

A Preliminary Controlled Evaluation of a School-Based Media Literacy Program and Self-Esteem Program for Reducing Eating Disorder Risk Factors

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Abstract: Objective: This study compared the efficacy of a media literacy program and a self-esteem program designed to reduce general and specific risk factors for eating disorders. **Method:** Four classes of 86 grade 8 students (53 boys and 33 girls), mean age of 13 years, were randomly assigned to either a control condition or one of the two intervention conditions. Assessment of general and specific risk factors was carried out at baseline, postintervention and 3-month follow-up. **Results:** At postintervention the media literacy group had lower mean scores on weight concern than the control group ($p = 0.007$) but the self-esteem group did not. There were some differences on self-esteem measures at the 3-month follow-up. **Discussion:** Media literacy programs combined with an interactive, student-centered framework may potentially be a safe and effective way of reducing risk factors for eating disorders. The impact of teaching style needs to be further evaluated in prevention research. © 2003 by Wiley Periodicals, Inc. *Int J Eat Disord* 33: 371–383, 2003.

Key words: media literacy; self esteem; prevention; weight concern

INTRODUCTION

Body dissatisfaction and dietary restraint, identified risk factors for bulimic symptoms (Stice, 2001), are present in girls as young as 6 years of age (Lowes & Tiggemann, in press). These body concerns become more prevalent throughout childhood and adolescence, as does disordered eating (Tiggemann & Wilson-Barrett, 1998; Wertheim, Paxton, Schutz & Muir, 1997). Although studies continue to find that young men report lower levels of body dissatisfaction than women (Vartanian, Giant & Passino, 2001), most studies find that up to 50% of boys, particularly overweight boys, want to change the size of their body (Cohane & Pope, 2001; O'Dea & Abraham, 1999). Body dissatisfaction

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has also been found to be associated with bulimic symptoms in boys (Ricciardelli & McCabe, 2001). Given that evidence suggesting that risk factors for eating disorders develop in childhood, attention has turned in recent years to developing and using school-based prevention programs designed to decrease risk factors for disturbed eating and attitudes.

A recent review (Austin, 2000), however, suggests that results of prevention studies with adolescents have been largely discouraging. Most do not show any effect on disordered eating, and only some show an impact on risk factors for eating pathology (Stice & Ragan, 2002). A variety of problems with prevention research have been identified (Austin, 2000), including lack of standardized instrumentation; lack of inclusion of boys; use of didactic teaching approaches instead of cooperative, interactive, and participatory learning; and lack of theoretical rationales to guide development of intervention programs.

A further problem is that programs directly referring to eating disorders and associated behaviors may potentially increase problem behavior (Cohn & Maine, 1998; O'Dea, 2000). It has thus been suggested that eating disorder prevention in younger or low-risk populations should focus on general rather than symptom-specific risk factors (Shisslak & Crago, 2001). Many longitudinal research studies have identified low self-esteem as a general risk factor for eating disorders. In addition, specific risk factors have also been identified such as weight concern, body dissatisfaction, and dietary restraint (Shisslak & Crago, 2001). These findings are consistent with the cognitive theory of eating disorders (Fairburn & Cooper, 1989) that postulates low self-esteem to be a distal risk factor for weight and shape concern, or the degree of importance placed on weight and shape, which in turn influences dietary restraint and disordered eating. Consistent with this model, weight and shape concern has been found to fully mediate the relationship between self-esteem and disordered eating (Wade & Lowes, 2002).

Various interventions have been presented in the literature that can be used within an interactive student-centered approach, in which both content and teaching style can enhance self-efficacy and self-esteem (Hill & Hill, 1990; O'Dea & Abraham, 2000) and thus have a potential impact on specific eating disorder risk factors. Two of these prevention programs are the focus of this report. The first is a media literacy program. Fundamentally, this approach empowers students to adopt a critical evaluation of media content so that they can identify, analyze, and ultimately challenge the thin ideal presented in the mass media (Levine, Piran & Stoddard, 1999). Support for this type of approach can be found in the public health arena, where training students to resist social pressures toward tobacco, alcohol, and drug use is more effective in preventing these behaviors compared with a standard information approach (McAlister, Perry, Killen, Slinkard & Maccoby, 1980). To date, use of media literacy has not shown any effect on eating behavior or attitudes (Irving & Berel, 2001; Levine, Smolak & Schermer, 1996), including weight concern (Levine et al., 1999), although preliminary results show a 16-session media literacy education package, GO GIRLS! (Eating Disorder Awareness and Prevention [EDAP], 1999) reduces internalization of the slender ideal (Piran, Levine & Irving, 2000).

The second prevention program of interest is a self-esteem enhancement approach. One study, using a self-esteem development program that placed emphasis on cooperative, interactive, and student-centered learning, showed a reduction in eating disorder risk factors (O'Dea & Abraham, 2000). The 9-lesson program, entitled "Everyone's Different," delivered in the classroom to grade 7 and 8 students was found to significantly improve body satisfaction and self-concept and reduce unhealthy weight loss and dieting practices in teenagers, including those at high risk of eating disorders. Results at 12 months followed the same pattern, and several of these remained statistically significant.

The purpose of this research is to use a controlled study to evaluate the effectiveness of a self-esteem program and a media literacy program in reducing general and specific risk factors for eating disorders, namely self-esteem, weight and shape concern, dietary restraint, and body dissatisfaction. Both approaches were designed to promote interactive and participatory learning and thus to increase self-esteem and self-efficacy. The strengths of this study are threefold. It is the first study to evaluate two different approaches to reducing risk factors for eating disorders within a universal framework, although this has previously occurred in a targeted population (Celio et al., 2000). It also includes a control condition (religious education), which may reduce the potential for demand characteristics or expectancy effects. A second strength is that both boys and girls were included in the interventions. Apart from helping boys decrease risk factors for their own disordered eating, inclusion of boys can aid in dealing with their potentially negative role in a social environment that may contribute to disordered eating (Paxton, 1999; Paxton, Schutz, Wertheim & Muir, 1999). Third, we included a 3-month follow-up to examine whether any effects persist over time. Following from the cognitive model, we hypothesize that both these programs, when taught within an interactive and student-centered framework, can enhance self-esteem and reduce specific eating disorder risk factors.

METHODS

Participants

Four classes of private school grade 8 students (53 boys and 33 girls) with a mean age 13.42 years ($SD = 0.39$) were randomly allocated to either a control condition ($N = 18$: 13 boys and 5 girls), a self-esteem program ($N = 43$: 26 boys and 17 girls), or a media literacy program ($N = 25$: 14 boys and 11 girls). Approval for the study was received from the Flinders University Social and Behavioural Research Ethics Committee. Parental consent for participation in the study was obtained.

Procedure

Given time tabling restraints within the school, we were only allocated five class lessons (50 minutes' duration each) for each of the interventions during the time normally given to religious education classes. We therefore reduced the content of each intervention into a five-session outline. The control group participated in their normal religious education. All classes, including the religious education class, were taught by the usual teachers, who were all men, a different teacher for each condition. One female Master of Clinical Psychology student (SD) assisted at both the media literacy and self-esteem interventions to ensure fidelity across both programs. All standardized questionnaires were completed at baseline, postintervention, and 3-month follow-up. At postintervention, students were asked to write down what they had learned from the lessons and to rate perceived enjoyment and value of the lessons (Wade, Davidson & O'Dea, 2002).

Intervention Programs

In the first session of both interventions, classroom ground rules were discussed, such as confidentiality, mutuality, responsibility, diversity, and caring for the community.

Apart from this overlap between the two interventions, there was no other common material.

The media literacy program was adapted from the GO GIRLS! Program (EDAP, 1999). After substantial collaboration with the class teacher as to the content and exercises that would be most appropriate for his class, the program was reduced to five sessions. The content of these sessions is elaborated in Table 1. It was considered essential to retain the

Table 1. Outline of the media literacy and self-esteem interventions

Main Topics	Materials & Activities
<i>Media Literacy: GO GIRLS! (EDAP, 1999)</i>	
1: Consequences of a negative body image and the media's impact (both negative and positive) on our body image	<ul style="list-style-type: none"> • Definition of body image • Outcomes of negative body image using "Full Monty"/"Center Stage" • List 3 things that influence the way I think I should look
2: Stories that advertisements tell us (both good and bad) and how advertisements can be altered to make up stories	<ul style="list-style-type: none"> • Small group work: selection of advertisements and stories they are trying to tell—are they realistic? • "The Famine Within"—benefits of encouraging consumers to be dissatisfied with their appearance • Before and after ads: competition to guess the alterations
3: Becoming a critical media viewer: consumer activism using e-mails and letters to communicate with companies about their advertising	<ul style="list-style-type: none"> • Defining activism and becoming a critical media reviewer • Brainstorm different ways in which we can engage in activism • Select companies from ads & e-mail one praise and one protest letter
4 & 5: Preparation of a media awareness presentation addressing the question "Is advertising harmful?" using either a poster, short play, or debate	<ul style="list-style-type: none"> • Small group work on project, format decided by each group • Presentation of work in class followed by feedback and discussion • Feedback from e-mail replies • Tasks for the future?
<i>Self-Esteem: Everybody's different (O'Dea & Abraham, 2000)</i>	
1: Coping with stress and learning relaxation	<ul style="list-style-type: none"> • Class brainstorm—what is stress? • What makes people feel stressed? • Small groups—what can we do to feel better?
2: "What makes up a person?"	<ul style="list-style-type: none"> • Relaxation exercise with tape • Class exercise: define self-image • What makes up a person? • Advertising self as a good friend
3: Learning to observe positive aspects in others and communicating it	<ul style="list-style-type: none"> • How can self-image be destroyed? • How to give positive messages • Small groups: write one positive thing about each person
4: Challenging stereotypes in society (everybody's different)	<ul style="list-style-type: none"> • Defining stereotypes • Small group: stereotypes of men & women • Sending up the stereotype using magazine ads • Collages of stereotypical messages about people
5: How do others affect our self-concept?	<ul style="list-style-type: none"> • Role plays of vignettes of difficult situations • Discussion of feelings and how to change the situation • Alternative role play based on discussion

elements of literacy, activism, and advocacy (Levine et al., 1999). Literacy, the ability to evaluate media messages, was the focus of the second session. Activism, efforts to protest or praise media products conveying unhealthy or healthy messages, was the focus of the third session, in which emphasis was placed on both positive and negative examples and consequences of advertising. Emphasis was also placed on issues relating to advocacy, defined as tactics to allow communities to express their own story in their own words, in the last two sessions. Changes were made to the program to make it relevant to both boys and girls, and thus examples from advertising and video vignettes included boys and girls. Adding in more class discussion and small group exercises increased the interactive content of the package and therefore met criteria for raising self-esteem in the classroom.

The self-esteem program was based on one developed and evaluated previously with both girls and boys (O'Dea & Abraham, 2000). The central message of the intervention was that everybody is different, and we should not try to conform to stereotypes. The original program was reduced from nine to five sessions, and the content of these sessions is also summarized in Table 1. Both the teacher and student attended a 1-day training session by the creator of the program (JO'D), in which both content and style of teaching were elaborated.

Measures

The measure of the specific risk factors came primarily from three subscales of the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994), designed to measure the presence and degree of specific psychopathology associated with bulimia nervosa and anorexia nervosa over the previous 4 weeks. The EDE and EDE-Q have previously been used in girls aged 11 to 16 years and found to be valid and predictive of an eating disturbance (Cooper & Goodyer, 1997; Wade & Lowes, 2002). Two of the subscales, weight concern (five items) and shape concern (eight items), focus on the importance of weight or shape and had acceptable internal consistency for boys (0.78 and 0.93, respectively) and girls (0.94 and 0.95, respectively) at baseline. The third subscale, dietary restraint, which consists of five items, had an internal consistency of 0.70 for boys and 0.87 for girls at baseline. Each item is measured on a 7-point Likert scale, ranging from "not at all" to "markedly."

In addition, body dissatisfaction was measured using adolescent figural stimuli derived from those originally developed by Stunkard et al. (1983). These stimuli consisted of nine schematic figures that ranged from underweight to overweight, with each sequential figure increased by the same increment (Bulik, 2002). Participants were asked to rate the figures in response to two questions: "Which silhouette is closest to what you look like now?" and "Which silhouette would you prefer to look like now?" The discrepancy score (current-ideal) is used to indicate the degree of body dissatisfaction. For the purposes of this report, this variable was categorized dichotomously: those students who wanted to be smaller versus those who wanted to be the same size or bigger.

The general risk factor of self-esteem was measured using the Self Perception Profile for Adolescents (SPPA; Harter, 1986). This questionnaire measures the multidimensional nature of self-evaluative judgments, as well as the individual's overall sense of self-worth (Trent, Russell & Cooney, 1994). Each of the 45 items making up this questionnaire consist of two statements reflecting opposing points of view about self, and the respondent endorses each statement as being *really true for me* or *sort of true for me*. This scoring

system results in a 4-point measure for each item. Any scales associated with body appearance were eliminated from the analyses, including romantic appeal, athletic competence, and physical appearance. The remaining subscales of social acceptance, behavioral conduct, close friendships, self-worth, and scholastic competence all showed acceptable baseline internal reliability for boys (0.77, 0.78, 0.81, 0.90, 0.85, respectively) and acceptable but generally lower internal reliability for girls (0.77, 0.71, 0.67, 0.70, 0.84, respectively), with the exception of job competence (0.56 for boys and 0.55 for girls). This latter subscale was therefore not included in further analyses.

Statistical Analyses

Both the postintervention and 3-month follow-up scores were analyzed as outcome variables in a two-way (group, gender) analysis of covariance (ANCOVA) in which participants' baseline scores were used as the covariate. Given our directional hypotheses, we used one-tailed tests. Initial exploratory analyses used an alpha level of 0.05, but any significant effects were subsequently examined using Bonferroni adjustments for multiple comparisons. When a significant main effect of group existed, two planned comparisons were carried out. The first was a comparison of the media literacy versus the control group, and the second was a comparison of the self-esteem versus the control group. The only exception to this was the body dissatisfaction score, which was analyzed using logistic regression, with baseline body dissatisfaction as the covariate, and gender, group, and an interaction between gender and group as the independent variables.

RESULTS

Baseline Data

No significant differences on any of the variables or body mass index between the groups at baseline were present. There were no gender differences at baseline with respect to the self-concept measures. Girls had significantly higher levels of weight concern than boys, with respective means of 2.62 ($SD = 1.89$) and 1.19 ($SD = 1.12$), $t(46.16) = -3.92$, $p < 0.001$, as well as higher levels of shape concern, with respective means of 2.78 ($SD = 1.73$) and 1.50 ($SD = 1.42$), $t(58.06) = -3.57$, $p = 0.001$. Although girls were using a higher degree of dietary restraint than did boys with respective means of 1.51 ($SD = 1.60$) and 0.98 ($SD = 1.08$), this difference was not significant ($p = 0.11$). Girls were four times more likely to want a smaller body than boys (95% confidence intervals: 1.62–10.44, $p = 0.002$). Seven variables required log or square root transformations, because they were significantly positively skewed.

Group and Gender Effects for Specific Risk Factors

Adjusted means for postintervention and 3-month follow-up scores of the specific risk variables are presented in Table 2, where the effect of the baseline scores are covaried out. At postintervention, the only significant main effect of group was for weight concern. Planned comparisons using Bonferroni adjustments showed that the media literacy group had lower levels of weight concern than the control group ($F(1, 36) = 8.12$, $p = 0.007$),

Table 2. Adjusted means^a (standard error) of the dependent variable by group and gender for specific risk factors

Dependent Variable	Media				Self-Esteem				Control			
	Post-Group Mean (SE)		3-Month Follow-up Mean (SE)		Post-Group Mean (SE)		3-Month Follow-up Mean (SE)		Post-Group Mean (SE)		3-Month Follow-up Mean (SE)	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
Weight concern ^{b,c,d}	0.91 (0.15)	0.89 (0.13)	1.20 (0.18)	0.92 (0.13)	1.12 (0.12)	1.12 (0.10)	1.20 (0.13)	1.12 (0.12)	1.46 (0.23)	1.06 (0.13)	1.26 (0.21)	0.85 (0.13)
Shape concern ^b	1.18 (0.13)	1.16 (0.12)	1.37 (0.16)	1.15 (0.11)	1.27 (0.11)	1.14 (0.09)	1.15 (0.12)	1.27 (0.10)	1.50 (0.21)	1.16 (0.12)	1.46 (0.19)	1.11 (0.11)
Dietary restraint ^{b,e}	0.78 (0.13)	0.48 (0.12)	1.00 (0.21)	0.65 (0.14)	0.77 (0.14)	0.80 (0.09)	0.79 (0.13)	0.96 (0.12)	1.01 (0.22)	0.62 (0.12)	1.04 (0.24)	0.67 (0.14)

^aThe effect of the baseline value of the dependent variable has been statistically removed; hence, means can be directly compared across group, gender, and time.
^bThe square root transformed score was used in analyses.

^c $F(2,76) = 3.04, p = 0.03$, effect size = 0.08, for main effect of group at postintervention.

^d $F(1,72) = 3.55, p = 0.03$, effect size = 0.05, for main effect of gender at 3-month follow-up.

^e $F(1,75) = 3.55, p = 0.03$, effect size = 0.05, for main effect of gender at postintervention.

an effect size of 0.19. There was no significant difference between the self-esteem or control groups ($F(1,48)=0.47, p=0.50$), an effect size of 0.01. Further investigation of the weight concern variable showed that, between baseline and postintervention, 79% of the media literacy group, 50% of the self-esteem group, and 29% of the control group evidenced reduced levels of weight concern ($\chi^2(2, N = 77) = 10.50, p=0.005$). When those people whose weight concern had stayed the same or increased were collapsed into one group, significantly more people in the media group had decreased levels of weight concern compared with either the self-esteem ($p = 0.02$) or control group ($p = 0.001$).

The effects of gender did not remain significant when corrected for multiple comparisons. There was no significant effect of group for body dissatisfaction at postintervention ($p=0.79$) or 3-month follow-up ($p=0.57$). Nor were there any significant group differences for any other of the specific risk factors at postintervention or 3-month follow-up. There were no significant interactions.

Group and Gender Effects for General Risk Factors

A main effect of group at 3-month follow up was observed for close friendships, scholastic competence, social acceptance, and behavioral conduct (Table 3). Planned comparisons were then carried out using Bonferroni adjustments. The media literacy group perceived themselves as being significantly more competent in the arena of close friendships than did the control group ($F(1,34)=5.54, p=0.02$), an effect size of 0.14. There was no significant difference between the control or self-esteem group. The control group perceived themselves as having significantly higher levels of scholastic competence than the self-esteem group ($F(1,45)=4.86, p=0.03$), an effect size of 0.10, but there was no difference between the control and media literacy groups. The control group also perceived themselves to have higher levels of behavioral conduct than the media literacy group ($F(1,34)=5.36, p=0.03$), an effect size of 0.14. Planned comparisons showed no significant differences between the groups with respect to social acceptance, but there was a tendency for the media literacy group to have higher perceived social acceptance than the control group ($F(1,34)=2.98, p=0.08$), an effect size of 0.08. There were no significant interactions.

Themes Identified by Students

When asked about what things they had learned from the media literacy program, students identified advertising (“there is often a hidden message in ads”), being happy with self (“to be happy with who I am,” “don’t compare yourself with super models”), the difference between look and feel (“what is on the inside that counts”), and practical skills (“skills in becoming a critical viewer”). Themes identified by the students in the self-esteem group included dealing with stress (“I learned how to relax”), stereotypes (“that stereotypes aren’t always true”), it’s OK to be different (“to be happy with myself”), and image (“I feel better about my image [just a little bit]”). Further information from the students with respect to perceived enjoyment and value of the lessons indicated that the media literacy was perceived to be more enjoyable than the self-esteem lessons (Wade, et al., 2002).

DISCUSSION

This study evaluated the usefulness of two prevention approaches, media literacy and self-esteem enhancement, in terms of their impact on general and specific risk factors for

Table 3. Adjusted means^a (standard error) of the dependent variable by group and gender for the general risk factor of self-esteem

Dependent Variable	Media				Self-Esteem				Control			
	Post-Group Mean (SE)		3-Month Follow-up Mean (SE)		Post-Group Mean (SE)		3-Month Follow-up Mean (SE)		Post-Group Mean (SE)		3-Month Follow-up Mean (SE)	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
Self-worth	0.26 (0.03)	0.26 (0.03)	0.36 (0.04)	0.31 (0.03)	0.25 (0.03)	0.32 (0.02)	0.25 (0.03)	0.27 (0.03)	0.26 (0.05)	0.27 (0.03)	0.29 (0.06)	0.27 (0.03)
Close friendships ^{b,f}	0.26 (0.03)	0.23 (0.03)	0.24 (0.04)	0.34 (0.03)	0.25 (0.03)	0.24 (0.03)	0.15 (0.03)	0.23 (0.03)	0.27 (0.06)	0.18 (0.03)	0.18 (0.06)	0.16 (0.04)
Scholastic competence ^d	2.90 (0.14)	2.99 (0.12)	2.69 (0.18)	2.76 (0.14)	2.88 (0.13)	2.79 (0.10)	2.68 (0.13)	2.75 (0.13)	3.08 (0.23)	3.02 (0.13)	3.10 (0.23)	3.10 (0.14)
Social acceptance ^{b,e}	0.28 (0.03)	0.25 (0.02)	0.34 (0.04)	0.30 (0.04)	0.24 (0.02)	0.28 (0.02)	0.27 (0.03)	0.23 (0.03)	0.24 (0.04)	0.24 (0.02)	0.23 (0.07)	0.22 (0.04)
Behavioral conduct ^f	2.66 (0.13)	2.81 (0.11)	2.45 (0.17)	2.76 (0.13)	2.91 (0.12)	2.72 (0.10)	2.82 (0.12)	2.82 (0.12)	3.04 (0.21)	3.04 (0.12)	2.94 (0.21)	3.11 (0.14)

^aThe effect of the baseline value of the dependent variable has been statistically removed; hence, means can be directly compared across group, gender, and time.
^bThe log transformed score was used in analyses.

^c $F(2, 70) = 5.31, p = 0.004$, effect size = 0.14, for main effect of group at 3-month follow-up.

^d $F(2, 70) = 3.03, p = 0.03$, effect size = 0.09, for main effect of group at 3-month follow-up.

^e $F(2, 70) = 2.41, p = 0.04$, effect size = 0.07, for main effect of group at 3-month follow-up.

^f $F(2, 70) = 3.24, p = 0.03$, effect size = 0.09, for main effect of group at 3-month follow-up.

eating disorders. With respect to the four specific risk variables examined, weight concern, shape concern, dietary restriction, and body dissatisfaction, only weight concern was significantly impacted by the intervention. Specifically, when media literacy was compared with the control group at postintervention, the intervention accounted for 19% of the variance in decrease in weight concern over time. This is a medium effect size that is potentially clinically significant, identical to that achieved in a study of at-risk university students who had body image concerns (Zabinski et al., 2001). It is lower, however, than that achieved with another group of high-risk university students, in whom the effect size was 0.56 at both postintervention and 4-month follow-up (Celio et al., 2000). This is consistent with the trend for targeted programs to result in greater reductions in risk factors than universal programs (Stice & Ragan, 2002). A previous universal program did not succeed in decreasing weight concern (Stewart, Carter, Drinkwater, Hainsworth & Fairburn, 2001), although this study did report short-term significant reductions in dietary restraint, shape concern, and eating concern. Neither did this study show maintenance of these effects at follow-up, in common with our finding for weight concern. The hypothesized effects on the other specific risk factors were not observed, although we did observe nonsignificant reductions in dietary restraint in both the media literacy and self-esteem groups for girls.

With respect to our general risk factor of self-concept, there were mixed findings. Once we had adjusted for multiple comparisons, the media literacy group had a more favorable view of their ability to make close, trustworthy friends than did the control group at 3-month follow-up. It can be speculated that greater acceptance of self and focusing on personal qualities rather than appearance (as indicated in the student feedback on the media group) may enhance confidence within friendships. Given the growing empirical evidence to suggest that immediate friendship environments may enhance or diminish the importance of thinness and engaging in weight loss behaviors (Paxton, 1999), this would be an important consequence of any preventive intervention. However, students in the media literacy condition show a lower sense of competence relating to behavioral conduct (liking the way they behave and acting in the way that is expected) than the control group, and the control group had a higher scholastic self-concept than did the self-esteem group. Overall, these findings contrast with a previous study that found no changes to self-concept (Stewart et al., 2001). Obviously, it is useful to measure self-esteem as a multifaceted variable, because interventions may differentially affect these various facets. It is worth considering that some facets of self-esteem and self-concept may be more instrumental in affecting specific risk variables for eating disorders. It is of interest to note that students in the media literacy group identified themes relating to self-acceptance, as well as to media literacy, despite no overt reference to this first theme in class. Both interventions aimed to address general risk factors by increasing self-esteem and self-efficacy through content and teaching style, which are hypothesized to have an impact on specific eating disorder risk factors. Student feedback indicates that media literacy, when combined with a self-esteem-enhancing, student-centered teaching style, may convey messages of self-acceptance that could increase the power of this intervention.

Given previous results relating to the self-esteem program (O'Dea & Abraham, 2000), it was surprising to find this intervention to be ineffective in significantly reducing specific risk factors. One important difference between this program and the media literacy program can be noted, apart from the content of the two programs. The media content was put together in collaboration with the class teacher, whereas the self-esteem content and teaching style was imposed on the other class teacher. It was the impression of the

student presenter in the classroom that the media literacy teacher was much more comfortable with a collaborative teaching style than was the teacher of the self-esteem program, who was used to delivering content in a more autocratic teaching style. Hence, the full impact of the self-esteem program may not have been fully achieved. This suggests that researchers need to engage in substantial consultation with the relevant teachers before the delivery of any intervention, both in terms of content and teaching style. This collaboration and liaison may have the added advantage of aiding in the organization of longer term and more intense interventions, an issue that is a general problem with school-based interventions (Stice & Raglan, 2002).

Limitations

The main limitation of this research relates to a lack of power to investigate the impact of the two interventions, and for this reason our results must be seen to be preliminary and in need of further replication. This lack of power is related primarily to our sample size, and in particular, the small number of girls in our groups. In addition, given the time restraints placed on the duration of the programs by the school, the interventions may not have been of sufficient intensity. However, given that this is the first study to find a media literacy approach can reduce weight concern, replication using more students and greater intensity interventions is warranted. A second limitation relates to our use of one school. There is the possibility of contamination across the groups, where students may talk with friends about their experiences in the programs, despite the rule of confidentiality set up in the first lesson of both interventions. A third limitation relates to our inability to objectively differentiate possible differences in teaching style from differences in content that would aid our understanding of the differences found between the two interventions.

Implications for Future Research

We conclude that delivery of a media literacy program within an interactive, student-centered, self-esteem building framework may potentially be a safe and effective way of reducing risk factors for eating disorders. However, before such a conclusion can be confidently made, the interventions in this study need to be replicated in a more powerful design. It would be helpful if further research could compare the effect of different teaching styles—it may be that this factor is as important as the actual content of the interventions. Thus, designs that can manipulate teaching style would be a useful addition to the prevention literature.

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