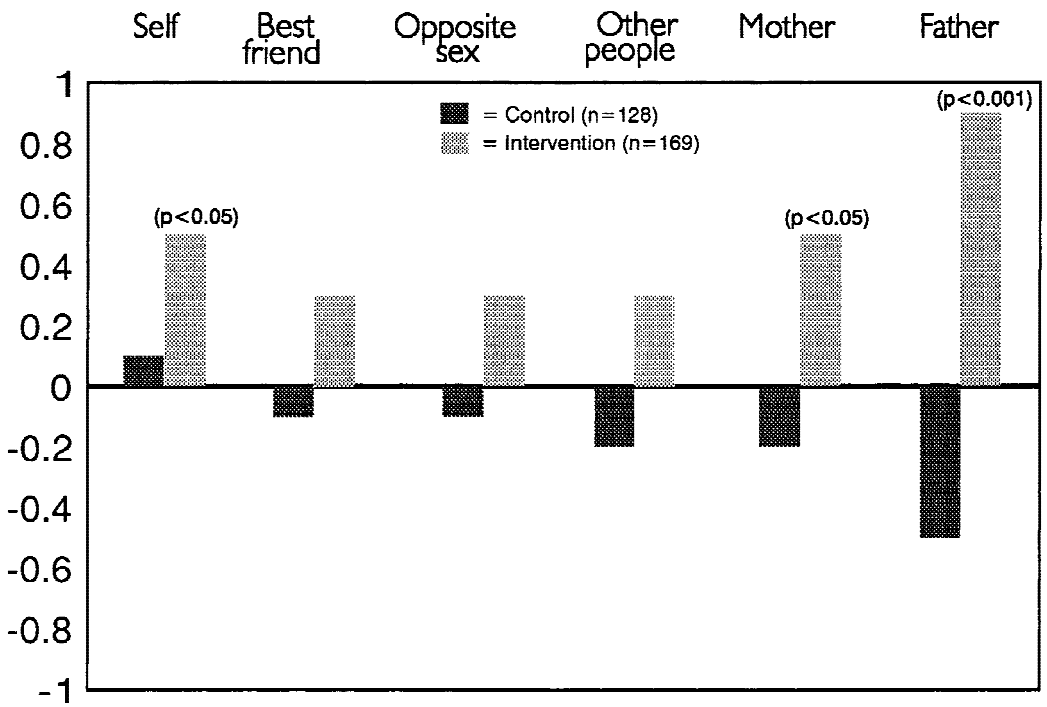

Figure 2. The change [(a)] in female intervention and control students' Physical Appearance Ratings [(b)] after the intervention.

[a]The change in students' mean scores was analyzed using repeated measures analyses of covariance (ANCOVA) using the baseline (I) measure as a covariate in order to control for group differences.
[b]The Physical Appearance Ratings are based on a score out of a possible 10 points (10 being perfect).

trying to lose weight during the intervention period increased slightly by 2.0%, but this increase was not statistically significant (28.0–30.1%, McNemar $\chi^2 = 0.38$, $df = 1$, $p < .05$). The reverse trend occurred during the 12-month study period. The number of female students in the intervention group who reported currently trying to lose weight increased significantly by 9.0% over the 12-month study period (27.5–36.5%, McNemar $\chi^2 = 6.42$, $df = 1$, $p < .05$), but the increase of 6% over 12 months in the female control group was not statistically significant (26.8–32.5%, McNemar $\chi^2 = 1.69$, $df = 1$, $p > .05$).

Effect of the Intervention on High-Risk Students

The intervention had a positive effect on students who were considered to be of increased risk for eating disorders (i.e., those with low self-esteem and high Trait Anxiety). A total of 116 students (63% female) were classified as high risk. The change in Body Dissatisfaction and Drive for Thinness scores among high-risk students is given in Table 4 and the statistically significant results are listed in Table 3. The body satisfaction of high-risk participants improved significantly after the intervention. There was a statistically significant improvement in the Body Dissatisfaction scores of both male and female students in the high-risk intervention group ($F = 4.8$, $df = 1,111$, $p < .05$). This effect was

Table 3. Significant changes in standard body weight, eating attitudes, body image, and the importance of aspects of self-concept over 3 and 12 months in the 465 male and female students who received (intervention group) and did not receive (control group) the intervention program

Measure	Group	Baseline		3 Months		12 Months		Significant Differences (3 Months)	Significant Differences (12 Months)
		M	*(SD)*	*M*	*(SD)*	*M*	*(SD)*		
Standard body weight[a]	Intervention	106.4	(18.7)	—	—	107.9	(19.4)		Total group*
	Control	105.4	(19.9)			104.1	(18.8)		Normal-weight femles*
EDI[b]									
Drive for Thinness	Intervention	4.1	(5.0)	3.6	(5.3)	3.7	(5.2)	High-risk group*	
	Control	3.9	(4.8)	3.8	(5.0)	3.7	(5.0)	Total group**	High-risk group*
Body Dissatisfaction	Intervention	8.8	(7.8)	7.3	(7.4)	7.4	(7.3)	High-risk group*	
	Control	8.1	(7.6)	8.4	(7.7)	8.1	(7.6)		
Physical Appearance Rating									
Self	Intervention	6.0	(1.7)	6.5	(1.8)	6.5	(1.8)	Total females*	
	Control	6.2	(1.9)	6.3	(1.8)	6.3	(1.9)		
Mother	Intervention	7.6	(2.2)	7.9	(2.0)	8.0	(2.0)	Total females*	
	Control	7.6	(2.0)	7.8	(1.9)	8.0	(1.8)		
Father	Intervention	7.2	(1.9)	8.0	(1.9)	7.7	(1.8)	Total group**	Total females**
	Control	7.5	(1.9)	7.4	(1.9)	7.6	(1.9)	Total females***	
Importance to Self-Concept									
Social Acceptance	Intervention	2.9	(0.7)	2.8	(0.7)*	2.9	(0.7)*	Two-way interaction with SBW*	
	Control	2.8	(0.7)	2.9	(0.6)	3.0	(0.5)	High-risk group*	
Physical Appearance	Intervention	2.8	(0.7)	2.8	(0.8)	2.8	(0.7)*	Total group*	Total group*
	Control	2.8	(0.8)	2.9	(0.6)	3.1	(0.7)	High-risk group*	
Athletic Competence	Intervention	2.6	(0.8)	2.6	(0.8)	2.7	(0.8)		Total group*
	Control	2.5	(0.7)	2.6	(0.8)	2.6	(0.8)		High-risk group*
Close Friendships	Intervention	3.3	(0.7)	3.4	(0.7)	3.5	(0.7)	Three-way interaction with pubertal status*	Three-way interaction with pubertal status*
	Control	3.4	(0.6)	3.4	(0.6)	3.4	(0.6)		High-risk group*

[a]Hamil et al. 1979.
[b]Eating Disorders Inventory (Garner, Olmstead, & Polivy, 1983).
*$p < .05$; **$p < .01$; ***$p < .001$.

Table 4. Effect of the intervention on the Body Dissatisfaction and Drive for Thinness scores of students at high risk of eating disorders

	Baseline (I)		After Intervention (II)		
	M	*(SD)*	*M*	*(SD)*	*F* Value
Body Dissatisfaction					
Females (*n* = 72)					
Control	14.0	(7.2)	14.2	(7.1)	4.5*,a
Intervention	15.4	(7.8)	14.1	(8.8)	
Males (*n* = 44)					
Control	6.8	(7.5)	7.5	(8.4)	
Intervention	11.6	(7.6)	6.7	(6.9)	
Drive for Thinness					
Females (*n* = 72)					
Control	6.3	(4.1)	6.7	(4.2)	4.0*,b
Intervention	8.1	(5.2)	6.3	(4.3)	
Males (*n* = 44)					
Control	4.7	(3.1)	4.2	(3.5)	
Intervention	4.9	(3.1)	4.5	(3.1)	

Note: High-risk group (*n* = 116). (Global Self-Worth <2.6 and Trait Anxiety >31.9 for males and >35.0 for females.

*$p < .05$

[a]*F* value compares the group change in mean scores for the whole group using analysis of covariance to control for group differences at baseline (I).

[b]*F* value compares the sex by group change in mean scores using analysis of covariance to control for group differences at baseline (I).

still significant at the 12-month follow-up ($F = 3.9$, $df = 1,111$, $p < .05$). The Drive for Thinness scores of females in the high-risk intervention group (Table 4) improved significantly after the intervention ($F = 4.0$, $df = 1,111$, $p < .05$), but this effect was not significant at the 12-month follow-up.

The mean Physical Appearance Ratings of the high-risk intervention group increased more than those of the high-risk control group on five of the six subscales (Self, Other People, Opposite Sex, Mother, and Father), but the effect was statistically significant only for the Father subscale ($F = 5.8$, $df = 1$, $p < .05$). The ratings students believed the intervention group fathers would give them increased by 0.9 and those of the high-risk control group decreased by -0.3 points. This was not statistically significant at the 12-month follow-up. The Importance ratings of the high-risk students in the intervention group also improved significantly compared to controls. Social Acceptance (peer group pressure, popularity) became significantly less important to high-risk students in the intervention group after their participation in the education program (control *M* [*SD*] Time I = 2.98 [0.70], Time II = 3.00 [0.64]; intervention *M* (*SD*) Time I = 2.90 [0.62], Time II = 2.74[0.68], $F = 5.70$, $df = 1,108$, $p < .05$). The importance of physical appearance decreased over the 12-month study period among high-risk students who had participated in the intervention, but it increased in the high-risk control group (control *M* Time I = 3.10 [0.76] , Time III = 3.21 [0.73]; intervention *M* Time I = 2.93 [0.74], Time III = 2.79 [0.72], $F = 4.30$, $df = 1,108$, $p < .05$). The importance of close friendship increased significantly over the 12-month study period among high-risk students who had participated in the intervention (control *M* Time I = 3.30 [0.72], Time III = 3.20 [0.69]; intervention *M* Time I = 3.15 [0.84], Time III = 3.42 [0.69], $F = 3.92$, $df = 1,108$, $p < .05$).

Anxiety and Depression

There were no significant interactions between the students' depressive and anxiety symptoms and variables of group, pubertal status, or standard body weight. There were no intervention effects and the depression and anxiety scores of the students (including high-risk students) remained within normal ranges.

Student Evaluation of the Program

Students were asked to identify the purpose of the education program. No student identified body image education or effect on eating attitudes and behaviors as purposes of the program and there were no differences in student comments among age, class, or gender groupings. The majority of students identified building self-esteem and self-confidence as the main aims of the program. Typical student comments about the program aims were "to help us gain confidence in ourselves," "to help us understand more about ourselves and other people," "to inform kids about life, building up self esteem and learning about stress." The majority of students (89.6%) reported that the program had been valuable to them because in general, it "helped to boost their self esteem, learn about themselves, identify their positive points and helped them to reinforce that it is acceptable to be different." The small percentage (10.4% [n = 27]) who rated the program as not valuable, cited as their main reason that they had covered the concepts before at their previous schools. An average of 70% of students said that they would like to participate in another similar program. There was no significant difference between the responses of males and females ($\chi^2 = 0.72$, $df = 2$, $p > .05$).

Self-Reported Changes in Students' Feelings, Attitudes, Beliefs, and Self-Concept as a Result of the Intervention

Among the younger students (Year 7), an average of 50% reported positive and beneficial changes to their feelings, attitudes, beliefs, and self-concept as a result of their participation in the intervention. The reported changes included being more confident, being better able to cope with stress, having a better self-image, being more accepting of their physical appearance, valuing their friends more, feeling better about themselves, being less likely to accept stereotypes, being more able to see aspects of themselves that they like, and being more tolerant of others. There were no gender differences in these self-reported changes. Among the older students (Year 8), 40% of males and 95% of females reported at least one positive change as a direct result of their participation in the program. The older female students were significantly more likely than the males to report feeling more confident, having a better self-image, being more accepting of their physical appearance, trusting people more, feeling better about themselves, being less likely to accept stereotypes, identifying more of their positive aspects, and being more tolerant of others ($p < .001$). The majority of students selected positive statements to describe changes to their feelings, beliefs, and attitudes as a result of the program. A small number of students (0.01%, n = 3) selected negative responses such as, "I feel worse about myself" and "I feel less able to cope with stress."

DISCUSSION

This is the first controlled study that successfully demonstrates that an interactive educational program aimed at improving self-esteem can improve the body image and

eating attitudes of young male and female adolescents, including those young adolescents considered to be the most at risk of developing eating disorders. The educational intervention significantly improved the body satisfaction, physical appearance ratings, and current weight losing behaviors of students. The intervention improved the body image of female participants while helping them to avoid the dieting and consequential weight loss observed in the female control group.

In addition to improvements to the students' body satisfaction, the education program also produced significant changes in their attitudes and their perception of aspects of their self-concept. After their participation in the Everybody's Different program, the students reported that social acceptance (peer group acceptability and popularity), physical appearance, and athletic ability had become significantly less important to them. These results suggest that it is possible to modify adolescents' susceptibility to peer group pressure and cultural body image norms. It is also possible to increase their degree of body satisfaction by focusing directly on cognitive changes aimed at changing their beliefs and attitudes and strengthening their self-perceptions.

By becoming more accepting of the normal female weight gain associated with puberty, the intervention students allowed their body weight to increase over the 12 months of the study, whereas the control students prevented this weight gain. This was most marked for the normal-weight female students: the body weight of the intervention group significantly increased, whereas the body weight of the control group significantly decreased over the 12 months. Although the intervention students reported more "trying to lose weight," the increased body weight and decreased desire for weight loss (EDI subscale Drive for Thinness) suggest that these attempts at weight loss were minor when compared to control students. This result also reflects the fact that more control students had already decreased their body weight or prevented weight gain earlier in the study year.

Some effects of the intervention on eating attitudes and body image were still apparent after 12 months, particularly for the students at risk for the development of an eating disorder. Other initial positive intervention effects were not maintained at follow-up. An ongoing education program may produce more sustainable effects. Previous authors have suggested that short-term education programs aimed at the prevention of eating problems may need to be continued in the schools and supplemented from other sources in order to be effective (Porter, Morrell & Moriarty, 1986; Paxton, 1993; Moreno & Thelan, 1993; Neumark-Sztainer et al., 1995).

The student evaluation results of the current study provide some evidence that the female participants may have derived a particular benefit from the education program. However, the overall study results suggest that the education program benefited both the male and female participants and that there were no pubertal differences in its impact. This differs from reports from other authors who have suggested that programs for the prevention of problems with eating and body image should be directed to postpubertal , overweight females and females with the greatest body weight concerns (Collins, 1988; Shisslak, Crago, & Neal, 1990; Killen et al., 1993; Moreno & Thelan, 1993; Scarano & Kalodner-Martin, 1994; Neumark-Sztainer et al., 1995; Cauffman & Steinberg, 1996).

This is the first large, controlled, long-term body image education intervention study to include male adolescent students. Including males in the study enabled a comparison of the effect of the intervention on male and female students. The Everybody's Different program was significantly beneficial to male as well as female students. It should not be assumed that such education programs are only relevant to females. An average of 87% of male students reported that the education program had been of value to them and 72% indicated that they would like to be involved in another similar education program if it

were available in the future. The inclusion of male students in a program that involves interaction and discussion among participants may strengthen the impact of the intervention. An interaction between male and female students may help them to learn from each other and to experience a variety of different perceptions and viewpoints and develop a more tolerant attitude toward others. The current study was representative of typical, average adolescents of both sexes (Shore & Porter, 1990). It should be replicable among a similar group of young people. The study should also be replicated in adolescents of varying age, academic abilities, socioeconomic status, and ethnic background.

The role of parents of teenaged girls may be important in the development and prevention of eating problems (Humphrey, 1989; Waller, Calam, & Slade, 1988; Pike & Rodin, 1991). A recent longitudinal study of the development of eating problems in adolescent girls (Swarr and Richards, 1996) found that the girls who reported closeness with their mother and father were less likely to develop eating problems. In the current study, the girls who participated in the educational intervention (which encouraged them to seek positive feedback about themselves from their family) reported significant and long-lasting improvement in how their parents perceived them. Involving parents in programs that aim to improve body image may be beneficial and may help in the prevention of eating problems and eating disorders.

Previous studies have found that involving parents may be harmful and may lead to unhealthy eating practices (Fairburn & Cooper, 1982; Chiondo & Latimer, 1983). Our study involved parents by encouraging students to seek positive statements about themselves from family and friends. This approach was shown to be both safe and effective to modify unhealthful eating practices, body image, and eating disorders behaviors and attitudes. Previous studies have not addressed the potential for such interventions to produce negative effects. Authors have warned of the potential for prevention programs to inadvertently cause harm among young participants (Garner, 1985; Abraham & Mira, 1988; Carter et al., 1997; Mann et al., 1997). This study assessed the program, Everybody's Different. The program produced no adverse effects among its student participants. Students who participated in the Everybody's Different program appeared to respond favorably to this cooperative, interactive, and enjoyable approach that deliberately avoided the glamorization of eating disorders (Garner, 1985).

We do not know why this study succeeded in improving participant body image and eating behaviors and others have not. Studies by Paxton (1993), Killen et al. (1993), and Neumark-Sztainer et al. (1995) in Australia, the United States, and Israel, respectively, found some general but nonsignificant increases in body dissatisfaction after their interventions. In the Israeli and Australian studies, the authors suggested that their interventions had been ineffective because the participants were too old (around 15 years) for an intervention to effectively change already established attitudes and behaviors (Attie & Brooks-Gunn, 1989; Mellin, Irwin, & Scully, 1992; Graber, Brooks-Gunn, Paikoff, & Warren, 1994). The ineffectiveness of previous interventions is also likely to be due to their different methodological approaches. First, the failure to demonstrate significant change in self-esteem may result from the use of a one-dimensional measure (Rosenberg, 1965). A multidimensional instrument is more likely to detect changes in separate subscales of self-esteem among adolescents than a single global measure of self-esteem (Harter, 1982; Marsh, 1989; Kimm, Sweeney, & Janosky, 1991). A measure of how important each aspect self-esteem is to the adolescent also allows for meaningful interpretations and measurement of each aspect of self-esteem. The current study, which used the multidimensional Self Perception Profile (Harter, 1988), was successful in demonstrating a change in the subscales of the students' importance ratings after the intervention.

A second possible reason for the ineffectiveness of previous interventions is their overall approach to body image education. Previous studies (Moriarty et al., 1990; Shisslak et al., 1990; Paxton, 1993; Moreno & Thelan, 1993; Killen et al., 1993; Neumark-Sztainer et al., 1995) tended to directly instruct students about the harmful effects of weight regulation, energy restriction, and eating disorders using traditional pedagogical techniques. These programs instructed students about the dangers of dietary restraint, purging behaviors, and unhealthful weight regulation practices and attempted to educate them about a healthy diet. The result of this instructional approach was to demonstrate significant changes in students' knowledge but no significant change in the beliefs, attitudes, or values that are instrumental in shaping their behaviors. Social cognitive theory states that in order to change behavior, it is necessary to initially change predisposing factors such as environmental influences (e.g., media), personal factors (e.g., values and attitudes), and self-perceptions (e.g., body image; Bandura, 1986). The current study was successful in changing students' body satisfaction, body image, attitudes to eating and body weight, and weight losing behavior because it focused on producing positive changes in the students' self-perceptions and values. This new educational approach ignored attempts to change knowledge. Instead, it focused on identifying positive aspects of the self rather than on negative messages such as the dangerous outcomes of diets and purging behaviors. In future studies, this new educational, self-esteem approach could be compared with a traditional pedagogical, didactic approach in order to examine the effects of both approaches.

We recommend that future educational programs aimed at improving body image and eating behaviors should employ cooperative, interactive, and student-centered approaches that develop self-esteem. They should avoid the kind of direct instruction about diets and eating disorders that may have the potential to result in the adoption of unhealthful eating and dieting behaviors. Students, male and female, pre and postpubertal, benefit from such interventions. The introduction of such programs should be evaluated to ensure that they are effective, acceptable to students, and enjoyed by students and teachers, and they should "do no harm."

REFERENCES

Abraham, S., & Mira, M. (1988). Hazards of attempted weight loss. Medical Journal of Australia, 148, 324–325.

Attie, I., & Brooks-Gunn, J. (1989). Development of eating problems in adolescent girls: A longitudinal study. Development Psychology, 25, 70–77.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice-Hall.

Beck, A., Ward, C., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. Archives of General Psychiatry, 4, 61–71.

Better Health Commission. (1986). Looking forward to better health (Vol. 1, 2). Canberra: Australian Government Publishing Service.

Button, E., Loan, P., Davies, J., & Sonuga-Barke, E. (1997). Self esteem, eating problems and psychological well being in a cohort of schoolgirls aged 15–16: A questionnaire and interview study. International Journal of Eating Disorders, 21, 39–47.

Carter, J.C., Stewart, A., Dunn, V.J., & Fairburn, C. (1997). Primary prevention of eating disorders: Might it do more harm than good? International Journal of Eating Disorders, 22, 167–172

Cauffman, E., & Steinberg, L. (1996). Interactive effects of menarchial status and dating on dieting and disordered eating among adolescent girls. Developmental Psychology, 32, 631–635.

Chiondo, J., & Latimer, P.R. (1983). Vomiting as a learned weight-control technique in bulimia. Journal of Behaviour Therapy and Experimental Psychiatry, 14, 131–135.

Collins, M.E. (1988). Education for healthy body weight: Helping adolescents balance the cultural pressure for thinness. Journal of School Health, 58, 227–231.

Fairburn, C., & Cooper, P. (1982). Self-induced vomiting and bulimia nervosa: An undetected problem. British Medical Journal, 284, 1153–1155.

Garner, D.M. (1985). Iatrogenesis in anorexia nervosa and bulimia nervosa. International Journal of Eating Disorders, 4, 701–726.

Garner, D.M., Olmstead, M.P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. International Journal of Eating Disorders, 2, 15–34.
Graber, J.A., Brooks-Gunn, J., Paikoff, R.L., & Warren, M. (1994). Prediction of eating problems: An eight year study of adolescent girls. Developmental Psychology, 30, 823–834.
Hamil, P.V.V., Drizd, T.A., Johnson, C.L., Reed, R.B., Roche, A.F., & Moore, W.M. (1979). Physical growth: National Centre for Health Statistics percentiles. American Journal of Clinical Nutrition, 32, 607–629.
Harter, S. (1982). The perceived competence scale for children. Child Development, 53, 87–97.
Harter, S. (1988). Manual for the self perception profile for adolescents. Colorado: University of Denver.
Hill, S., & Hill, T. (1990). The collaborative classroom: A guide to cooperative learning. South Yarra, Victoria: Curtain.
Humphrey, L.L. (1989). Observed family interactions among subtypes of eating disorders using structural analysis of social behaviour. Journal of Consulting and Clinical Psychology, 57, 206–214.
Johnson, D., & Johnson, R. (1989). Toward a cooperative effort: A response to Slavin. Educational Leadership, 46, 80–81
Kagan, D. (1992). Professional growth among preservice and beginning teachers. Review of Educational Research, 62, 129–169.
Killen, J.D., Taylor, C.B., Hammer, L.D., Litt, I., Wilson, D.M., Rich, T., Hayward, C., Simmonds, B., Kraemer, H., and Varady, A. (1993). An attempt to modify unhealthful eating attitudes and weight regulation practices of young adolescent girls. International Journal of Eating Disorders, 13, 369–384.
Kimm, S., Sweeney, C., & Janosky, J. (1991). Self concept measures and childhood obesity: A descriptive analysis. Journal of Developmental and Behavioural Paediatrics, 12, 19–24.
Mann, T., Nolen-Hoeksema, S., Huang, K., Burgard, D., Wright, A., & Hanson, K. (1997). Are two interventions worse than none? Joint primary and secondary prevention of eating disorders in college females. Health Psychology, 16, 214–225.
Marsh, H. (1989). Age and sex effects in multiple dimensions of self concept: Preadolescence to early adulthood. Journal of Educational Psychology, 81, 417–430.
Mellin, L.M., Irwin, C.E. Jr., & Scully, S. (1992). Prevalence of disordered eating in girls: A survey of middle class children. Journal of the American Dietary Association, 92, 851–853.
Moreno, A.B., & Thelan, M.H. (1993). A preliminary prevention program for eating disorders in a junior high school population. Journal of Youth and Adolescence, 22, 109–124.
Moriarty, D., Shore, R., & Maxim, N. (1990). Evaluation of an eating disorder curriculum. Evaluation & Program Planning, 13, 407–413.
Neumark-Sztainer, D., Butler, R., & Palti, H. (1995). Eating disturbances among adolescent girls: Evaluation of a school-based primary prevention program. Journal of Nutrition Education, 27, 24–31.
O'Dea, J. (1995). Everybody's different: A self esteem program for young adolescents. Sydney: University of Sydney Press.
O'Dea, J., Abraham, S., & Heard, R. (1996). Food habits, body image and weight control practices of young male and female adolescents. Australian Journal of Nutrition and Dietetics, 53, 32–38.
Paxton, S.J. (1993). A prevention program for disturbed eating and body dissatisfaction in adolescent girls: A one year follow-up. Health Education Research, 8, 43–51.
Porter, J., Morrell, T., & Moriarty, D. (1986). Primary prevention of anorexia nervosa: Evaluation of a pilot project for early and pre-adolescents. The Canadian Association for Health, Physical Education and Recreation Journal, 52, 21–26.
Pike, K.M., & Rodin, J. (1991). Mothers, daughters and disordered eating. Journal of Abnormal Psychology, 100, 198–204.
Rosenberg, M. (1965). Measurement of self-esteem. In M Rosenberg (Ed.), Society and the adolescent self image (pp. 297–307). New York: Princeton University Press.
Scarano, G.M., & Kalodner-Martin, C.R. (1994). A description of the continuum of eating disorders: Implications for intervention and research. Journal of Counselling and Development, 72, 356–361.
Sharan, Y., & Sharan, S. (1992). Expanding cooperative learning through group investigation. New York: Teachers College Press.
Shisslak, C.M., Crago, M., & Neal, M.E. (1990). Prevention of eating disorders among adolescents. American Journal of Health Promotion, 5, 100–106.
Shisslak, C.M., Crago, M., Neal, M.E., & Swain, B. (1987). Primary prevention of eating disorders. Journal of Consulting and Clinical Psychology, 55, 660–667.
Shore, R.A., & Porter, J.E. (1990). Normative and reliability data for 11 to 18 year olds on the eating disorder inventory. International Journal of Eating Disorders, 9, 201– 207.
Slavin, R. (1991). Group rewards make groupwork work. Educational Leadership, 48, 71–82.
Speilberger, C., Gorsuch, R., & Lushene, R. (1970). Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press.
Swarr, A.E., & Richards, M.H. (1996) . Longitudinal effects of adolescent girls' pubertal development, perceptions of pubertal timing and parental relations on eating problems. Developmental Psychology, 32, 636–646.
Waller, G., Calam, R., & Slade, P. (1988). Family interaction and eating disorders: Do family members agree? British Review of Bulimia and Anorexia Nervosa, 3, 33–40.