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A Randomized Trial of Two Group-Delivered Transdiagnostic Eating Disorder Treatments: Dissonance-Based Treatment Versus Interpersonal Psychotherapy

Eric Stice[1], Paul Rohde[2], Sonja Yokum[2], Jeff M. Gau[2], Cara Bohon[1], and Heather Shaw[1]
[1] Department of Psychiatry and Behavioral Sciences, Stanford University
[2] Oregon Research Institute, Springfield, Oregon, United States

Objective: Test whether a group-delivered dissonance-based transdiagnostic eating disorder treatment, *Body Project Treatment* (BPT), produces greater reductions in eating disorder symptoms and higher abstinence from eating disorder behaviors and remittance from eating disorder diagnoses than group-delivered transdiagnostic *interpersonal psychotherapy* (IPT). ***Method:*** Women with a range of eating disorders ($N = 73$) were randomized to 8-week group-implemented BPT or IPT and completed surveys and masked diagnostic interviews at pretest, posttest, and 6-month follow-up. ***Results:*** Participants randomized to BPT versus IPT showed significantly greater reductions in eating disorder symptoms ($d = -.75$), pursuit of the thin ideal ($d = -.87$), anxiety symptoms ($d = -.76$), and social impairment ($d = -.59$) through 6-month follow-up. By end of treatment, participants randomized to the BPT versus IPT did not significantly differ on abstinence from binge eating and purging (49% vs. 40%, respectively) or remittance from eating disorder diagnoses (54% vs. 40%, respectively). Participants randomized to BPT versus IPT did not differ significantly in average session attendance (5.8 vs. 6.9, respectively) or average homework assignments completed (4.6 vs. 5.6, respectively). The within-condition reductions in eating disorder symptoms for BPT did not significantly differ when implemented in person versus via synchronous video telepsychiatry ($d = -1.39$ vs. -1.09, respectively), though these effects should be considered preliminary because of the small cell sizes. ***Conclusions:*** The evidence that BPT produces greater reductions in eating disorder symptoms, pursuit of the thin ideal, anxiety symptoms, and social impairment than IPT is encouraging because it provides some assurance that the effects are present equating for the effects of expectancies, demand characteristics, and nonspecific factors.

What is the public health significance of this article?
This study provides evidence that a novel dissonance-based transdiagnostic eating disorder treatment produced greater reductions in eating disorder symptoms, pursuit of the thin ideal, anxiety symptoms, and social impairment relative to group-delivered transdiagnostic interpersonal psychotherapy. To our knowledge, this is the first transdiagnostic eating disorder treatment to significantly outperform an alternative active treatment through 6-month follow-up.

Keywords: eating disorders, treatment, transdiagnostic, dissonance, interpersonal psychotherapy

Eating disorders, which include threshold and subthreshold anorexia nervosa (AN), bulimia nervosa (BN), and binge eating disorder (BED), as well as purging disorder (PD), affect 13% of females and 5% of males, and are marked by clinical distress, social impairment, chronicity, relapse, suicide, and morbidity (Allen et al., 2013; Stice et al., 2013; Swanson et al., 2011). Yet, over 80% of afflicted individuals do not receive treatment (Swanson et al., 2011), due in part to the fact that most evidence-based treatments involve at

Eric Stice https://orcid.org/0000-0002-9632-1540
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This is the first and only article to describe the results from this trial. We have not published or submitted any articles that use data from this trial. These findings have not been presented at any conferences.

This trial was registered at https://ClinicalTrials.gov (Identifier NCT03261050).

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Correspondence concerning this article should be addressed to Eric Stice, Department of Psychiatry and Behavioral Sciences, Stanford University, 401 Quarry Road, Stanford, CA 94305, United States. Email: estice@stanford.edu

least 20 individual sessions, which are very expensive (Wilson & Zandberg, 2012). A large nationally representative study found that mental health services cost or lack of insurance coverage was the most frequently cited reason for not utilizing mental health services across all racial/ethnic groups, though other factors also reduce mental health service seeking and utilization, such as mental illness stigma (Substance Abuse & Mental Health Services Administration, 2015). This service shortfall has stimulated interest in transdiagnostic eating disorder treatments because they would be easier to broadly implement, rather than having to train and supervise clinicians to implement different treatments for each different eating disorder and some are less expensive because they require fewer clinical hours per patient.

Among transdiagnostic treatments, *Body Project Treatment* (BPT; Stice et al., 2015) appears to be the least expensive because it is delivered in eight 1-hr group sessions rather than 20 individual sessions, which translates into 1 hr of clinician time per patient versus 20 hr of clinician time per patient for other transdiagnostic treatments, such as *interpersonal psychotherapy* (IPT), *enhanced cognitive behavior therapy* (CBT-E), and *integrative cognitive–affective therapy* (ICAT; Fairburn et al., 2015; Wonderlich et al., 2014). If the cost per hour of psychotherapy is $250, this means that other transdiagnostic treatments would cost $5,000 for all 20 individual sessions per treated patient versus $250 per treated patient with BPT. In BPT, women with threshold or subthreshold AN, BN, and BED, as well as PD who are appropriate for outpatient treatment collectively explore negative effects of pursuing the thin appearance ideal and eating disorder behaviors (weight/shape overvaluation, fasting, excessive exercise, vomiting, laxative/diuretic misuse, and binge eating), which creates dissonance that reduces valuation of the thin ideal and behaviors used to pursue this ideal because people are motivated to align their attitudes with the perspectives they exhibit during the sessions. Reducing valuation of the thin ideal is a key intervention target because valuation of the thin ideal predicts future eating disorder onset among adolescent girls and young woman (Dakanalis et al., 2017; Rohde et al., 2015; Stice, Desjardins, et al., 2021) and persistence of eating disorder symptoms (Bohon et al., 2009; Dakanalis et al., 2017; Fairburn et al., 2003; Stice, Bohon, et al., 2021; Stice & Agras, 1998). We also hypothesize that discussing costs of binge eating would reduce valuation of binge foods. Overeating and binge eating predict future eating disorder onset (Stice, Desjardins, et al., 2021; Tanofsky-Kraff et al., 2011) and healthy youth with versus without parental history of eating pathology show greater reward region (putamen) response to anticipated chocolate milkshake tastes (Stice, Yokum, Rohde, Cloud, et al., 2021).

In an initial trial, 72 young women with a range of eating disorders were randomized to BPT or a control condition in which they received unstandardized usual care (Stice et al., 2015). BPT participants showed significantly greater reductions in pursuit of the thin ideal, body dissatisfaction, negative affect, and eating disorder symptoms ($d = .95$) than unstandardized usual care controls. Effects were significantly larger for BPT participants who attended more sessions, providing evidence of dose–response relation.

In a second trial, 84 young women with a range of eating disorders were randomized to BPT or an eight-session supportive mindfulness group treatment typical of that offered at U.S. colleges (Stice et al., 2019). It is important to test whether a novel treatment produces larger reductions in symptoms than a credible alternative treatment, or active comparator, in a randomized trial because it reduces the possibility that confounding factors, such as differential expectancies, demand characteristics, or nonspecific therapeutic effects, contribute to the reductions in outcomes because the two conditions are equated on these potential confounding factors (Yoshida et al., 2015). This is likely why past trials have compared novel transdiagnostic eating disorder treatments to credible alternative treatments (Fairburn et al., 2015; Wonderlich et al., 2014). By 6-month follow-up significantly more BPT participants no longer met diagnostic criteria for an eating disorder than supportive mindfulness participants (77% vs. 60%), though there was not a significant difference in eating disorder symptom change. BPT versus supportive mindfulness participants showed significantly lower body dissatisfaction and negative affect at posttest and 6-month follow-up, and social impairment at 6-month follow-up; there were no differences in pursuit of the thin ideal, potentially because both treatments seek to reduce this outcome (i.e., have partially overlapping intervention targets). At 6-month follow-up, BPT participants showed numerically higher abstinence from binge eating and purging behaviors in the past month than supportive mindfulness participants (55% vs. 39%), though this difference was nonsignificant. This outcome is typically reported in trials of transdiagnostic eating disorder treatments (e.g., Fairburn et al., 2015). Effects for several outcomes were significantly larger for BPT participants who attended more sessions, providing additional evidence of a dose–response relation.

A third trial with 138 young women with a range of eating disorders examined target engagement (Stice et al., 2023). Participants randomized to BPT versus a waitlist control condition showed greater reductions in responsivity of brain regions implicated in reward valuation (caudate) and attentional motivation (precuneus) to thin models, as well as greater reductions in responsivity of brain regions implicated in reward valuation (ventrolateral prefrontal cortex [vlPFC]) and food craving (hippocampus) to high-calorie binge foods. The caudate encodes valuation of stimuli (Bartra et al., 2013) and the vlPFC has been linked with tracking reward expectancy value (Pochon et al., 2002) and is modulated by the value of available options during goal-directed choice (Hare et al., 2008). BPT versus waitlist control participants also showed greater reductions in eating disorder symptoms, abstinence from binge eating and purging, palatability ratings and monetary value ratings of high-calorie binge foods, pursuit of the thin ideal, and greater increases in attractiveness ratings of average weight models (Stice et al., 2019, 2023). Thus, results provide evidence that BPT reduces valuation of the thin ideal and high-calorie binge foods (i.e., the key intervention targets) assessed using both objective brain imaging data and self-report data, in addition to reducing eating pathology.

Given the encouraging signal for both clinical efficacy and target engagement, we next compared BPT to IPT in a randomized trial. We selected IPT as the alternative intervention, or active comparator, because it is evidence based but focuses on a distinct intervention target: interpersonal functioning. As noted, it is important to test whether an intervention produces larger reductions in outcomes that an active comparator because the two conditions are equated on potential confounding factors such as differential expectances, demand characteristics, and nonspecific therapeutic effects (Yoshida et al., 2015). IPT is based on the premise that eating disorder symptoms are influenced and maintained by interpersonal

difficulties. Group-delivered IPT has produced greater reductions in eating disorder symptoms than waitlist controls but not alternative treatments in randomized treatment trials (D. E. Wilfley et al., 1993, 2002) and greater reductions in eating disorder symptoms relative to waitlist control conditions and alternative interventions in prevention trials (Tanofsky-Kraff et al., 2007, 2010, 2014). IPT is of particular interest in transdiagnostic models because it has shown efficacy for depression and anxiety disorders, suggesting it could increase accessibility to care in areas with less access to eating disorder specialists (Ravitz et al., 2019). Because our goal was to test whether BPT produced greater reductions in eating disorder symptoms than an equivalent dose of IPT, we developed an eight-session group-implemented version of IPT based on the manuals of these prior versions (Mufson et al., 2011; Tanofsky-Kraff et al., 2014; D. Wilfley et al., 2000; Wilson et al., 2010; World Health Organization & Columbia University, 2016; Young et al., 2016). If we had compared BPT to an alternative treatment that differed in terms of therapeutic modality and contact time in addition to intervention target, it would not be possible to determine whether any superior effects for BPT were due to differences in the intervention target or to differences in modality or contact time.

We hypothesized that BPT participants would show greater reductions in eating disorder symptoms (primary outcome) and pursuit of the thin ideal than IPT participants because valuation of the thin ideal and behaviors used to pursue this ideal predict future persistence of eating disorder symptoms, whereas impairments in psychosocial functioning do not (Bohon et al., 2009; Dakanalis et al., 2017; Fairburn et al., 2003; Stice, Bohon, et al., 2021; Stice & Agras, 1998) and because BPT produced a higher abstinence from binge eating and purging (47% on average; Stice et al., 2019, 2021) than IPT (35%; Fairburn et al., 2015). The latter findings prompted us to also hypothesize that BPT would produce higher abstinence from binge eating and purging, and higher remittance from eating disorders than IPT. Further, given that eating pathology predicts future increases in affective disturbances and an erosion of social support (Stice et al., 2000; Rubino et al., in press), we hypothesized that if BPT produces larger reduction in eating disorder symptoms than IPT, it should also produce greater reductions in depressive symptoms, anxiety symptoms, and social impairment (secondary outcomes).

Method

Participants and Procedure

We recruited 73 women (M_{age} = 24.74 ± 4.73) from Oregon and California. Web postings, flyers, and mailings invited women with body image and eating concerns to participate in a treatment study. We encouraged local clinics that treat eating disorders to refer participants. Informed consent was obtained for this institutional review board-approved trial. Participants completed a brief phone screen or in-person interview that verified inclusion and exclusion criteria. Women with a body mass index (BMI; kg/m^2) below 17 were excluded because they were not appropriate for outpatient treatment without medical monitoring, similar to the exclusion criteria used for transdiagnostic outpatient treatment trials (e.g., Fairburn et al., 2015). Suicidal ideation and substance abuse were also exclusion criteria. Suicidal ideation was assessed using the item "Have you had thoughts that you would be better off dead or hurting yourself in some way" on the Patient Health Questionnaire–9 (Kroenke et al., 2001) and substance misuse was assessed with the Drug Abuse Screening Test (Skinner, 1982) and Alcohol Use Identification Test (Saunders et al., 1993).

We focused on threshold or subthreshold AN, BN, and BED, as well as PD. We included subthreshold AN (BMI between 90% and 85% expected for age and sex, definite fear of weight gain for more than 25% of the days in the past 3 months, weight/shape was a key aspect of self-evaluation), rather than atypical AN, because we wanted to parallel the focus on subthreshold BN and BED. At baseline, seven (10%) participants met criteria for threshold/subthreshold AN, 47 (64%) for threshold/subthreshold BN, 15 (20%) for threshold/subthreshold BED, and four (6%) for PD. The sample was 51% White, 21% Hispanic, 1% Native American, 11% Asian, 12% multiracial, and 4% who did not report their race. Highest parental education was 4% some high school, 6% high school graduate, 41% some college, 34% college graduate, and 15% advanced degree.

Participants were randomized to BPT or IPT using a random number table. The project coordinator was solely responsible for allocation. Assessors were masked to the condition to which participants were assigned. Participants completed surveys and diagnostic interviews at pretest, posttest, and at 6-month follow-up. Figure 1 depicts participation flow in this study. Although BPT and IPT groups were initially conducted in person, COVID-19 emerged during this trial, which forced us to begin implementing groups virtually using synchronous video telepsychiatry.

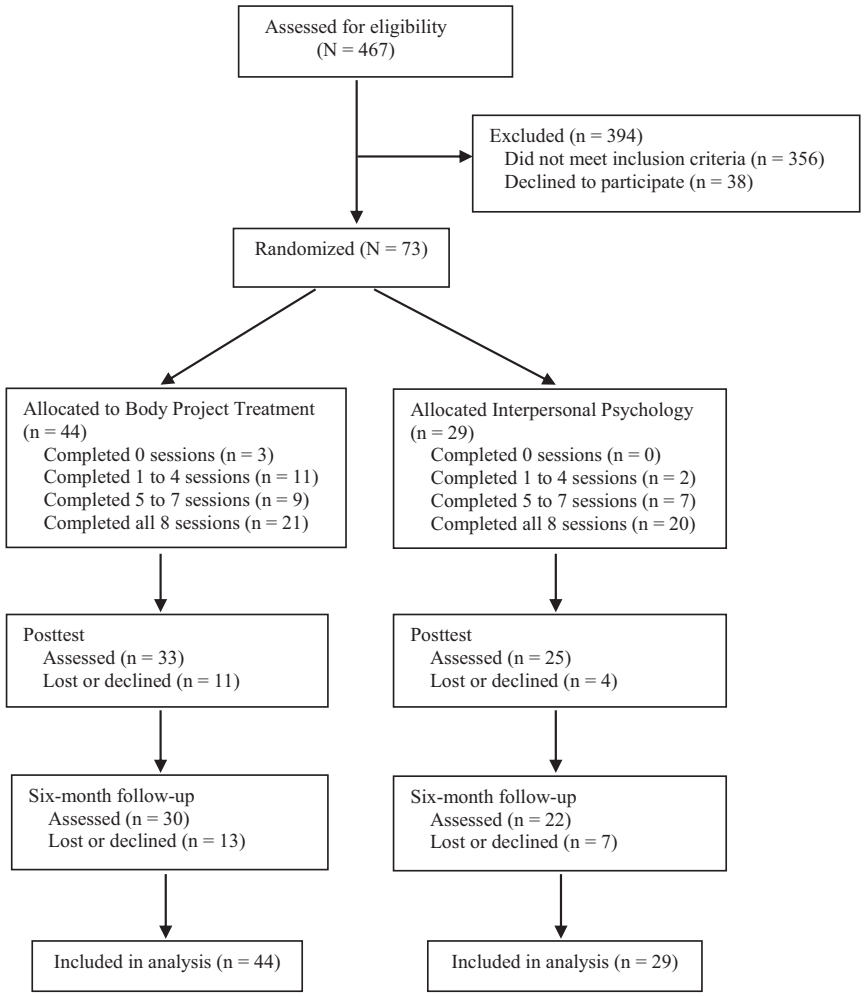
Body Project Treatment

BPT consisted of 8 weekly 1-hr group sessions with four to nine participants led by a therapist. During sessions, participants completed written and verbal exercises, including defining the thin ideal, discussing costs of pursuing this ideal and eating disorder symptoms, role-plays in which participants dissuade facilitators from pursuing the thin ideal and engaging in eating disorder symptoms, motivational exercises (e.g., discussing the importance of addressing their eating disorder), and shared their home exercises. Between sessions, participants completed exercises such as writing letters (e.g., to their eating disorder), motivational exercises (e.g., writing about the importance of improving their body image), a mirror body appreciation exercise, generating lists of "body activism" behaviors women can do to resist the thin ideal, reducing "linchpin" eating disorder symptoms (including eating three healthy meals daily to reduce fasting), and tracking binge episodes and compensatory behaviors. See https://sticebodyprojectsupport.weebly.com for the intervention manual/script.

Interpersonal Psychotherapy

IPT was initially developed as an individual treatment for depression (Markowitz & Weissman, 2012) but has since been adapted for several populations and formats, including a group-delivered eating disorder treatment (D. E. Wilfley et al., 1993, 2002), a group-delivered eating disorder prevention program (Tanofsky-Kraff et al., 2007, 2010, 2014), and an individually delivered transdiagnostic eating disorder treatment (Fairburn et al., 2015). To match BPT in duration and modality, Dr Bohon, who has expertise in delivery and evaluation of IPT for eating disorder treatment (Agras &

Figure 1
Participant Flow Throughout the Study



Bohon, 2021; Fitzsimmons-Craft et al., 2021; D. E. Wilfley et al., 2020), developed an eight-session group version that retained all key components of IPT, adapted from the manuals of these prior versions (Mufson et al., 2011; D. Wilfley et al., 2000; Wilson et al., 2010; World Health Organization & Columbia University, 2016; Young et al., 2016). The intervention was most similar to the format of the eight-session group versions from the World Health Organization and Young et al. (2016) with eating disorder-specific content from D. Wilfley et al. (2000). Group sessions focus on current interpersonal challenges, the links between interpersonal challenges and eating disorder symptoms, and finding ways to deal with interpersonal challenges. In the initial treatment phase (Sessions 1–2), the goal is to introduce IPT and the group members, introduce problem areas and set goals, and discuss how the group will work. In the middle phase (Sessions 3–7), the therapist guides participants through learning and practicing skills and approaches to improve interpersonal challenges using role-plays and peer support. In the termination phase (Session 8), skills and achievements are reviewed, and participants are prepared to end treatment.

Facilitators in both conditions had a doctoral or master's degree in clinical psychology. Training involved reading the manual and attending an 8-hr workshop to learn the intervention rationale, role-play delivery, and discuss process issues; facilitators were trained in only one intervention to reduce the potential for cross-contamination. Drs Stice and Rohde provided BPT training, and Drs Bohon and Rohde provided IPT training. Sessions were video-recorded and reviewed by Drs Rohde (BPT and IPT), Shaw (BPT), and Bohon (IPT), who rated session adherence and therapeutic competence using rating scales and provided emailed supervision before the next session. Facilitators tracked attendance, participation, and homework completion.

Measures

Eating Disorder Symptoms

The *Eating Disorder Diagnostic Interview* (EDDI; Stice et al., 2013) assessed eating disorder symptoms and *Diagnostic and Statistical Manual of Mental Disorders, fifth edition* eating disorder diagnoses (American Psychiatric Association, 2013). It assessed symptoms on a month-to-month basis in the past 3 months at pretest and since the last assessment at posttest and 6-month follow-up. We

calculated a continuous symptom composite, which reflected symptoms in the past month (frequency of binge eating, vomiting, laxative/diuretic use, fasting, and excessive exercise; yes/no questions regarding distress about binge eating and key features of binge eating [e.g., rapid eating, feeling disgusted, depressed, or guilty about binge eating]; and Likert questions about overvaluation of weight/shape, fear of weight gain/becoming fat, behaviors to avoid weight gain, and feeling fat; less than 85% of expected weight). This composite has shown internal consistency ($\alpha = .92$), interrater agreement (intraclass correlation coefficient, ICC $r = .93$), 1-week test–retest reliability (ICC $r = .95$), convergence with alternative measures, and sensitivity to detecting the effects of eating disorder prevention and treatment interventions (Stice, Desjardins, et al., 2021); $\alpha = .79$ at pretest. We also examined a measure of abstinence, defined as no binge eating or purging behaviors in the past month, as well as remittance of eating disorder diagnoses at posttest and 6-month follow-up. EDDI eating disorder diagnoses have shown 1-week test–retest reliability ($\kappa = .79$), interrater agreement ($\kappa = .75$), sensitivity to detecting intervention effects, and correlate with functional impairment, emotional distress, and mental health treatment utilization (Stice, Desjardins, et al., 2021).

Pursuit of the Thin Ideal

The eight-item Thin-Ideal Internalization Scale assessed pursuit of the thin ideal (Stice, Desjardins, et al., 2021) using response options ranging from 1 = *strongly disagree* to 5 = *strongly agree*. It has shown 2-week test–retest reliability ($r = .80$), predictive validity for onset of BN, BED, and PD, and sensitivity to detecting intervention effects (Stice, Desjardins, et al., 2021); $\alpha = .72$ at pretest.

Depression Symptoms

The Patient Health Questionnaire–9 (PHQ-9; Kroenke et al., 2001) measured depressive symptoms over the last 2 weeks with nine items that were rated on a 4-point scale (0 = *not at all*, 3 = *nearly every day*). The PHQ-9 has shown internal consistency ($\alpha = .89$), 2-week test–retest reliability ($r = .73$), and convergent validity (e.g., Sun et al., 2020); $\alpha = .88$ at pretest.

Anxiety Symptoms

The General Anxiety Disorder–7 (GAD-7; Spitzer et al., 2006) measured anxiety symptoms over the last 2 weeks using seven items that were rated on a 4-point scale (0 = *not at all*, 3 = *nearly every day*). The GAD-7 has shown internal consistency ($\alpha > .82$) and convergent validity (Johnson et al., 2019); $\alpha = .88$ at pretest.

Social Impairment

Impairment in social functioning in the family, peer group, romantic, and work domains was measured with 17 items from the Social Adjustment Scale-Self Report for Youth (Weissman & Bothwell, 1976) rated on a 5-point scale. This scale has shown internal consistency ($\alpha = .77$), 1-week test–retest reliability ($r = .83$), and predictive validity for future AN, BN, BED, and PD onset (Stice, Desjardins, et al., 2021); $\alpha = .84$ at pretest.

Statistical Methods

Preliminary Analyses

We examined the distribution of outcomes and applied normalizing transformations as necessary to reduce the potential for disproportionate influence of outliers and decrease residual heterogeneity. Comparisons between conditions were made for pretest values of outcomes and demographics (race, ethnicity, age, and parental education) to assess whether randomization created equivalent groups. Comparisons between participants who completed all assessments and those who did not were made for study condition, pretest values of outcomes, and demographics to assess differential attrition.

Continuous Outcomes

We used mixed-effects growth models estimated with restricted maximum likelihood, a preferred method for handling missing data (Graham, 2009) with PROC MIXED from Statistical Analysis System (Version 9.4). The model included fixed effects of time, condition (0 = IPT, 1 = BPT), and Condition × Time interaction. Time was coded in months, and the pretest assessment was defined as the random intercept. We also tested whether modality of intervention delivery (fully in person [$n = 42$; BPT = 28, IPT = 14] vs. partially or fully virtual [$n = 31$; BPT = 15, IPT = 16]) moderated the Condition × Time interaction term by adding modality and all higher order interactions terms with condition and time. Participants were nested within treatment groups, creating a multilevel data structure. We lacked a sufficient number of groups to produce unbiased estimates of the group-level fixed effects and variance estimates with multilevel models (McNeish & Stapleton, 2016), thus, to protect against type I errors, denominator degrees of freedom were adjusted with the Kenward and Roger's (1997) method. Effect sizes, derived from the slope estimates, are equivalent to Cohen's *d* (Feingold, 2009).

Dichotomous Outcomes

We evaluated group differences in abstinence and diagnostic remission. Logistic regression models, estimated in PROC LOGISTIC with the logic link, included the posttest and 6-month rates as outcomes with condition and pretest rates as a covariate. We imputed 50 complete data sets with PROC MI and included baseline demographic characteristics and eating disorder symptom scores at each assessment in the imputation model, which is another preferred method for handling missing data (Graham, 2009). Parameter estimates form the 50 imputed data sets were combined with PROC MYANALYZE.

Results

Preliminary Analyses

Eating disorder symptoms were positively skewed and were normalized with a square root transformation. BPT and IPT groups did not differ on pretest values of outcome variables, receipt of ancillary treatment, medication use, or demographic factors, except for percent Hispanic (Table 1). Thus, analyses testing for intervention effects on the outcomes statistically controlled for percent Hispanic in the groups. Table 2 provides means and *SD* for continuous outcomes by group. Retention was 79% at posttest and 71% at 6-month follow-

Table 1
Demographic Variables by Study Condition

Demographic variable	IPT	BPT	Test statistic	*p*
Age (*M*, [*SD*])	25.27 (4.88)	24.32 (4.64)	$t(62) = 0.79$	.432
Hispanic (%)	34.5	11.4	$\chi^2(1,73) = 5.72$	.017
Race (%)			$\chi^2(4,73) = 5.62$	.230
Native American	3.7	0.0		
Asian	3.7	16.7		
Caucasian	74.1	71.4		
Other	3.7	0.0		
Multiracial	14.8	11.9		
Maximum parental education (%)			$\chi^2(5,73) = 6.44$	.266
Some high school	6.9	2.3		
High school graduate	3.4	6.8		
Some college	31.0	47.7		
College graduate	37.9	31.8		
Advanced degree	20.7	11.4		
Binge episodes past month (*M*/*SD*)	5.48 (5.50)	6.52 (6.37)	$t(71) = -0.67$	.505
Purge episodes past month (*M*/*SD*)	2.45 (5.36)	2.07 (3.51)	$t(71) = 0.37$	.714

Note. IPT = interpersonal psychotherapy; BPT = *Body Project Treatment*.

up. Attrition was not significantly ($p < .05$) related to condition, demographics, or pretest values of outcomes.

Attendance and Homework Completion

Most participants (70%) attended seven or eight of the sessions and most (59%) completed six or seven of the homework assignments. Average sessions attended by BPT ($M = 5.84$, $SD = 2.73$) and IPT participants ($M = 6.93$, $SD = 2.24$) did not significantly differ, $t(64) = 1.74$, $p = .087$. Average homework assignments completed by BPT ($M = 4.63$, $SD = 2.66$) and IPT participants ($M = 5.64$, $SD = 2.04$) did not significantly differ, $t(57) = 1.57$, $p = .120$.

Intervention Effects for Continuous Outcomes

Results from mixed-effect growth models assessing change in continuous outcomes from pretest to 6-month follow-up are shown in Table 3. The Condition × Time interaction, a test of the efficacy of BPT relative to IPT, revealed that the BPT group showed

Table 2
Descriptive Statistics for Outcomes by Condition

	Pretest		Posttest		6-month	
Group	*M*	*SD*	*M*	*SD*	*M*	*SD*
Eating disorder symptoms						
Interpersonal psychotherapy	5.89	(1.50)	4.89	(1.51)	4.73	(1.63)
Body Project Treatment	6.18	(1.71)	4.03	(1.57)	3.65	(1.83)
Pursuit of the thin ideal						
Interpersonal psychotherapy	3.95	0.45	3.88	0.58	3.76	0.64
Body Project Treatment	4.01	0.48	3.46	0.52	3.39	0.43
Anxiety symptoms						
Interpersonal psychotherapy	1.51	0.71	1.21	0.73	1.65	1.01
Body Project Treatment	1.68	0.82	0.95	0.76	1.15	0.77
Depressive symptoms						
Interpersonal psychotherapy	1.56	0.58	1.66	0.75	1.38	0.87
Body Project Treatment	1.54	0.64	1.10	0.67	0.95	0.66
Social impairment						
Interpersonal psychotherapy	2.33	0.57	2.41	0.68	2.41	0.82
Body Project Treatment	2.57	0.67	2.30	0.64	2.23	0.66
Group				%		%
Remission						
Interpersonal psychotherapy				40.0		63.6
Body Project Treatment				54.5		73.3
Abstinence						
Interpersonal psychotherapy				40.0		63.6
Body Project Treatment				48.5		66.7

Note. Transformed values of eating disorder symptoms reported.

Table 3
Growth Model Parameters for Change in Continuous Outcomes

Outcome	Term	Estimate	*SE*	*t* value	*p* value	*d*
Eating disorder symptoms	Intercept	5.38	0.33	16.49	<.001	3.29
	Condition	0.31	0.39	0.80	.428	0.19
	Time	−0.18	0.06	−2.76	.007	−0.65
	Condition × Time	−0.20	0.08	−2.41	.017	−0.75
	Hispanic	0.81	0.42	1.94	.057	0.50
Pursuit of the thin ideal	Intercept	3.87	0.10	38.93	<.001	8.27
	Condition	0.01	0.12	0.10	.917	0.03
	Time	−0.03	0.02	−1.42	.157	−0.36
	Condition × Time	−0.07	0.03	−2.62	.010	−0.87
	Hispanic	0.20	0.13	1.55	.125	0.43
Anxiety symptoms	Intercept	1.38	0.16	8.43	<.001	1.78
	Condition	0.17	0.20	0.87	.389	0.22
	Time	0.03	0.03	0.86	.389	0.20
	Condition × Time	−0.10	0.04	−2.49	.014	−0.76
	Hispanic	0.14	0.22	0.66	.509	0.19
Depressive symptoms	Intercept	1.53	0.13	11.45	<.001	2.47
	Condition	−0.08	0.16	−0.5	.620	−0.13
	Time	−0.02	0.03	−0.9	.369	−0.23
	Condition × Time	−0.06	0.03	−1.71	.090	−0.56
	Hispanic	0.24	0.17	1.35	.182	0.38
Social impairment	Intercept	2.36	0.14	17.41	<.001	3.68
	Condition	0.18	0.16	1.14	.256	0.29
	Time	0.02	0.02	1.19	.235	0.23
	Condition × Time	−0.06	0.03	−2.39	.019	−0.59
	Hispanic	−0.01	0.19	−0.06	.950	−0.02

Note. *SE* = standard error; *d* = Cohen's *d* statistic.

significantly greater decreases in eating disorder symptoms ($d = -.75$), pursuit of the thin ideal ($d = -.87$), anxiety symptoms ($d = -.76$), and social impairment ($d = -.59$) through 6-month follow-up than the IPT group. Although not statistically significant ($p = .09$), the BPT group showed numerically larger decreases in depression symptoms ($d = -.56$).

In-person versus virtual deliver modality did not significantly moderate the Condition × Time interaction term for change in eating disorder symptoms ($t = 1.13$, $p = .262$). For descriptive purposes, we calculated separate within-subject models, by modality, for the BPT group. Participants who received BPT in person showed significant ($t = -5.65$, $p < .001$, $d = -1.39$) decreases in eating disorder symptoms, similar to participants who received BPT virtually ($t = -2.99$, $p = .007$, $d = -1.09$).

Intervention Effects for Remission and Abstinence

Results of the logistic regression models assessing group differences in rates of remission and abstinence are shown in Table 4. Although none of the differences were statistically significant, by posttest, participants randomized to BPT versus IPT showed numerically higher abstinence from binge eating and purging (49% vs. 40%, respectively) and numerically higher remittance from eating disorder diagnoses (54% vs. 40%, respectively).

Table 4
Logistic Regression Results for Estimates of Group Differences in Remission and Abstinence Rates at 6-Month Follow-Up

Sample	Estimate	*SE*	*t* value	*p* value	*OR*	95% CI
Remission	−0.191	0.630	−0.30	.762	0.83	[0.24, 2.84]
Abstinence	−0.506	0.653	−0.78	.439	0.60	[0.17, 2.17]

Note. *SE* = standard error; *OR* = odds ratio; CI = confidence interval. Estimates of ethnicity are not shown.

Discussion

Results provided evidence that BPT produced significantly greater reductions in eating disorder symptoms than IPT through 6-month follow-up. The effect was a $d = .75$, which is a large effect. This means that BPT participants showed a 0.75 greater standard deviation unit reduction in eating disorder symptoms than IPT participants. The within-condition eating disorder symptom reduction for BPT ($d = 1.26$) was similar to the average within-condition effect size ($d = 0.99$) from three past trials (Stice et al., 2015, 2019; Stice, Yokum, et al., 2021), which suggests that the intervention effects are reproducible. We focused on within-condition effect sizes for this comparison because each of the four trials used different control conditions, making the between-condition effect sizes less comparable.

The evidence that BPT produced significantly larger reductions in eating disorder symptoms than IPT is encouraging because few eating disorder treatments have produced significantly greater reductions in symptoms than an alternative treatment, which reduces the possibility that the greater reductions in symptoms in BPT were due to expectances, demand characteristics, or nonspecific therapeutic effects because these potential confounding factors were similar across conditions. Results suggest that reducing valuation of the thin ideal and behaviors used to pursue this ideal is more effective in reducing eating disorder symptoms than focusing on improving interpersonal functioning, which is consistent with evidence that

elevated valuation of the thin ideal predicts future persistence of eating disorder symptoms, whereas disturbances in interpersonal functioning does not (Bohon et al., 2009; Dakanalis et al., 2017; Fairburn et al., 2003; Stice, Bohon, et al., 2021; Stice & Agras, 1998). Regarding other transdiagnostic treatments, ICAT did not produce significantly greater reductions in global eating disorder pathology, which primarily reflects eating, shape, and weight concerns, than CBT-E by posttest or 4-month follow-up (Wonderlich et al., 2014) and CBT-E produced greater reductions in global eating disorder pathology than IPT by posttest, but these effects were nonsignificant by 15-month follow-up (Fairburn et al., 2015). More broadly, 22 trials have compared an eating disorder treatment to a credible alternative treatment matched for intervention format and contact time (Agras et al., 2000, 2014; Cooper & Steere, 1995; Eisler et al., 2000; Fairburn et al., 1993, 2015; Jones et al., 1993; Kirkley et al., 1985; Le Grange et al., 2007, 2015; Lock et al., 2010; V. V. McIntosh et al., 2005, 2016; Munsch et al., 2007; Safer et al., 2010; Schmidt et al., 2015; Stefina et al., 2017; Treasure et al., 1995; D. E. Wilfley et al., 1993, 2002; Wilson et al., 2010; Wonderlich et al., 2014), producing an average *d* effect size of .07 for the primary outcome. Twenty of these trials (91%) did not detect a significant difference between conditions on the primary outcome, which suggests that the evidence that BPT produced significantly greater reductions in eating disorder symptoms than IPT are relatively unique. However, it is important to use caution when comparing effect sizes from different trials, regions, and research groups.

Regarding secondary outcomes, BPT versus IPT participants showed significantly greater reductions in pursuit of the thin ideal ($d = -.87$), anxiety symptoms ($d = -.76$), and social impairment ($d = -.59$), as well as numerically ($p = .09$) greater reductions in depressive symptoms ($d = -.56$). These effects were medium to large. The significantly greater reduction in pursuit of the thin ideal, which replicates earlier findings (Stice et al., 2015; Stice, Yokum, et al., 2021), provides additional support for the intervention theory for BPT. It is particularly encouraging that BPT produced significantly greater improvements in the other secondary outcomes given that IPT is designed to target social functioning and has proven effective in the treatment of depression and anxiety disorders (Ravitz et al., 2019). The greater reductions in eating disorder symptoms for BPT versus IPT may have contributed to the greater reductions in anxiety symptoms and social impairment for BPT. In contrast, ICAT did not produce significantly greater reductions in depressive symptoms or anxiety symptoms than CBT-E (Wonderlich et al., 2014) and CBT-E did not produce significantly greater reductions in depressive symptoms than IPT (Fairburn et al., 2015). It is noteworthy that BPT participants showed a reduction in social impairment from pretest to 6-month follow-up, whereas IPT participant showed an increase in social impairment (see Table 2) because this pattern of finding does not provide support for the intervention theory for IPT. Indeed, we were unable to locate any trials that reported the effects of IPT on social impairment, suggesting that this is a vital gap in the literature for this widely studied eating disorder treatment.

Although these differences were not statistically significant, by end of treatment, participants randomized to BPT versus IPT showed numerically higher abstinence from binge eating and purging (49% vs. 40%, respectively) and remittance from eating disorder diagnoses (54% vs. 40%, respectively). We focus on abstinence and remittance at end of treatment because past trials have reported these outcomes (Fairburn et al., 2015; Wonderlich et al., 2014). However, these numeric differences should be interpreted with caution because of the small sample. It will be important to examine these outcomes in a larger trial. These findings accord with the general pattern of findings from past trials that have compared two active transdiagnostic eating disorder treatments, which have likewise not found significant differences in abstinence or remittance for transdiagnostic CBT or ICAT versus alternative treatments (Fairburn et al., 2015; Wonderlich et al., 2014). Tests of differential change for continuous outcomes are typically more sensitive than tests of differences in dichotomous outcomes, which is likely why we observed significant differences in reduction in most of the continuous outcomes but not the dichotomous outcomes. It is also possible that the overall eating disorder symptom composite is a more relevant outcome for participants with different types of eating disorders because some participants may not have reported binge eating (those with restricting AN or PD) or purging behaviors (those with restricting AN or BED and those with BN who reported only fasting and excessive exercise) at baseline. Nonetheless, the 49% end of treatment abstinence rate was higher than the 23%–34% end of treatment abstinence rate produced by CBT-E, the 33% end of treatment abstinence rate produced by ICAT, and the 35% end of treatment abstinence rate produced by IPT, which also targeted individuals with a range of eating disorders and used similar recruitment strategies to those used in the present trial (Fairburn et al., 2015; Wonderlich et al., 2014). Results suggest that not only is BPT less expensive than these alternative transdiagnostic treatments due to its briefer duration and group format but also may be more effective. As noted, service cost or lack of insurance is the most cited reason for not seeking mental health care by all racial and ethnic groups, though other factors also reduce service seeking and utilization, such as mental illness stigma and distrust of the health care system (SAMSA, 2015).

Although we had not intended to compare the effects for in-person versus virtually delivered BPT groups, the emergence of COVID-19 during this trial provided an opportunity to compare these delivery modalities. Results indicated that delivery modality did not significantly moderate the effects of BPT versus IPT on change in eating disorder symptoms, though this conclusion should be considered preliminary due to the small cell sizes. Within-condition effects suggested that BPT was similarly effective in reducing eating disorder symptoms when implemented in person versus virtually via synchronous video telepsychiatry (within-condition $d = -1.39$ vs. -1.09, respectively). Being able to implement BPT virtually could significantly expand the research and future dissemination of this novel cost-effective transdiagnostic treatment.

It is important to consider the study limitations. First, the emergence of COVID-19 forced us to begin delivering BPT and IPT groups virtually and our National Institute of Mental Health program officer required that we close recruitment before we recruited the full proposed sample because we were unable to conduct functional magnetic resonance imaging scans to measure whether BPT reduced reward region response to thin models and binge foods. Second, the study sample size was moderate, which reduced sensitivity to detecting small effects. Third, to vary the two treatments on intervention target while holding treatment duration and modality constant, we adapted a version of IPT that retained all key components but allowed less time for skill practice. Comparing the eight-session BPT to previously developed 20-session

transdiagnostic IPT intervention represents a different research question that is beyond the present scope. Fourth, participants with AN were underrepresented in this sample (10%) and other transdiagnostic eating disorder treatment trials (e.g., Fairburn et al., 2015; 11.5%) relative to the percentage of individuals with any eating disorder who experience AN based on a representative sample (Stice et al., 2013; 19%), potentially because the ego-syntonic nature of AN reduces treatment seeking. It will be important to determine how to better recruit individuals with AN for future transdiagnostic treatment trials. Fifth, because of the moderate sample size and limited number of clinicians who delivered each treatment, we could not investigate whether some therapists were more effective in delivering these treatments than others. Sixth, the 6-month follow-up period used in the present trial is relatively short and the ability of treatments to produce persisting gains is an important factor in evaluating effectiveness. Seventh, COVID-19 resulted in higher attrition by 6-month follow-up (29%) than the attrition we have observed in a previous trial (12%; Stice et al., 2019).

In conclusion, results provide evidence that the dissonance-based transdiagnostic BPT produced significantly greater reductions in eating disorder symptoms, pursuit of the thin ideal, depressive symptoms, and social impairment through 6-month follow-up than IPT. The effect size for within-condition reductions in eating disorder symptoms was somewhat larger than the average within-condition effect from past BPT trials (Stice et al., 2015, 2019; Stice, Yokum, et al., 2021), which suggests that intervention effects are reproducible. Results also provided evidence that BPT was similarly effective when implemented in person, versus virtually via synchronous video telepsychiatry, which is encouraging given that delivering BPT virtually would markedly expand the reach of this cost-effective transdiagnostic treatment.

There are several important directions for future research. First, it would be important to make sure that the effects of BPT persist over a longer follow-up. Second, it would be useful to confirm that most clinicians can effectively deliver BPT, though the fact that BPT has produced significant reductions in eating disorder symptoms in four trials that involved different clinicians suggests numerous clinicians implemented it effectively. Third, given that group-delivered treatments appear to be more cost-effective than treatments delivered on an individual basis, it might be useful to adapt other eating disorder treatments for group delivery. On a related note, dissemination efforts will be needed to motivate clinicians to learn and provide more cost-effective treatments and to addressed utilization barriers. Fourth, it would be useful to conduct a randomized trial that compares the effectiveness of in-person versus telepsychiatry-delivered BPT groups. Fifth, it would be important to confirm that BPT and other transdiagnostic eating disorder treatments are effective for each type of eating disorder and to investigate other potential moderators of the effects of transdiagnostic treatments (e.g., race/ethnicity, age). A final direction for future research is to conduct an effectiveness trial that compares BPT to other transdiagnostic eating disorder treatments under ecologically valid conditions that evaluated the long-term effects of this novel cost-effective treatment that could be more broadly implemented than more intensive transdiagnostic individual therapies for eating disorders. Broadly implementing shorter, more cost-effective transdiagnostic treatments may improve access to care for individuals with eating disorders, as cost is one of the most significant access barriers for individuals with these conditions.

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