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Preventing Eating Disorders

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Abstract

This paper reviews eating disorder (ED) prevention programs, highlighting features that define successful programs and particularly promising interventions, and how they might be further refined. The field of ED prevention has advanced considerably both theoretically and methodologically, as the early ED prevention programs were largely psychoeducational and met with limited success. Recent meta-analytic findings show that over half (51%) of ED prevention interventions reduced ED risk factors and over a quarter (29%) reduced current or future eating pathology (EP). A couple of very brief programs have been shown to reduce risk for future onset of EP, and obesity onset. Selected, interactive, multi-session programs offered to participants over 15 years of age, delivered by professional interventionists and including body acceptance or dissonance-induction content produced larger effects. Understanding and applying these results can help inform the design of more effective prevention programs in the future.

Keywords

eating disorders; prevention; meta-analysis

Eating pathology (EP) is characterized by chronicity and relapse, results in impaired psychosocial functioning, and is related to elevated risk for suicide [1], [2]. EP also increases the risk for future depressive disorders, anxiety disorders, substance abuse, health problems, and obesity [3], [4]. Moreover, EP remains challenging to treat and the effects have been limited [1], [2]. As a result, considerable efforts have been devoted to developing effective prevention programs. This paper reviews eating disorder (ED) prevention programs that have been evaluated in controlled trials. In particular, we identify the sample, intervention, and design features that produced larger intervention effects, review programs that appear particularly promising, and offer suggestions for future prevention efforts.

Early ED prevention programs produced limited effects [5]. In an attempt to improve outcomes, researchers now target well-established *risk factors* underlying EP, an approach that has proven

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more successful. Presently, little is known about the risk factors specific to anorexia nervosa, bulimia nervosa, or binge eating disorder. Well-established risk factors for EP more generally that are supported by multiple independent prospective studies include elevated perceived pressure to be thin, internalization of the thin-ideal standard of female beauty, body mass, body dissatisfaction, and negative affect [6], [7]. Randomized experiments reducing thin-ideal internalization, body dissatisfaction, and negative affect also resulted in reductions in ED symptoms [8], [9], suggesting that these may be causal risk factors. Dieting was previously thought to be a well-established risk-factor for EP because it predicted future EP in prospective studies [10]. More rigorous controlled experiments, however, have found that assignment to a low-calorie weight loss diet resulted in decreased bulimic symptoms in normal weight young women, overweight women, obese binge eating women, and women with threshold and subthreshold bulimia nervosa [11], [12], [13], [14]. Although it is possible that bulimic symptoms could increase over time, one study found that random assignment of body dissatisfied adolescent girls to a weight maintenance diet intervention resulted in reduced eating pathology at three-year follow-up [15], which is the longest follow-up for a study of this kind to date. Some have argued that the prospective studies relied on invalid dietary restraint measures, which may explain the inconsistent findings [16].

Meta-analysis of ED Prevention Programs: Defining Successful Programs

Meta-analyses are ideal for elucidating participant, intervention, and research design features associated with the strongest intervention effects on ED risk factors and symptoms, and the optimal conditions for prevention efforts. Understanding the characteristics of successful ED programs is essential to continuing to refine interventions to reduce the prevalence of EP. Accordingly, we have organized this paper around key findings from our recent meta-analytic review of ED prevention programs that point to successful program features.

Because only key findings of the meta-analysis are summarized in this paper, we refer readers to [17] for methodological details, specific hypotheses, and results. Overall, our results showed that 26 (51%) of the prevention programs included in the meta-analysis resulted in significant reductions in at least one established EP risk factor, 15 (29%) of the prevention programs resulted in significant reductions in EP, and some interventions both reduced extant EP and prevented increases in EP that were observed in control groups. The overall percentage of prevention programs that produced effects for EP is comparable to results showing changes in BMI in obesity prevention for obesity (21%; [18]) and results showing changes in condom use in HIV (22%; [19]) prevention programs. These results are encouraging, particularly given that early ED programs typically were unsuccessful at reducing ED or EP risk factors. Outcome variables examined in the meta-analysis were body mass, thin-ideal internalization, body dissatisfaction, dieting, and negative affect because these factors were identified in prospective risk factor studies as predictors of subsequent onset of EP [20]. Average effect sizes for the outcomes ranged from .10 to .18 at termination and from .04 to .13 at follow-up. Although these average effect sizes are small in magnitude, individual effect sizes from prevention trials ranged from nonexistent to large, and a number of factors associated with larger effects were identified by the moderation analyses. Based on prior research, potential moderators of intervention effects included in the analyses were *participant features* (risk status (selective or universal), sex and age), *design features* (use of validated measures and length of follow-up), and *intervention features* (session format (interactive or didactic), type of interventionist (professional interventionist or endogenous provider), number of sessions, and program content). Here, we will highlight the program features that emerged as important moderators of intervention effects.

Features of Successful ED Prevention Programs

The meta-analysis pointed to several important features of ED prevention programs that moderated effects sizes, and also to particularly promising prevention programs. More specifically, several moderators emerged as important in producing strong intervention effects. First, *selected* programs targeting high-risk individuals produced larger effects than did universal programs for most outcomes. One possible reason for the improved effects with selected programs is that high-risk participants may be more motivated to participate in programs to reduce current distress from elevated risk factors such as body dissatisfaction or negative affect. In fact, only selected interventions prevented future increases in EP observed in control groups, suggesting that the effects did not just result from an initial decrease in eating disturbances. Several universal prevention programs were also more effective for subgroups of high-risk participants than for the full sample [21], [22], [23], [24], [25]. Three studies not included in the meta-analysis, however, found that a dissonance-based program produced similar results for low and high-risk sub-groups [26], [27], [28]. This program, explained in greater detail later in the paper, attempts to induce cognitive dissonance in participants by having them argue against the culturally prescribed thin-ideal beauty standard, which is thought to lead to a shift in attitudes and produce behavioral change. Indeed, some researchers have argued for universal programs based on the notion that they can effectively challenge the broader sociocultural environment thought to contribute to the development and persistence of EDs [29]. Further, Becker has found in her work that sororities rejected a selected approach in favor of a universal approach because they felt the program should be mandatory for all members.

Participant *age* was also an important moderator of intervention effects. Programs with older adolescents (over 15) had larger effects, perhaps because interventions are more effective when delivered during the peak risk period when EP emerges. Younger adolescents also may have limited insight and ability to apply the principles of the intervention. In addition, low levels of EP during early adolescence may lead to floor effects. *Interactive* interventions also produced stronger effects, which is consistent with other prevention research that has found that didactic psychoeducational interventions are less effective than interactive interventions [30]. Interactive interventions are likely more engaging, which facilitates internalizing important concepts, and promotes attitudinal and behavioral change.

The *type of interventionist* was also important, as interventions delivered by trained interventionists were more effective than those delivered by endogenous providers (e.g., teachers, nurses, counselors). Effects may be smaller for endogenous providers because they have competing demands, such as teaching or other full-time job responsibilities that make it difficult to deliver the prevention program with fidelity. Endogenous providers may also receive less training, supervision, and practice in delivering the intervention compared with trained interventionists. It should be noted, however, that as efforts to disseminate efficacious programs continue, further research will need to investigate factors that may increase the effectiveness of programs when they are delivered by endogenous providers because endogenous providers are often more economically viable, an important consideration in determining sustainability of programs in natural settings.

Intervention content was also an important moderator of effect sizes. Consistent with prior research [30], interventions with psychoeducational content produced weaker effects. *Body acceptance* interventions were more effective than programs without this focus, possibly because body dissatisfaction increases the risk for a host of other disturbances, such as unhealthy dieting, negative affect, and ED behavior (e.g., vomiting for weight control). Thus, reducing body dissatisfaction can also decrease these disturbances. *Dissonance induction* interventions also produced larger effects for thin-ideal internalization, body dissatisfaction,

dieting, and negative affect, and EP than programs without this content. Interventions with sociocultural content and a stress and coping focus had limited effects. It is important to note that the 15 programs that produced effects for EP varied considerably, and included programs aimed at enhancing self-esteem, stress management skills, body acceptance, healthy weight control behaviors, and critical analysis of the thin-ideal. This implies that EP prevention can occur through a variety of methods, or that non-specific factors explain some of the intervention effects. Thus, it is also important to examine the specific programs that produced the strongest, most persistent effects.

Successful ED Prevention Programs

The meta-analytic review identified several prevention programs that have successfully reduced current and future ED symptoms, and several that have also reduced the risk for onset of threshold or subthreshold EDs (e.g., [16], [31]), which historically has been difficult to achieve. In this section, we will briefly describe some of the more successful, promising programs that were highlighted by the meta-analysis.

Dissonance Induction Interventions: The Body Project

The *Body Project* is an intervention based on the social psychological principle of cognitive dissonance. The main theory behind this intervention is that by getting girls and women to take an active stance in arguing against the culturally mandated thin-ideal, they will experience cognitive dissonance and shift their belief systems to align with this anti-thin-ideal stance. This is a highly interactive and brief (3 and 4 session versions) intervention that has been replicated by five independent labs and outperformed alternative interventions, and thus considered efficacious or empirically established (see [32] for a review of this program). This intervention has successfully reduced the risk for future onset of both ED symptoms and obesity, and resulted in improved psychosocial functioning and reduced mental health care utilization at one-year follow-up in a self-selected sample of young women with body dissatisfaction [8]. Further, a follow-up paper [15] reported that relative to assessment-only controls, dissonance participants had significantly lower thin-ideal internalization, body dissatisfaction, negative affect, bulimic symptoms, and psychosocial impairment by 2-to 3-year follow-up. Importantly, the dissonance intervention reduced risk for onset of subthreshold and threshold anorexia nervosa, bulimia nervosa, and binge eating disorder through 3-year follow-up compared with assessment only controls (6% versus 15%), which represents a 60% reduction in the number of expected cases that would have theoretically emerged without this intervention. Results suggest that for every 100 young women who complete the dissonance intervention, approximately 9 fewer should show onset of eating pathology.

Sorority Body Image Program

Becker and colleagues developed a 2-session version of the dissonance intervention and successfully applied it to sororities. Their results suggested that the intervention produced significantly greater reductions in thin-ideal internalization, body dissatisfaction, and dieting compared to a waitlist control at one-month follow-up in sorority members, and also produced significant reductions in eating pathology [26]. Becker has also found that this program can be successfully implemented by peer-leaders in effectiveness trials [33], [27], and produces significant effects at 8-month follow-up. Demonstrating the effectiveness of such a brief intervention applied to a broader social system suggests that this is a program that can be widely adapted and easily disseminated.

Healthy Weight Intervention

The *Healthy Weight* intervention was originally included as a control group in a paper testing the dissonance program, and was also found to reduce the future onset of both ED symptoms and obesity, and result in improved psychosocial functioning and reduced mental health care utilization at one-year follow-up [8]. Further, this intervention was also found to produce true prophylactic effects and reduced the onset of eating disorders at 3-year follow-up [15]. What differentiates this program from other psychoeducational interventions is that it aims to teach participants how to achieve and maintain a healthy weight through making *small, gradual* changes in diet and exercise. The program also incorporates social psychological principles, such as motivational interviewing and public commitments to change, which is novel. It is a brief 4-session intervention, and appears to be easily disseminated by endogenous providers, as well as professional interventionists.

Girl Talk

Girl Talk is an interactive, six-session intervention that consists of a peer-support group that is centered on promoting critical media use, body acceptance, healthy weight control behaviors, and stress management skills [34]. In an effectiveness trial of a 10-session version of this program delivered by public health nurses in one school, [35] found that participation in the intervention led to increases in weight-related esteem and decreases in dieting at posttest and 3-month follow-up among middle schools girls compared with the control group. A subsequent evaluation of this intervention delivered across different schools, however, failed to replicate these positive findings [36].

Student Bodies

Student Bodies [37] is an 8-week computer-administered ED prevention program based on cognitive-behavioral body dissatisfaction interventions (e.g., [38]). This intervention provides information on ED, healthy weight control behaviors, and nutrition, and includes an unstructured email support interchange that allows participants to express their emotional reactions to the intervention. This program has successfully reduced ED risk factors such as body dissatisfaction (e.g., [39]), and positive results have been replicated in multiple trials conducted by the same lab. Other researchers [40] tested the long-term effectiveness of *Student Bodies*, and whether the dependent on clinically moderated online discussion groups that were included in previous trials. They found that overall, participants using the program without a clinical moderator for the online discussion had the best outcomes. More specifically, at posttest, this group showed significantly lower bulimic pathology, and lower body dissatisfaction at 8-month follow-up than the control groups. More recently, [31] tested whether this intervention, which included a moderated online discussion group, could prevent the onset of EDs in at-risk college women. They found that the program significantly reduced ED risk factors (weight and shape concerns), and notably, also reduced the onset of EDs in participants with elevated BMI and in participants with baseline compensatory behaviors.

Weigh to Eat

Another intervention that is psychoeducational but incorporates social-cognitive principles for behavior change is *Weigh to Eat*, developed by Neumark-Sztainer and colleagues. This is a school-based program aimed at changing knowledge, attitudes, and behaviors related to nutrition and weight control, improve body and self-image, and promote greater self-efficacy in approaching social pressures regarding excessive eating and dieting [40]. In an effectiveness trial of this 10-session intervention implemented by a health educator, it produced significant improvements in knowledge, healthy weight control behaviors, dieting, and binge eating at 6-month follow-up, although only the effect for binge eating remained significant at the 2-year

follow-up. No significant changes were observed for body dissatisfaction and negative affect at either of the follow-up assessments.

Additional Promising Programs

A couple of other psychoeducational based interventions have proven successful, too, despite the overall finding that in general these types of programs are not effective. For example, [41], in a replication of a preliminary trial of a 15-week psychoeducational college course on EDs found that, compared to a matched control group, participants showed significantly greater reductions in thin-ideal internalization, body dissatisfaction, dieting, and ED symptoms, as well as less weight gain at post-test and 6-month follow-up.

Similarly, [23] also found positive effects from a psychoeducational program that can also be characterized as a body acceptance program, addressing sociocultural pressures to be thin and body dissatisfaction, but also changes associated with puberty, the development of EDs, self-esteem and dieting. Their results showed that the intervention produced a small reduction in dietary restraint and attitudes to shape and weight at post-test, although the change did not persist through 6-month follow-up.

Conclusions and Summary

This review highlighted that researchers in the ED field have developed a number of prevention programs that have successfully decreased current EP and the risk for future increases in EP, and that many programs have successfully decreased risk factors for ED. Further, when the content of the interventions that produced effects is examined, it appears as though a range of intervention methods and features can successfully reduce ED risk factors and symptoms. Several prevention approaches appear to be promising, but interventions that decreased attitudinal risk factors and promoted healthy weight control behaviors were particularly effective. Some interventions appeared to be superior to minimal-intervention control conditions, and some produced effects that persisted for up to 2 years. Selected (vs. universal), interactive (vs. didactic), multi-session (vs. single-session) programs, offered to participants over age 15 (vs. younger participants), and delivered by professional interventionists (vs. endogenous providers) produced larger intervention effects. Larger effects were also observed for interventions with body acceptance and dissonance-induction foci and without psychoeducational content.

In interpreting the meta-analytic findings, it is important to note that establishing the relation between a moderator and an effect size does not establish causality. It could be that an effect is due to some other variable that was not modeled (e.g., prevention programs for those under 15 could be less effective because they don't target causal risk factors). In addition, theoretical considerations, rather than empirical evidence, guided some of our conclusions regarding the moderators. For example, there is no empirical evidence supporting our speculation that the success of selected programs is because the distress of high-risk samples causes them to more effectively engage in the program content. Finally, many programs that have produced promising effects have not included long term follow-up periods, which makes it difficult to discern how persistent the effects are.

Although many programs produced effects, they could be larger and more persistent. In fact, the average effects in the meta-analysis overall were relatively small, ranging from nonexistent to large. Further, researchers should build upon successful content and design features suggested by the meta-analysis. More researchers also should examine mediators of intervention effects, which is necessary to understand the effects of the non-specific factors that likely explained why some interventions did not produce stronger effects than minimal-intervention control conditions. Examining the moderators of intervention effects is also vital

to identifying the types of participants who best respond to particular prevention programs and suggesting how to design programs that benefit more participants.

To better understand the role of various etiologic ED risk factors, more randomized, experimental trials of prevention programs are also needed. This is the only way to isolate the role of a risk factor on EP. Further, many trials did not include a control group, making it impossible to separate the intervention effects from the effects from the passage of time, regression to the mean, or measurement artifacts. More trials also need to incorporate placebo or alternative intervention control groups, which helps to isolate intervention effects from effects arising from non-specific factors, demand characteristics, or expectancies. A number of trials did not include a measure of ED symptoms or diagnoses, which limits what can be learned, and there are also very few effectiveness trials that assess whether an intervention works when recruitment and delivery are performed by endogenous providers rather than professional interventionists. Finally, many researchers failed to report effect sizes, making it difficult to interpret the findings, and few researchers examined differential change in outcomes across condition, which is essential for the proper interpretation of effects.

Researchers should use these results as a foundation for developing future ED prevention interventions. The most efficacious interventions should be refined and tested in effectiveness trials to enhance cost-effectiveness and identify possible barriers to wide dissemination of these programs. Independent replications of the most promising prevention trials need to be conducted, and further examination of the moderators and mediators needs to occur. General prevention techniques that build upon successful content features, like incorporating social psychological principles such as dissonance and strategic presentation to combat risk factors, should be developed. Finally, clinical preventionists who have limited resources for research should attempt to implement existing efficacious programs and report on their clinical experiences, as opposed to using new untested programs that may have little effect. Ultimately, we hope that the findings from our summary of the literature can be used to help researchers continue to conduct methodologically rigorous and programmatic studies to help refine and improve prevention programs aimed at reducing the risk and prevalence of ED and EP, and also to help clinicians implement programs that are more likely to produce beneficial results.

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References

1. Wilson, GT.; Becker, CB.; Heffernan, K. Eating Disorders. In: Mash, EJ.; Barkley, RA., editors. *Child Psychopathology*. 2nd ed.. New York: Guilford; 2003. p. 687-715.
2. Stice, E.; Bulik, CM. Eating Disorders. In: Beauchaine, PP.; Hinshaw, SP., editors. *Child and Adolescent Psychopathology*. Wiley & Sons: Hoboken, NJ; 2008. p. 643-669.
3. Johnson JG, Cohen P, Kasen S, Brook JS. Eating disorders during adolescence and the risk for physical and mental disorders during early adolescence. *Arch Gen Psychiatry* 2002;59:545–552. [PubMed: 12044197]
4. Stice E, Cameron R, Killen JD, et al. Naturalistic weight reduction efforts prospectively predict growth in relative weight and onset of obesity among female adolescents. *J Consult Clin Psychol* 1999;67:967–974. [PubMed: 10596518]
5. Pearson J, Goldklang D, Striegel-Moore R. Prevention of eating disorders: Challenges and opportunities. *Int J Eat Disord* 2002;31:233–239. [PubMed: 11920984]
6. Stice E. A prospective test of the dual pathway model of bulimic pathology: Mediating effects of dieting and negative affect. *J Abnorm Psychol* 2001;110:124–135. [PubMed: 11261386]
7. Wertheim EH, Koerner J, Paxton S. Longitudinal predictors of restrictive eating and bulimic tendencies in three different age groups of adolescent girls. *Journal of Youth and Adolescence* 2001;30:69–81.

8. Stice E, Shaw H, Burton E, et al. Dissonance and healthy weight eating disorder prevention programs: A randomized efficacy trial. *J Consult Clin Psychol* 2006;74:263–275. [PubMed: 16649871]
9. Burton EM, Stice E, Bearman SK, et al. An experimental test of the affect-regulation model of bulimic symptoms and substance use: An affective intervention. *Int J Eat Disord*. 2008
10. Field AE, Camargo CA, Taylor CB, et al. Relation of peer and media influences to the development of purging behaviors among preadolescent and adolescent girls. *Arch Pediatr Adolesc Med* 1999;153:1184–1189. [PubMed: 10555723]
11. Burton EM, Stice E. Evaluation of a healthy-weight treatment program for bulimia nervosa: A preliminary randomized trial. *Behav Res Ther*. 2006
12. Goodrick GK, Poston WS, Kimball KT, et al. Nondieting versus dieting treatments for overweight binge-eating women. *J Consult Clin Psychol* 1998;66:363–368. [PubMed: 9583339]
13. Klem ML, Wing RR, Simkin-Silverman L, et al. The psychological consequences of weight gain prevention in healthy, premenopausal women. *Int J Eat Disord* 1997;21:167–174. [PubMed: 9062840]
14. Presnell K, Stice E. An experimental test of the effect of weight-loss dieting on bulimic pathology: Tipping the scales in a different direction. *J Abnorm Psychol* 2003;112:166–170. [PubMed: 12653425]
15. Stice E, Marti N, Spoor S, et al. Dissonance and healthy weight eating disorder prevention programs: Long-term effects from a randomized efficacy trial. *J Consult Clin Psychol*. 2008
16. Stice E, Fisher M, Lowe MR. Are dietary restraint scales valid measures of acute dietary restriction? Unobtrusive observational data suggest not. *Psychological Assessment* 2004;16:51–59. [PubMed: 15023092]
17. Stice E, Shaw H, Marti CN. A meta-analytic review of eating disorder prevention programs: Progress at last. *Ann Rev of Clin Psychol* 2007;3:233–257. [PubMed: 17716055]
18. Stice E, Shaw H, Marti CN. A meta-analytic review of obesity prevention programs for children and adolescents: The skinny on interventions that work. *Psychol Bull* 2006;132:667–691. [PubMed: 16910747]
19. Logan TK, Cole J, Leukefeld C. Women, sex, and HIV: Social and contextual factors, meta-analysis of published interventions, and implications for practice and research. *Psychol Bull* 2002;128:851–885. [PubMed: 12405135]
20. Stice E. Risk and maintenance factors for eating pathology: A meta-analytic review. *Psychol Bull* 2002;128:825–848. [PubMed: 12206196]
21. Buddeberg-Fischer B, Klaghofer R, Gnam G, et al. Prevention of disturbed eating behaviour: A prospective intervention study in 14- to 19-year old Swiss students. *Acta Psychiatr Scand* 1998;98:146–155. [PubMed: 9718242]
22. Killen JD, Taylor CB, Hammer L, et al. An attempt to modify unhealthful eating attitudes and weight regulation practices of young adolescent girls. *Int J Eat Disord* 1993;13:369–384. [PubMed: 8490639]
23. Stewart DA, Carter JC, Drinkwater J, et al. Modification of eating attitudes and behavior in adolescent girls: A controlled study. *Int J Eat Disord* 2001;29:107–118. [PubMed: 11429973]
24. Stice E, Fisher M, Martinez E. Eating disorder diagnostic scale: Additional evidence of reliability and validity. *Psychological Assessment* 2004;16:60–71. [PubMed: 15023093]
25. Weiss K, Wertheim EH. An evaluation of a prevention program for disordered eating in adolescent girls: Examining responses of high and low risk girls. *Eat Dis: The Journ of Treat and Prev* 2005;14:265–285.
26. Becker CB, Smith L, Ciao AC. Reducing eating disorder risk factors in sorority members: A randomized trial. *Behav Ther* 2005;36:245–254.
27. Becker CB, Bull S, Schaumberg K, Cauble A, Franco A. Effectiveness of peer-led eating disorder prevention: A replication trial. *J or Consult and Clin Psychol* 2008;76:347–354.
28. Green M, Scott N, Diyankova I, et al. Eating disorder prevention: An experimental comparison of high level dissonance, low level dissonance, and no-treatment control. *Eating Disorders* 2005;13:157–169. [PubMed: 16864339]
29. Levine, MP.; Smolak, L. The prevention of eating problems and eating disorders: theory, research, and practice. Mahwah, NJ: Lawrence Earlbaum; 2006.

30. Larimer ME, Crouce JM. Identification, prevention, and treatment: A review of individual-focused strategies to reduce problematic alcohol consumption by college students. *J Stud Alcohol* 2002;64:148–163.
31. Taylor CB, Bryson S, Luce KH, et al. Prevention of eating disorders in at-risk college-age women. *Arch Gen Psychiatry* 2006;63:881–888. [PubMed: 16894064]
32. Shaw, H.; Stice, E. Preventing eating disorders: A school-based dissonance program. In: LegCroy, C., editor. *Handbook of Prevention and Intervention Programs for Adolescent Girls*. 2008.
32. Stice E, Marti N, Spoor S, et al. Dissonance and healthy weight eating disorder prevention programs: Long-term effects from a randomized efficacy trial. *J Consult Clin Psychol*. 2008
33. Becker CB, Smith L, Ciao AC. Peer-facilitated eating disorders prevention: A randomized effectiveness trial of cognitive dissonance and media advocacy. *Journal of Counseling Psychology* 2006;53:550–555.
34. McVey GL, Davis R. A program to promote positive body image: A 1-year follow-up assessment. *Journal of Early Adolescence* 2002;22:96–108.
35. McVey G, Lieberman M, Voorberg N, Wardope D, Blackmore E. School-based peer support groups: A new approach to the prevention of disordered eating. *Eat Dis* 2003;11:169–185.
36. McVey G, Lieberman M, Voorberg N, Wardope D, Blackmore E, Tweed S. Replication of a peer support program designed to prevent disordered eating: Is a life skills approach sufficient for all middle school students? *Eat Dis* 2003;11:187–195.
37. Winzelberg AJ, Eppstein D, Eldredge KL, Wilfley D, Dasmahapatra R, Dev P, et al. Effectiveness of an internet-based program for reducing risk factors for eating disorders. *J of Consult Clin Psychol* 2000;68:346–350. [PubMed: 10780136]
38. Butters JW, Cash TF. Cognitive-behavioral treatment of women's body-image dissatisfaction. *J Consult Clin Psychol* 1987;55:889–897. [PubMed: 2891736]
39. Low KG, Charanasomboon S, Lesser J, et al. Effectiveness of a computer-based interactive eating disorder prevention program at long-term follow-up. *Eating Disorders* 2006;14:17–30. [PubMed: 16757446]
40. Neumark-Sztainer D, Butler R, Palti H. Eating disturbances among adolescent girls: Evaluation of a school-based primary prevention program. *Journal of Nutritional Education* 1995;27:24–31.
41. Stice E, Orjada K, Tristan J. Trial of a psychoeducational eating disturbance intervention for college women: A replication and extension. *Int J Eat Disord* 2006;39:233–239. [PubMed: 16498589]