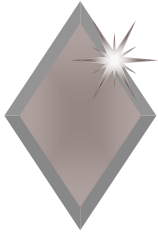


Prevention of Body Image, Eating, and Weight Disturbances



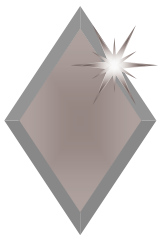
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Significance

- ◆ *Body image disturbances associated with subjective distress, increase risk for eating pathology*
- ◆ *Eating pathology is associated with medical complications, mortality, and increased risk for obesity, depression, and substance abuse*
- ◆ *Obesity associated with elevated morbidity, mortality, and considerable social stigma*
- ◆ *More humanitarian to prevent these conditions rather than to wait and treat*



Prevention of Eating Pathology

- ◆ *Based on four risk factor studies that we conducted, we decided to develop a program targeting thin-ideal internalization, in an effort to reduce risk for eating pathology*
- ◆ *Upstream factor that occurs early in putative causal chain - should affect downstream factors*



Prevention of Eating Pathology

- ◆ *Considered alternative methods of attitudinal change because psychoeducational programs seemed ineffective*
- ◆ *Dissonance approach appeared promising based on clinical experience*
- ◆ *Social psychology experiments suggest that dissonance produces attitudinal change*



Prevention of Eating Pathology

- ◆ *Dissonance theory posits that voluntarily taking a counter-attitudinal stance produces attitudinal shift toward that perspective*
- ◆ *Induce at-risk females who have internalized thin-ideal to take a stance against it*
- ◆ *Let females with body image disturbances self-select into program*



Dissonance Intervention

- ◆ *Developed verbal, written, and behavioral exercises that position females into voluntarily critiquing the thin ideal*
- ◆ *Focus exclusively on costs of this ideal*
- ◆ *Must come from the group participants*
- ◆ *Describe as a body acceptance class*



Prevention Trial 1

- ◆ *Intervention comprised of 3 weekly 1-hour sessions and homework involving exercises in which adolescent girls take a stance against thin-ideal*
- ◆ *Examples include counter attitudinal essay and role plays*



Prevention Trial 1

- ◆ *Conducted a pilot test of dissonance intervention (Stice, Mazotti, Weibel, & Agras, 2000)*
- ◆ *Hypothesized that intervention would decrease*
 - ◆ *Thin-ideal internalization*
 - ◆ *Body dissatisfaction*
 - ◆ *Dieting*
 - ◆ *Negative affect*
 - ◆ *Bulimic symptoms*



Prevention Trial 1

- ◆ *30 adolescent girls and young women who responded to ads for a body acceptance class (M age = 18)*
- ◆ *Assigned to intervention or waitlist control condition*
- ◆ *Questionnaires at baseline, termination, and 4-week follow-up*



Prevention Trial 1

<u>Outcome variable</u>	<u>Baseline (Week 1)</u> M	<u>Termination (Week 3)</u> M	<u>Follow-up (Week 7)</u> M	<u>F-value</u>
Thin-ideal internalization				
Controls	3.1	3.1	3.1	
Intervention	2.7a	2.4b	2.3b	6.48**
Body dissatisfaction				
Controls	3.2	3.1	3.1	
Intervention	3.1a	2.6b	2.5b	5.70**
Dieting behaviors				
Controls	2.8	2.7	2.7	
Intervention	2.5a	2.2b	2.2b	2.04
Negative affect				
Controls	2.2	2.4	2.3	
Intervention	1.9a	1.6b	1.9	3.03^
Bulimic symptoms				
Controls	1.4a	1.4a	1.7b	
Intervention	1.4a	0.9b	1.2ac	4.08*



Prevention Trial 1

- ◆ *To our knowledge, this was the first intervention to decrease DSM-IV bulimic symptoms*
- ◆ *Most effects were medium effect sizes and lasted through the 1-month follow-up*



Prevention Trial 2

- ◆ *Trial 2 sought to replicate results and address limitations (Stice, Chase, Stormer, & Appel, 2001)*
 - ◆ *Use an active control group to rule out expectancies/demand characteristics and non-specific effects explanations*
 - ◆ *Used a larger sample (N = 87)*
 - ◆ *Used random assignment*
 - ◆ *Revised intervention based on experience*



Prevention Trial 2

- ◆ *Healthy weight intervention based on idea that body dissatisfaction results from incomplete information about diet and exercise*
- ◆ *Provided info about nutrition and exercise, used behavioral techniques to help each participant design healthy diet and exercise program*



Prevention Trial 2

- ◆ *Selected this type of intervention as active control group because similar interventions were not effective in past trials*
- ◆ *Similar expectations about intervention effectiveness*
- ◆ *Healthy weight participants showed decreased fat intake and body mass, and increased exercise*



Prevention Trial 2

<u>Dependent variable</u>	<u>Baseline (Week 1)</u>	<u>Termination (Week 3)</u>	<u>Follow-up (Week 7)</u>
	<u>M</u>	<u>M</u>	<u>M</u>
Thin-ideal internalization			
Placebo controls	3.77	3.65	3.68
Intervention	3.77 a	3.32 b	3.20 c**
Body dissatisfaction			
Placebo controls	3.55 a	3.42	3.18 b
Intervention	3.24 a	2.84 b	2.88 b**
Dieting behaviors			
Placebo controls	2.71 a	2.38 b	2.20 b
Intervention	2.65 a	2.17 b	2.02 b
Negative affect			
Placebo controls	2.24 a	2.00 b	1.85 b
Intervention	1.97 a	1.65 b	1.59 b
Bulimic symptoms			
Placebo controls	17.91 a	14.07 b	11.89 b
Intervention	13.63 a	9.39 b	8.21 b



Prevention Trial 2

- ◆ *On the bright side, dissonance intervention produced superior findings for two risk factors (thin-ideal internalization and body dissatisfaction)*
- ◆ *Thus, results suggest that the dissonance intervention outperformed an alternative intervention - a first for eating disorder prevention programs*



Prevention Trial 2

- ◆ *Why reductions in both intervention conditions?*
- ◆ *Participants in past wait-list control groups did not show decreases in outcomes, arguing against measurement artifact or regression to mean alternative explanations*
- ◆ *Past interventions consistently did not result in decreases in outcomes, arguing against expectancy and non-specific effect alternative explanations*



Prevention Trial 2

- ◆ *Did we inadvertently developed an effective alternative intervention?*
- ◆ *Healthy weight management may be another route to reducing eating pathology*
- ◆ *Other low calorie dieting interventions reduced bulimic symptoms (Klem et al., 1997; Burton & Stice, 2006; Presnell & Stice, 2003)*



Prevention Trial 3

- ◆ *Sought to replicate findings in third randomized trial and improve upon past evaluation (Stice, Trost, & Chase, 2003)*
 - ◆ *Offered program to younger girls (M age = 17)*
 - ◆ *Used a longer follow-up period (6 months)*
 - ◆ *Used larger sample (N = 148)*
 - ◆ *Revised both interventions based on experience*



Prevention Trial 3

<u>Dependent variable</u>	Baseline M (SD)	Termination M (SD)	1 Month follow-up M (SD)	3 Month follow-up M (SD)	6 Month follow-up M (SD)
<u>Thin-ideal internalization</u>					
Dissonance	28.40 (4.38)	25.92 (5.71)	26.67 (5.10)	25.53 (4.57)	26.33 (5.19)
Healthy Weight	28.37 (4.92)	26.04 (4.99)	26.42 (6.88)	27.07 (6.08)	26.89 (5.27)
Waitlist	30.71 (3.40)	30.34 (3.49)	29.75 (4.70)	28.51 (4.32)	p = .098
<u>Body dissatisfaction</u>					
Dissonance	29.73 (6.90)	26.92 (6.23)	28.96 (6.05)	29.35 (7.20)	27.23 (7.45)
Healthy Weight	28.14 (9.35)	26.18 (7.53)	28.48 (8.80)	26.89 (9.20)	27.09 (9.13)
Waitlist	31.17 (7.24)	30.77 (7.49)	31.09 (8.13)	33.09 (6.94)	n.s.



Prevention Trial 3

	Baseline M (SD)	Termination M (SD)	1 Month follow-up M (SD)	3 Month follow-up M (SD)	6 Month follow-up M (SD)
<u>Dieting behaviors</u>					
Dissonance	27.10 (8.35)	22.60 (7.90)	23.40 (8.34)	22.60 (8.82)	22.88 (8.86)
Healthy Weight	25.53 (11.04)	22.57 (9.65)	22.65 (9.34)	21.50 (9.67)	22.43 (10.34)
Waitlist	32.34 (8.82)	30.20 (8.77)	28.15 (9.52)	28.70 (8.32)	n.s.
<u>Negative affect</u>					
Dissonance	35.13 (13.88)	33.04 (12.52)	35.02 (10.92)	28.63 (10.79)	30.78 (13.25)
Healthy Weight	32.67 (11.17)	29.41 (11.04)	28.21 (10.42)	28.37 (11.87)	28.07 (11.39)
Waitlist	31.23 (13.76)	25.91 (16.91)	31.39 (14.28)	35.45 (15.51)	p = .001
<u>Bulimic symptoms</u>					
Dissonance	16.24 (12.67)	12.06 (9.25)	14.18 (9.87)	12.00 (10.76)	11.15 (8.66)
Healthy Weight	15.49 (11.81)	9.57 (9.08)	10.83 (9.79)	10.24 (8.71)	9.41 (9.39)
Waitlist	18.94 (9.97)	18.43 (9.41)	17.50 (11.50)	17.75 (10.97)	p = .015



Prevention Trial 3

- ◆ *Both interventions produced positive effects*
- ◆ *Many effects persisted over longer follow-up*
- ◆ *Effect sizes moderate to small*
- ◆ *Further evidence that the healthy weight intervention might be an effective prevention program*



Prevention Trial 4

- ◆ *Initiated a large efficacy trial of the dissonance and healthy weight interventions*
 - ◆ *Larger sample (N = 481)*
 - ◆ *Longer follow-up (3 years)*
 - ◆ *Used blinded structured diagnostic interviews*
 - ◆ *Revised both interventions based on experience*
 - ◆ *Used new placebo condition (expressive writing)*



Prevention Trial 4

- ◆ *Recruited adolescent girls between the ages of 14 and 19 from high schools and a university*
- ◆ *Participants randomly assigned to:*
 - ◆ *Dissonance (3 weekly sessions)*
 - ◆ *Healthy weight (3 weekly sessions)*
 - ◆ *Expressive writing (3 writing sessions)*
 - ◆ *Assessment-only*
- ◆ *Pretest, posttest, and 6, 12, 24, and 36 month follow-ups*



Prevention Trial 4

- ◆ *Enhanced healthy weight program by*
 - ◆ *Drawing more heavily upon persuasion principles from social psychology*
 - ◆ *Strategic self-presentation*
 - ◆ *Foot-in-the-door approach*
 - ◆ *Using motivational enhancement exercises*
 - ◆ *Using an individualized “improvement” change plan (no caloric benchmarks)*
 - ◆ *Made intervention more interactive*



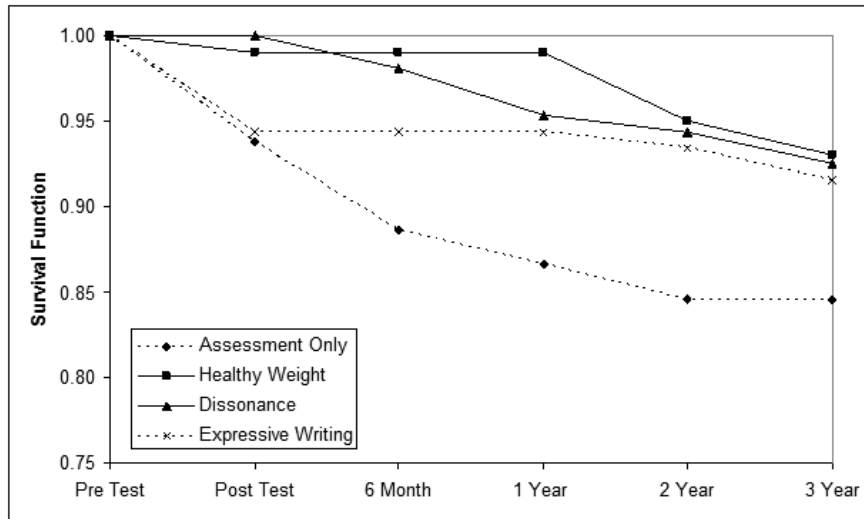
	Thin-ideal Internal.	Body Dissatis.	Dieting	Neg affect	Bulimic syms
<u>Pretest to posttest</u>					
Dissonance v s. assessment	.38***	.35***	.27***	.24***	.17**
Dissonance v s. writing	.31***	.37***	.26***	.26***	.23***
Dissonance v s. healthy weight	.16*	.18**	.26***	.13*	.11*
Healthy weight v s. assessment	.22***	.19***	.00	.12*	.09
Healthy weight v s. writing	.15*	.22***	.00	.14*	.15**
<u>Pretest to 6-month follow-up</u>					
Dissonance v s. assessment	.29***	.28***	.17**	.12*	.18**
Dissonance v s. writing	.05	.24***	.15**	.12*	.13*
Dissonance v s. healthy weight	.00	.05	.08	.14*	.03
Healthy weight v s. assessment	.21***	.25***	.11*	.00	.16**
Healthy weight v s. writing	.06	.20***	.08	.00	.11*
<u>Pretest to 1-year follow-up</u>					
Dissonance v s. assessment	.13*	.08	.17**	.08	.20***
Dissonance v s. writing	.04	.10	.12*	.08	.09
Dissonance v s. healthy weight	.06	.03	.06	.11*	.04
Healthy weight v s. assessment	.20***	.06	.11*	.00	.15**
Healthy weight v s. writing	.11*	.08	.05	.00	.04



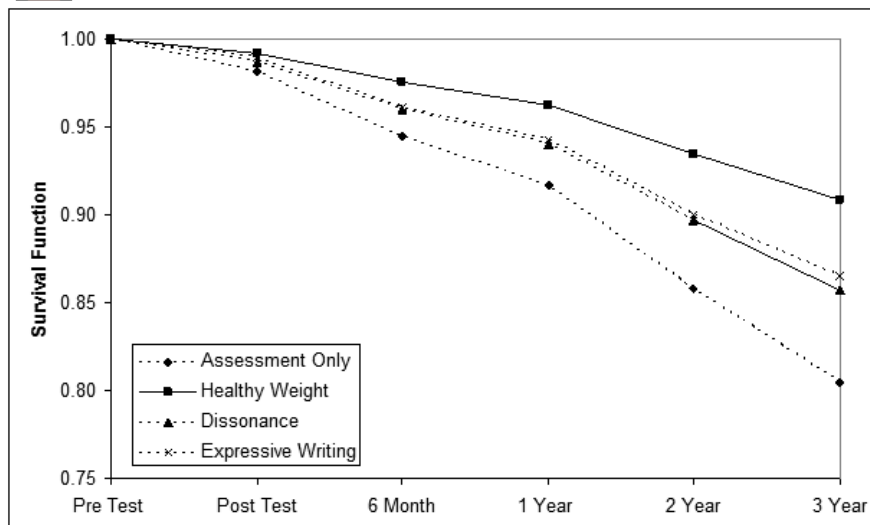
	Thin ideal internal	Body diss	Neg affect affect	Bulimic symp- toms	BMI	Psycho- social impair
<u>Pretest to 2-year follow-up</u>						
Dissonance vs. assessment-only	.35***	.28***	.16*	.19*	-.00	.20**
Dissonance vs. expressive write	.20*	.18*	.01	.15	.00	.08
Dissonance vs. healthy weight	-.01	.11	-.03	.17	-.02	.08
Healthy weight vs. assessment-only	.37***	.16*	.19*	.06	.01	.13
Healthy weight vs. expressive write	.22*	.05	.04	-.00	.02	-.00
<u>Pretest to 3-year follow-up</u>						
Dissonance vs. assessment-only	.13	.43***	.17*	.07	-.01	.19**
Dissonance vs. expressive write	.10	.32***	.01	-.04	.02	.17*
Dissonance vs. healthy weight	-.10	.14	.01	-.09	-.11*	.18*
Healthy weight vs. assessment-only	.23*	.28*	.16*	.17*	.08*	.03
Healthy weight vs. expressive write	.23*	.17	.00	.05	.10**	-.02



Risk for Eating Pathology Onset



Risk for Obesity Onset





Results from Efficacy Trial

- ◆ *Although we observed effects for eating disorder symptoms and risk factors, effects faded over follow-up*
- ◆ *Effects for psychosocial impairment encouraging because they are ecologically meaningful*



Results from Efficacy Trial

- ◆ *Preventive effects for eating pathology onset persisted through 3-year follow-up, which is a first for an eating disorder prevention program*
- ◆ *Prevented 60% of the cases of eating pathology observed in control condition*
- ◆ *Clinically significant pathology - cases showed functional impairment and received individual treatment an average of 11 times*



Results from Efficacy Trial

- ◆ *Evidence that healthy weight program reduced risk for onset of both eating pathology and obesity encouraging*
- ◆ *Should make prevention more cost effective*
- ◆ *Preliminary analyses suggest it costs \$64 per student to deliver the programs, may save hundreds of dollars per student*



Results from Efficacy Trial

- ◆ *Dissonance and healthy weight program outperformed alternative intervention - a novel findings for prevention programs*
- ◆ *Efficacy trials from independent labs replicated findings (Becker, Smith, & Ciao, 2005; Green et al., 2005)*
- ◆ *Suggest that effects for are not just due to expectancy, demand characteristics, or non-specific effects*



Effectiveness Trial

- ◆ *Given effects for the dissonance intervention, we initiated a large effectiveness trial*
- ◆ *Does program still produce effects when school staff (nurses, counselors, and teachers) recruit participants and deliver the intervention?*
- ◆ *Evaluated dissonance program in effectiveness trial because it appealed more to school staff*



Effectiveness Trial

- ◆ *School staff responsible for mass recruitment mailing for all female high school students (postcard reminders sent 2-weeks later)*
- ◆ *Staff could also do announcements over PA system, post recruitment posters, publish articles in school paper*
- ◆ *Had contact staff person to answer questions*



Effectiveness Trial

- ◆ *School staff completed 4-hr training workshop*
 - ◆ *Reviewed general group intervention skills*
 - ◆ *Discussed conceptual underpinnings of program*
 - ◆ *Reviewed scripted manual for the four sessions*
 - ◆ *Role-played key transitions and exercises*
- ◆ *All sessions recorded so session-by-session supervision could be provided by email*



Effectiveness Trial

- ◆ *Effectiveness trial design features:*
 - ◆ *Large sample, cell sizes ($N = 306$)*
 - ◆ *3-year follow-up*
 - ◆ *Blinded structured diagnostic interviews*
 - ◆ *Using a psychoeducational brochure control condition*



Effectiveness Trial

	<u>Thin-ideal internal</u>	<u>Body dissatis</u>	<u>Neg affect</u>	<u>Bulimic syms</u>
<u>Pretest to posttest</u>				
Dissonance v s. as sessment	.18***	.14**	.09	.14**
Efficacy results	.38*	.35*	.24***	.17**
<u>Pretest to 6-month follow-up</u>				
Dissonance v s. as sessment	.01	.11*	.00	.15*
Efficacy results	.29***	.28***	.12*	.18**
<u>Pretest to 1-year follow-up</u>				
Dissonance v s. as sessment	.16*	.20**	.06	.17*
Efficacy results	.13*	.08	.08	.20***
Effectiveness trial mean r = .12				
Efficacy trial mean r = .21				



Effectiveness Trial

- ◆ Available data indicate that only 2 participants in the dissonance condition showed onset of threshold/subthreshold eating pathology relative to 5 in the control condition
- ◆ Although this is not significant, it represents a 45% reduction in risk for onset of clinically significant eating pathology



Effectiveness Trial

- ◆ *Preliminary results suggest that dissonance program still produces effects, though effects are smaller*
- ◆ *Other effectiveness-type trials from independent labs also found effects for dissonance program*
 - ◆ *Matusek, Wendt, & Wiseman, 2004: counselors*
 - ◆ *Becker, Smith, & Ciao, 2006: college students*



Effectiveness Trial

- ◆ *Results suggest that we need to improve the training and supervision for endogenous providers*
 - ◆ *Published a facilitators guide/manual (Stice & Presnell, 2007)*
 - ◆ *Developed a training video*
 - ◆ *Videotape sessions for supervision?*
 - ◆ *Have facilitators run one mock group?*



Effectiveness Trial

- ◆ *Might also be good to improve the selection of providers*
 - ◆ *Focus on those with prior group intervention experience (school nurses and counselors had more experience than teachers)*
 - ◆ *Focus on those with knowledge of eating disorders*



Effectiveness Trial

- ◆ *Not enough time for deep expertise to develop*
- ◆ *Facilitators delivered program only 2-3 times*
- ◆ *Not able to develop same proficiency as facilitators in efficacy trial (who delivered program 18 times)*
- ◆ *Might make for a somewhat unfair comparison between efficacy and effectiveness trials*



Questions?