



Shorter communication

Group therapy for university students: A randomized control trial of dialectical behavior therapy and positive psychotherapy

Amanda A. Uliaszek^{a,*}, Tayyab Rashid^b, Gregory E. Williams^a, Tahira Gulamani^a^a University of Toronto Scarborough, 1265 Military Trail, Toronto, Ontario, Canada^b The Health and Wellness Centre at the University of Toronto Scarborough, 1265 Military Trail, Toronto, Ontario, Canada

ARTICLE INFO

Article history:

Received 30 September 2015

Received in revised form

5 December 2015

Accepted 8 December 2015

Available online 11 December 2015

Keywords:

Dialectical behavior therapy

Positive psychotherapy

College counseling center

ABSTRACT

The present study examined the efficacy of two evidence-based group treatments for significant psychopathology in university students. Fifty-four treatment-seeking participants were randomized to a semester-long dialectical behavior therapy (DBT) or positive psychotherapy (PPT) group treatment. Mixed modeling was used to assess improvement over time and group differences on variables related to symptomatology, adaptive/maladaptive skill usage, and well-being/acceptability factors. All symptom and skill variables improved over the course of treatment. There were no statistically significant differences in rate of change between groups. The DBT group evidenced nearly all medium to large effect sizes for all measures from pre- to post-treatment, with mostly small to medium effect sizes for the PPT group. There was a significant difference in acceptability between treatments, with the DBT group demonstrating significantly lower attrition rates, higher attendance, and higher overall therapeutic alliance. While both groups demonstrated efficacy in this population, the DBT group appeared to be a more acceptable and efficacious treatment for implementation. Results may specifically apply to group therapy as an adjunctive treatment because a majority of participants had concurrent individual therapy.

© 2015 Elsevier Ltd. All rights reserved.

1. Introduction

Demand for mental health services continues to evolve among college counseling centers (CCCs). Recent national surveys of university students and CCCs have found that 8.9% of students seriously considered suicide, 6.3% intentionally harmed themselves, and 34.5% reported they had felt so depressed it was difficult to function, all within the previous year (ACHA, 2015). In addition, 92% of counseling directors believe that more students were presenting with severe psychological issues in the past 5 years (CUCCA, 2006). Other researchers have noted longitudinal increases in serious psychopathology symptoms and rates of comorbidity in CCCs (Benton, Robertson, Tseng, Newton, & Benton, 2003).

Coupling high demand and increasing levels of psychopathology with limited staff and financial resources (ACHA, 2015; CUCCA, 2006; Smith et al., 2007), CCCs must adapt their services (Watson, 2013). One strategy suggested in multiple studies is to implement evidence-based group therapy (e.g., Smith et al., 2007). Group therapy can simultaneously treat multiple consumers and is

particularly appropriate for the time-limited service provided in many CCCs (Coniglio, McLean, & Meuser, 2005). While this idea is not new (Kincade & Kalodner, 2004), group treatment efficacy studies in this context are limited. Few studies have examined active group treatments through a randomized design; all have focused on either social anxiety or mild depression (e.g., Bjornsson et al., 2011; Hodgson, 1981; Huang & Liu, 2011). In addition, these studies have focused on self-reported symptom reduction as the primary outcome, with few examining specific treatment targets (i.e., coping skills), comorbid symptoms, or acceptability of treatment.

1.1. Dialectical behavior therapy

Dialectical behavior therapy (DBT) was developed by Linehan (1993) as a treatment for chronically suicidal patients, specifically individuals with borderline personality disorder (BPD). DBT is derived from cognitive-behavioral therapy, but the inclusion of a dialectical philosophy, radical behaviorism, and mindfulness makes it a unique transdiagnostic treatment for emotion dysregulation. DBT typically includes a 12-month course of individual treatment that focuses on reducing life threatening, therapy-interfering, and

* Corresponding author.

E-mail address: auiaszek@utsc.utoronto.ca (A.A. Uliaszek).

quality of life-interfering symptoms. In addition, DBT provides concurrent group-based didactic skills training. Several studies demonstrate it as an efficacious therapy for reducing suicidal and self-harm behaviors in adult BPD samples (e.g., Kliem, Kröger, & Kosfelder, 2010; Panos, Jackson, Hasan, & Panos, 2014). DBT has only been recently adapted for a university student population. Pistorello, Fruzzetti, MacLane, Gallop, and Iverson (2012) compared adapted DBT to treatment-as-usual in a suicidal collegiate sample, with DBT treatment related to greater decreases in self-harm, suicidal behavior, depression and BPD symptom severity. Research suggests that DBT skills group as an add-on to treatment-as-usual can further reduce symptoms of psychopathology (e.g., Valentine, Bankoff, Poulin, Reidler, & Pantalone, 2015), with preliminary support for DBT skills group as a stand-alone treatment in CCCs (Chugani, Ghali, & Brunner, 2013; Meaney-Tavares & Hasking, 2013).

1.2. Positive psychotherapy

Positive psychotherapy (PPT) is a therapeutic endeavor within positive psychology. The central premise is to assess and enhance positive resources of clients, such as positive emotions, engagement, relationships, meaning and accomplishments. PPT is based on the assumptions that clients inherently seek growth, fulfillment and happiness, positive resources are as real as symptoms, and effective therapeutic relationships can be formed through the manifestation of positive resources. These assumptions are operationalized into five scientifically measurable components: positive emotion, engagement, relationships, meaning, and accomplishment (Seligman, 2011). It has been shown that fulfillment in positive emotions, engagement, and meaning is associated with lower rates of depression and higher life satisfaction (Asebedo & Seay, 2014; Bertisch, Rath, Long, Ashman, & Rashid, 2014). Feasibility and empirical validation of PPT has been explored through 14 studies, addressing depression, anxiety, psychosis, and nicotine dependence (for review, see Rashid, 2015). Significant research have demonstrated the effectiveness of these interventions (Bolier et al., 2013; Hone, Jarden, & Schofield, 2015; Sin & Lyubomirsky, 2009).

1.3. Present study

The primary objective of this study is to test two evidence-based group treatments that have yet to be examined within the context of a randomized trial in a transdiagnostic clinical university sample. Participants were treatment-seeking students in a CCC who were randomly assigned to receive 12 weeks of either treatment. Participants were not prohibited from receiving concurrent individual therapy. This study not only examines symptom change across the course of treatment, but also focuses on maladaptive and adaptive skill usage, well-being, and the acceptability of each treatment.

2. Method

2.1. Participants

Participants were 54 treatment-seeking university students at a mid-sized university in a large metropolitan area. This CCC offers free psychological and medical services for full-time students. Seventy-five participants were referred by onsite counselors responding to flyers and presentations. Our goal was to have participants that represented a range of symptoms of psychopathology deemed relevant for group therapy targeting “severe emotion dysregulation”. It should be noted that the presence of the specific symptoms/disorders noted in the flyer (e.g., depression, anxiety,

BPD) was not required for inclusion in the study; we followed the typical referral procedure for the CCC which involves a clinician recommendation based on an intake interview or through experience seeing the client in individual therapy. Exclusion criteria included severe cognitive disturbance or psychotic disorder. Fig. 1 displays the flow of participants through the study. Table 1 displays the demographic characteristics of each group.

2.2. Procedures

The pretreatment assessment included an informed consent procedure and the completion of two questionnaires, followed by a full diagnostic interview. In addition, participants were asked to complete a battery of questionnaires through an online survey system. Identification numbers were assigned to all eligible participants; these numbers were randomly selected and separated into two groups (A and B). Groups A and B were then randomly assigned to be either DBT or PPT. Both groups ran at the same time and day on campus to avoid day or time effects. This also eliminated the option of participants self-selecting into a particular group based on scheduling. The groups did not differ on any demographic or diagnostic variables at baseline (see Table 1). The group schedule was 12 weeks, two hours per week; however, because of extraneous events (e.g., university closure due to snow) a percentage of group sessions were canceled, shortening the intervention to 11 weeks for some participants. Thus, we display attendance as percentages, as well as absolute numbers.

Midtreatment assessments were completed in the final 15 min of group on weeks 3, 6, and 9. Participants absent from group did not complete these measures. Assessments were administered by a research assistant and the group leader left the room to avoid influencing ratings of therapeutic alliance. Posttreatment assessments were generally completed within two weeks of the ending of group. These assessments were identical to the pretreatment assessments with the addition of the therapeutic alliance questionnaire. Participants were paid \$25 for completing the pretreatment assessment and \$25 for completing the posttreatment assessment. This study was approved by the university's research ethics board.

2.2.1. DBT group

The DBT group included all modules from the most recent DBT skills group manual (Linehan, 2015). Participants were provided with all handouts and homework assignments during the first group (for details see Supplementary materials). The first hour of each group was dedicated to a mindfulness exercise and homework review. After a short break, the second hour of group was focused on learning and practicing new skills. The structure included three weeks each of distress tolerance, interpersonal effectiveness, and emotion regulation skills with a single mindfulness-focused group preceding each new module. The distress tolerance module focused on handling crisis situations without the use of maladaptive coping behaviors. Skills focused on achieving goals within relationships were taught during the interpersonal effectiveness module. The emotion regulation module focused on reducing vulnerability to negative emotions and increasing positive emotions. Finally, the mindfulness module consisted of increasing focused awareness in the present moment with a nonjudgmental attitude.

2.2.2. PPT group

The PPT group included weekly handouts, activities, and homework assignments (for details see Supplementary materials). This group followed a 12-week agenda focusing on increasing pleasure, engagement, and meaning-making in life (Seligman, Rashid, & Parks, 2006). From the onset, participants completed the Gratitude Journal, through which they journal three positive

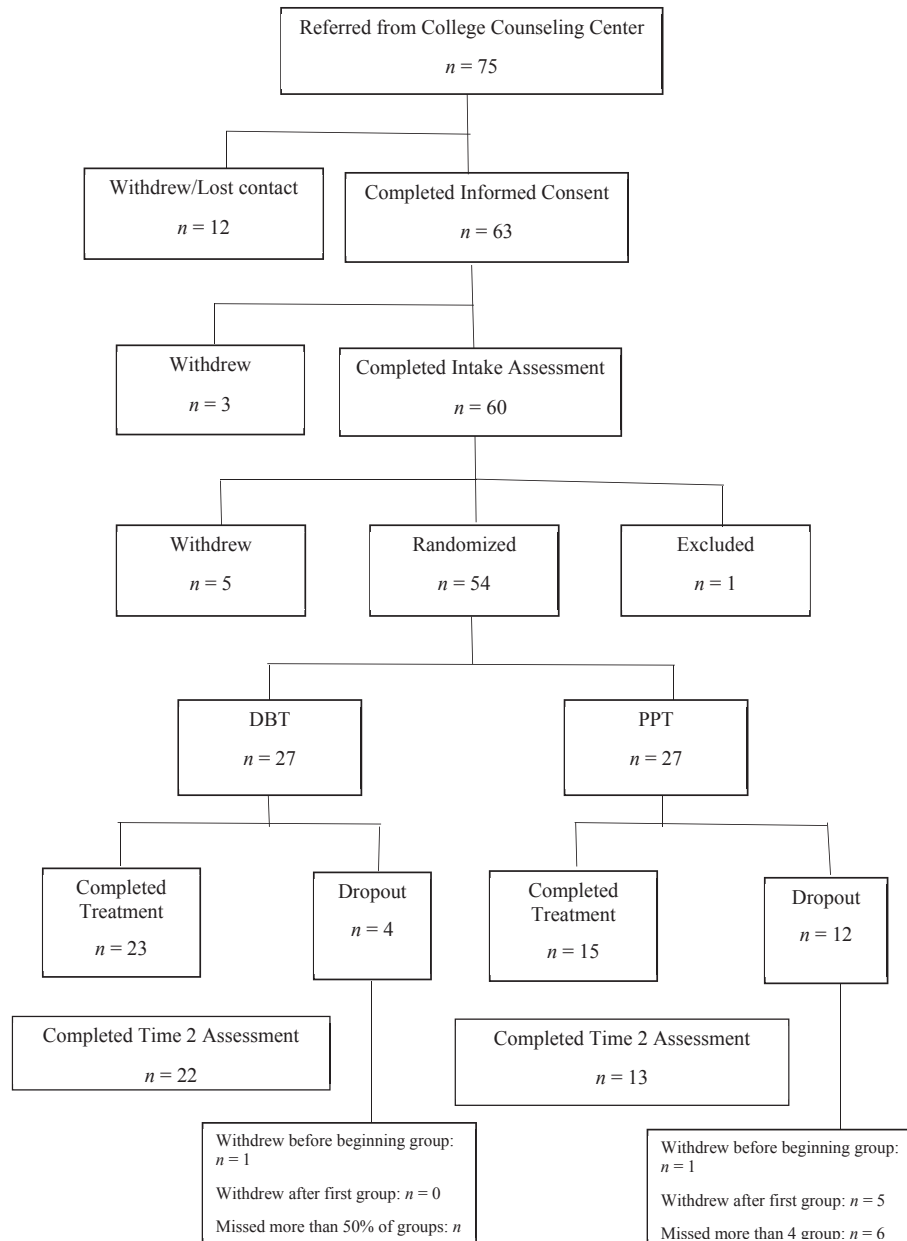


Fig. 1. Flow of participants throughout the study.

events in their daily lives. They also introduced themselves through a real-life story of their resilience (Rashid & Ostermann, 2009). Participants compiled their signature strengths profile, based on the *Values in Action* model (Peterson & Seligman, 2004), and learned how to use their signature strengths, especially in relation to their presenting problems. PPT also included exercises to deal with negative memories and trauma. In the final sessions, exercises primarily focus on fostering positive relationships and the pursuit of meaning and purpose.

2.3. Measures

2.3.1. Diagnostic interviews

Diagnoses based on DSM-IV Axis I and Axis II were determined via administration of the *Structured Clinical Interview for DSM-IV Axis I Disorders* (SCID-I; First, Spitzer, Gibbons, & Williams, 2002)

and the *Structured Clinical Interview for DSM-IV Axis II Disorders* (SCID-II; First, Gibbon, Spitzer, Williams, & Benjamin, 1996). Both of these semi-structured interviews were administered by research assistants after undergoing significant didactic and reliability training. 15% of diagnostic interviews were also attended by the first author (a registered clinical psychologist) and rated separately. Kappa coefficients were computed based on these ratings, ranging from .71 for major depressive disorder to 1.0 for BPD.

2.3.2. Symptoms

The *Symptom Checklist-90 Revised* (SCL-90R; Derogatis, 1983) is a 90-item self-report scale measuring general psychiatric symptom distress. Reliability of the depression and anxiety subscales were .85 and .82, respectively. A Global Severity Index (GSI) can be computed by averaging all items, with norms for undergraduate nonclinical and clinical samples averaging approximately .66 and

Table 1
Demographic and clinical characteristics of the 54 randomized participants.

	Total n = 54	DBT n = 27	PPT n = 27	Test statistic
Dropout, n (%)	16 (30%)	4 (15%)	12 (44%)	$\chi^2(1) = 5.68^*$
Number of groups attended, mean (SD)	7.17 (3.43)	9.04 (2.55)	5.31 (3.21)	$t(50) = 4.64^{***}$
Age, range; mean (SD)	18–46 22.17 (5.01)	22.07 (4.81)	22.26 (5.28)	$t(52) = -.14$
Female, n (%)	42 (78%)	21 (78%)	21 (78%)	$\chi^2(1) = 0$
Ethnicity, n (%)				$\chi^2(5) = 4.92$
African–American	5 (9%)	3 (11%)	2 (8%)	
Asian–American	20 (37%)	7 (26%)	13 (50%)	
Biracial/Multiracial	2 (4%)	2 (7%)	0 (0%)	
Caucasian	15 (28%)	9 (33%)	6 (23%)	
Hispanic	3 (6%)	2 (7%)	1 (4%)	
Other	8 (15%)	4 (15%)	4 (15%)	
Previous hospitalization, n (%)	7 (13%)	5 (19%)	2 (7%)	$\chi^2(1) = 1.35$
Current medication, n (%)	21 (40%)	12 (44%)	9 (33%)	$\chi^2(1) = 4.82$
Individual psychotherapy, n (%)	37 (70%)	22 (81%)	15 (56%)	$\chi^2(1) = 3.56$
Year in university, n (%)				$\chi^2(5) = 4.82$
1st year	6 (11%)	3 (11%)	3 (11%)	
2nd year	14 (26%)	6 (22%)	8 (30%)	
3rd year	15 (28%)	8 (30%)	7 (27%)	
4th year	11 (20%)	4 (15%)	7 (27%)	
5th year	6 (11%)	5 (19%)	1 (17%)	
Graduate school	1 (2%)	1 (4%)	0 (0%)	
DSM-IV axis I diagnosis, n (%)				
MDD	22 (43%)	13 (48%)	10 (37%)	$\chi^2(1) = .68$
Dysthymic disorder	15 (28%)	6 (22%)	9 (33%)	$\chi^2(1) = .83$
Alcohol use disorder	3 (6%)	2 (7%)	1 (4%)	$\chi^2(1) = .35$
Substance use disorder	1 (2%)	0 (0%)	1 (4%)	$\chi^2(1) = 1.02$
Panic disorder	11 (20%)	6 (22%)	5 (19%)	$\chi^2(1) = .11$
Social anxiety disorder	18 (33%)	9 (33%)	9 (33%)	$\chi^2(1) = 0$
OCD	9 (17%)	6 (22%)	3 (11%)	$\chi^2(1) = 1.20$
PTSD	6 (11%)	3 (11%)	3 (11%)	$\chi^2(1) = 0$
GAD	12 (22%)	5 (19%)	7 (26%)	$\chi^2(1) = .43$
DSM-IV axis II diagnosis, n (%)				
AVPD	16 (30%)	9 (33%)	7 (26%)	$\chi^2(1) = .36$
OCPD	22 (41%)	13 (48%)	9 (33%)	$\chi^2(1) = 1.23$
SPD	0 (0%)	0 (0%)	0 (0%)	–
NPD	2 (4%)	1 (4%)	1 (4%)	$\chi^2(1) = 0$
BPD	17 (31%)	9 (33%)	8 (30%)	$\chi^2(1) = .09$
APD	0 (0%)	0 (0%)	0 (0%)	–
Number of diagnoses, mean (SD)	2.87 (1.99)	3.04 (1.91)	2.70 (2.09)	$t(52) = .61$

Note. * = $p < .05$; *** = $p < .001$; DBT = dialectical behavior therapy group; PPT = positive psychotherapy group; MDD = major depressive disorder; OCD = obsessive-compulsive disorder; PTSD = posttraumatic stress disorder; GAD = generalized anxiety disorder; AVPD = avoidant personality disorder; OCPD = obsessive-compulsive personality disorder; SPD = schizotypal personality disorder; NPD = narcissistic personality disorder; BPD = borderline personality disorder; APD = antisocial personality disorder.

1.09, respectively (Todd, Deane, & McKenna, 1997). The average GSI at pretreatment for the present sample was 1.49, approximately two standard deviations above a normal undergraduate sample and one standard deviation above an undergraduate clinical sample. The *Life Problems Inventory* (LPI; Wagner, Rathus, & Miller, 2015) is a 60-item scale assessing symptoms associated with BPD and suicidality. This measure was reliable in the present study ($\alpha = .94$). The pretreatment LPI total score in the current sample was approximately two standard deviations above a normed LPI total score in an undergraduate sample (Wagner et al., 2015).

2.3.3. Adaptive and maladaptive skills

The *Difficulties in Emotion Regulation Scale* (DERS; Gratz & Roemer, 2004) is a 36-item self-report scale measuring deficits in ability to engage in adaptive emotion regulation in six areas: nonacceptance of emotional responses, difficulty engaging in goal-directed behavior, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies, and lack of emotional clarity. A total score ($\alpha = .84$) can also be obtained to reflect overall difficulties. A total score of 98 or above has previously been used as an inclusion criteria for DBT studies (e.g., Neacsiu, Eberle, Kramer, Wiesmann, & Linehan, 2014). This criteria was met for 84.90% of our included participants. The *Distress Tolerance Scale* (DTS; Simons & Gaher, 2005) is a 15-item self-report measure

assessing subjective ability to tolerate distress. A total score ($\alpha = .85$) can be obtained to reflect a general level of distress tolerance. The *Kentucky Inventory of Mindfulness Skills* (KIMS; Baer, Smith, & Allen, 2004) is a 39-item self-report measure assessing four aspects of mindfulness: observing, describing, acting with awareness, and accepting without judgement. For ease of interpretation, we averaged all subscales. The reliability of all combined items was satisfactory ($\alpha = .74$). The *DBT-Ways of Coping Checklist* (WOCCL; Neacsiu, Rizvi, Vitaliano, Lynch, & Linehan, 2010) is a 59-item self-report scale assessing frequency of adaptive and maladaptive coping strategies. The measure includes two subscales assessing functional ($\alpha = .90$) and dysfunctional ($\alpha = .84$) coping. This measure was assessed at all timepoints (including midtreatment).

2.3.4. Well-being and acceptability variables

The *Positive Psychotherapy Inventory* (PPTI; Guney, 2011) is a 21-item measure that includes three subscales (pleasant life, engaged life, and meaningful life) which are theorized to represent the core elements of happiness (Seligman, 2002). A total score can be calculated to represent overall happiness ($\alpha = .93$). The *Satisfaction with Life Scale* (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) is a 5-item scale that measures subjective life satisfaction. This measure was assessed at all timepoints and had a satisfactory reliability at

pretreatment ($\alpha = .83$). Therapeutic alliance was measured using the client version of the *Working Alliance Inventory* (WAI; Horvath & Greenberg, 1989). The WAI is a 36-item self-report measure that assesses perceived alliance related to goals, tasks, and bonds. The reliability of the WAI at week 3 was .73.

2.4. Statistical analyses

Analyses included all randomized participants (intent-to-treat: ITT). ITT analyses assume that data are missing at random (MAR). In other words, there may be missing data, but missingness should be due to observed, rather than unobserved, variables (see Graham, 2009 for review). Because missingness was due almost exclusively to dropout/attendance (specifically related to participation in the PPT group)- variables that are observed and analyzed-this satisfied the parameters of MAR. Treatment outcome variables consisted of three broad categories: symptoms (including clinician- and self-report measures), adaptive and maladaptive skill usage, and well-being/acceptability measures. Maximum likelihood estimation was used to address potential biases introduced by missing data. Baseline characteristics for the treatment groups were compared using chi-square analyses for categorical variables and t-tests for continuous measures.

Mixed models were analyzed in SPSS v22. In each analysis, we examined the fixed effects of treatment condition, time, and the interaction of treatment by time. Random subject-level effects were also included in each model. We included effect sizes indicating the degree of change in the variable from pre-to post-treatment. Effect sizes were calculated using Cohen's *d* (Cohen, 1988). Small effect sizes were defined as .2, medium as .5, and large as .8 and above.

3. Results

3.1. Randomization and participant characteristics

Twenty-seven participants were assigned to each group. Thirty-eight participants completed treatment and 35 completed the post-treatment assessment (see Fig. 1). Treatment groups did not differ significantly on any demographic or psychiatric variables (see Table 1) or on any outcome variable at baseline (see Table 2). This includes those variables assessed at midtreatment: functional subscale of the WOCCL ($t = .50$), the dysfunctional subscale of the WOCCL ($t = .58$), and the SWLS ($t = 1.18$).

3.2. Symptom change

The first set of mixed models examined changes in clinician-rated and self-report symptoms from pre-to post-treatment (see

Table 3

Results of mixed modeling analyses examining treatment, time, and treatment*time as fixed effects and participant as a random effect.

	df	Treatment	Time	Treatment*Time
		F	F	F
MDD Sx	90	.03	9.32**	1.46
BPD Sx	90	2.33	18.59***	.33
LPI	87	.21	26.51***	.26
SCL-Dep	88	.13	8.32**	1.84
SCL-Anx	88	.05	5.60*	.10
DERS	88	.47	12.57***	3.41
DTS	88	.94	6.10*	.32
KIMS-Avg	88	2.78	13.40***	1.30
WOCCL-functional	181	.02	8.20***	.47
WOCCL-dysfunctional	181	4.06*	1.63	1.10
PPI	88	1.82	1.69	.01
SWL	181	7.56**	1.73	.46
WAI	112	4.63*	2.42	.92

Note. * = $p < .05$; ** = $p = .01$; *** = $p < .001$; MDD = major depressive disorder; order; BPD = borderline personality disorder; LPI = Life Problems Inventory; SCL-Dep = Symptom Checklist 90-Revised Depression subscale; SCL-Anx = Symptom Checklist 90-Revised Anxiety subscale; DERS = Difficulties in Emotion Regulation Scale; DTS = Distress Tolerance Scale; KIMS-Avg = Kentucky Inventory of Mindfulness Scales – Average across subscales; WOCCL-Functional = Ways of Coping Checklist – Functional subscale; WOCCL-Dysfunctional = Ways of Coping Checklist – Dysfunctional subscale; PPI = Positive Psychotherapy Inventory; SWLS = Satisfaction with Life Scale; WAI = Working Alliance Inventory.

Table 3). We focused on the major recruitment criteria for the study: major depressive disorder, anxiety disorder, and BPD symptoms. There were no group or interaction effects for any variable, but there was a significant effect of time for all variables. All symptoms significantly improved across the course of treatment. Effect sizes for the DBT group ranged from medium to large (.61–1.23) and small to large (.33–1.29) for the PPT group (see Table 2).

3.3. Adaptive and maladaptive skill usage

The second set of mixed models examined changes in self-reported skill usage across the course of treatment (see Table 3). There was a significant effect of time for the DERS, KIMS, DTS, and the functional subscale of the WOCCL (see Fig. 2), with skill usage improving in the expected direction for all measures. Effect sizes for DBT ranged from medium to large (.71–1.16) and small to large (.36–.89) for PPT (see Table 2). The effect sizes for the functional subscale of the WOCCL were similar for DBT and PPT (.98 and .89, respectively). There was a significant effect for group for the dysfunctional subscale of the WOCCL, with the DBT group having lower rates of maladaptive skill usage during the mid-treatment assessments,

Table 2
Means (Standard deviations) and effect sizes of outcome variables across two treatment conditions at pre- and post-treatment; t-tests examine group differences at baseline.

	t	DBT			PPT		
		Pre-treatment	Post-treatment	Cohen's <i>d</i>	Pre-treatment	Post-treatment	Cohen's <i>d</i>
MDD Sx	.95	3.78 (3.82)	.83 (1.67)	1.00	2.81 (3.62)	1.54 (2.96)	.48
BPD Sx	.68	3.33 (2.29)	1.74 (1.86)	.76	2.92 (2.09)	.84 (.90)	1.29
LPI	.96	158.22 (37.84)	118.27 (26.06)	1.23	151.35 (32.61)	118.58 (24.98)	1.13
SCL-Dep	1.33	2.38 (.89)	1.55 (.88)	.94	2.05 (.96)	1.75 (.85)	.33
SCL-Anx	.40	1.59 (.86)	1.08 (.81)	.61	1.48 (1.00)	1.10 (.68)	.44
DERS	.98	113.52 (22.35)	87.05 (23.42)	1.16	107.81 (20.13)	99.46 (26.22)	.36
DTS	1.25	3.60 (.68)	3.07 (.81)	.71	3.33 (.86)	3.00 (.87)	.38
KIMS-Avg	.53	2.78 (.43)	3.24 (.43)	1.07	2.73 (.46)	2.97 (.44)	.53
PPTI	.93	27.81 (11.36)	31.41 (11.09)	.32	24.62 (13.64)	27.69 (9.60)	.26

Note. MDD = major depressive disorder; BPD = borderline personality disorder; LPI = Life Problems Inventory; SCL-Dep = Symptom Checklist 90-Revised Depression subscale; SCL-Anx = Symptom Checklist 90-Revised Anxiety subscale; DERS = Difficulties in Emotion Regulation Scale; DTS = Distress Tolerance Scale; KIMS-Avg = Kentucky Inventory of Mindfulness Scales – Average across subscales; PPTI = Positive Psychotherapy Inventory.

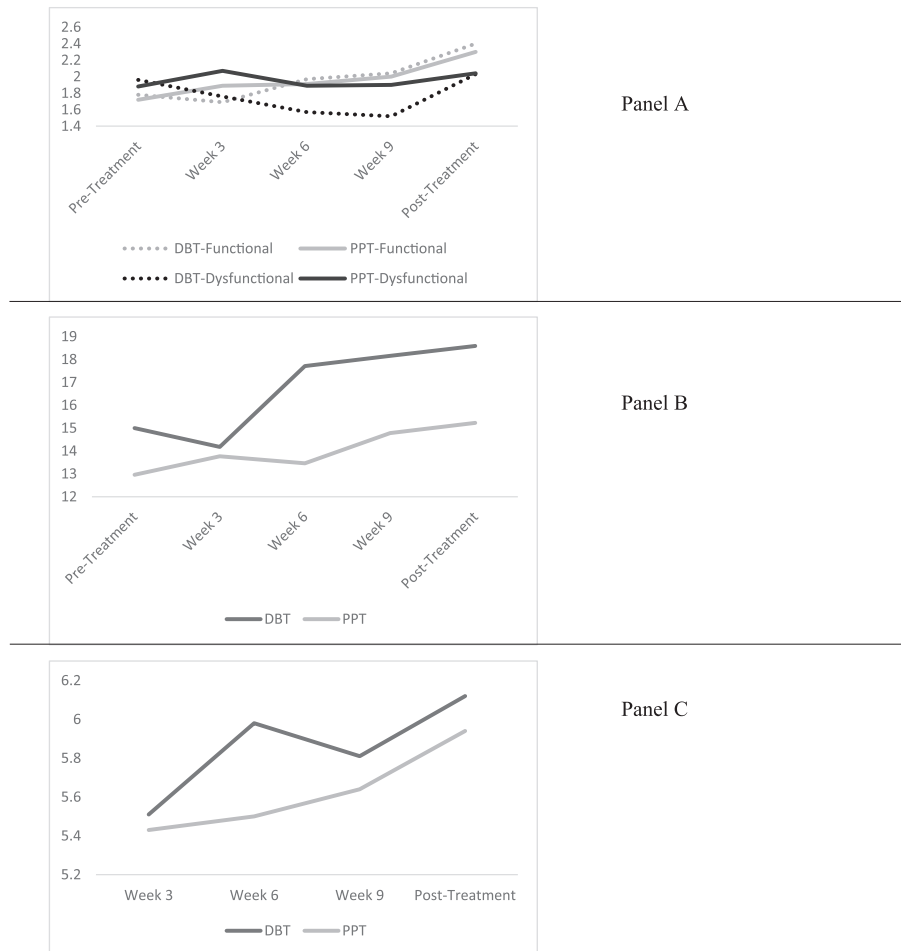


Fig. 2. Panel A depicts change in the ways of coping checklist. Panel B depicts change in the satisfaction with life scale. Panel C depicts change in the working alliance inventory.

with little difference between groups at post-treatment (see Fig. 2). For this reason, the pre-to posttreatment effect sizes for DBT and PPT were small (.10 and .27, respectively). There were no interaction effects for any variable.

3.4. Well-being variables

The third set of mixed models examined changes in well-being factors across the course of treatment (see Table 3). There were no significant effects regarding the PPTI. There were significant group effects for the SWLS (see Fig. 2). The SWLS was consistently elevated in the DBT group across the course of treatment with the DBT group showing a medium (.47) effect from pre-to post-treatment compared to a small (.34) effect for the PPT group.

3.5. Treatment acceptability

Dropout was defined as missing more than 50% of group sessions. There were significant differences in dropout and number of group sessions attended between groups (see Table 1), with those randomized to DBT dropping out at a significantly lower rate and attending significantly more sessions. There were significant group treatment effects for the WAI (see Fig. 2). The WAI was consistently elevated in the DBT group across the course of treatment with the DBT group showing a large (.83) effect from pre-to post-treatment compared to a medium (.69) effect for the PPT group.

4. Discussion

The aim of the present study was to compare symptom reduction, skill usage, well-being, and acceptability factors between DBT and PPT group therapy. Nearly all variables of interest improved significantly from pre-to posttreatment. There were no significant differences in rate of change between groups, however the DBT group showed larger effect sizes for nearly all variables. In addition, there were significant group differences favoring DBT group in dysfunctional coping and life satisfaction. Finally, the DBT group was the more acceptable therapy, with significantly higher rates of attendance and therapeutic alliance and lower rates of attrition.

Both groups demonstrated large effect sizes from pre-to post-treatment for interview-assessed and self-reported BPD symptoms. While DBT has significant research evidence supporting its efficacy in these populations (e.g., Pistorello et al., 2012), this is the first study to demonstrate PPT as an efficacious intervention targeting these symptoms. The emphasis in both groups on mindfulness, meaning-making, and values might provide important insight into the mechanism for successful treatment of BPD. Conversely, the PPT group showed only a small change in depression and anxiety symptoms across treatment compared to the DBT group, providing some evidence that DBT may be more appropriate for the transdiagnostic emotion regulation difficulties seen in CCCs.

Concerning skill usage, the DBT group showed particularly strong effects for improving mindfulness and emotion regulation, two modules taught during group. Consistent with several PPT

techniques, this group showed a medium effect for improvement in mindfulness skills. Groups did differ in levels of dysfunctional coping, with the DBT group having significantly lower levels of dysfunctional coping across the course of treatment. While both treatments succeeded in increasing functional coping, dysfunctional coping did not change in the PPT group. The DBT group showed a U-shaped change with a consistent decline in dysfunctional coping across time, but a posttreatment return to baseline levels. One potential reason for this is that the posttreatment assessment was done during final exams, a period of time that is often stressful for students and sees the return of such dysfunctional coping mechanisms as procrastination, worry, and self-criticism.

While a change in skills is an explicit target of DBT, a change in well-being is an explicit target of PPT. However, there was no significant change in happiness for either group. Concerning life satisfaction, there was a significant difference between groups, with the DBT group having higher life satisfaction compared to PPT. This speaks to the point that the DBT group not only seeks to alleviate symptoms, but to encourage the development of a “life worth living” across the course of treatment (Linehan, 1993).

A further aim of this study was to examine the acceptability of these treatments. The DBT group had significantly higher therapeutic alliance across the course of treatment compared to the PPT group. This is evidence that, while being a skill-based and structured treatment, DBT group can foster warmth and closeness among members and the group leader. The DBT group had significantly higher attendance than the PPT group, as well as significantly less dropout. Early dropout (dropping out after the first group session) may be specifically important, with 41% of PPT group dropouts being in this category (compared to 0% for DBT group). These findings suggest that, while the PPT group appears to be effective at reducing BPD symptoms for those that remain in group, the explicit focus on positive emotions, strengths and meaning may not feel initially relevant for those experiencing significant psychopathology.

The following limitations should be noted. First, significant data were lost to dropout. While we completed ITT analyses to account for missing data, results may be positively biased to favor treatment completers. This is especially relevant for analyses concerning the PPT group which had almost 50% missing posttreatment data. Second, we were unable to provide adherence ratings for either group. Thus, we cannot definitively state that our groups were adequately representing DBT or PPT. Third, our study was underpowered and conducted at a single site. A study including a larger sample size with more complete data is likely to detect additional differences between groups. For example, because DBT had larger effect sizes for most variables, it is likely that significant interaction effects may have been found in a well-powered study. Finally, it is important to reiterate that 70% of the participants were also receiving individual therapy when enrolled in the study. Thus, our results cannot state definitively whether these findings would be applicable to group therapy as a stand-alone treatment.

The present study has several strengths that serve to increase our knowledge regarding the efficacy of group therapy in CCCs by significantly broadening findings from previous group therapy studies in this population. First, this study employs a transdiagnostic recruitment procedure that is representative of serious psychopathology symptoms seen in CCCs. This is evidenced by high levels of self-reported symptoms relative to other normed samples. Second, this study compares two evidence-based group interventions within a randomized controlled design, employing extensive interview- and self-report assessments at multiple timepoints. Third, results include an analysis of specific therapy targets and acceptability findings, a significant departure from

previous designs. In summary, our results support DBT skills group as an efficacious and acceptable treatment in CCCs. PPT group was efficacious for reducing BPD symptoms, although this treatment was less acceptable to participants.

Conflict of interest

None.

Funding source

None.

Appendix A. Supplementary data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.brat.2015.12.003>.

References

- American College Health Association. (2015). *National college health assessment II: Spring 2015 reference group executive summary*. Hanover, MD: American College Health Association.
- Asebedo, S. D., & Seay, M. C. (2014). Positive psychological attributes and retirement satisfaction. *Journal of Financial Counseling and Planning*, 25, 161–173.
- Baer, R. A., Smith, G. T., & Allen, K. B. (2004). Assessment of mindfulness by self-report: the Kentucky inventory of mindfulness skills. *Assessment*, 11, 191–206.
- Benton, S. A., Robertson, J. M., Tseng, W., Newton, F. B., & Benton, S. L. (2003). Changes in counseling center client problems across 13 years. *Professional Psychology: Research and Practice*, 34, 66–72.
- Bertisch, H., Rath, J., Long, C., Ashman, T., & Rashid, T. (2014). Positive psychology in rehabilitation medicine: a brief report. *NeuroRehabilitation*, 34, 573–585.
- Bjornsson, A. S., Bidwell, L. C., Brosse, A. L., Carey, G., Hauser, M., Mackiewicz-Seghete, K. L., et al. (2011). Cognitive-behavioral group therapy versus group psychotherapy for social anxiety disorder among college students: a randomized controlled trial. *Depression and Anxiety*, 28, 1034–1042.
- Bolier, L., Haverman, M., Westerhof, G., Riper, H., Smit, F., & Bohlmeijer, E. (2013). Positive psychology interventions: a meta-analysis of randomized controlled studies. *BMC Public Health*, 13, 119.
- Chugani, C. D., Ghali, M. N., & Brunner, J. (2013). Effectiveness of short term dialectical behavior therapy skills training in college students with cluster B personality disorders. *Journal of College Student Psychotherapy*, 27, 323–336.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.
- Coniglio, C., McLean, G., & Meuser, T. (2005). *Personal counselling in a Canadian post-secondary context*. Retrieved from The Canadian Association of College and University Student Services website http://www.cacuss.ca/CUCCA_resources.htm.
- Crozier, S., & Willihnganz, N. (2006). *Canadian counselling centre survey 2004/2005*. Retrieved from The Canadian Association of College and University Student Services website http://www.cacuss.ca/CUCCA_resources.htm.
- Derogatis, L. R. (1983). *SCL 90-R: Administration, scoring, and procedure manual*. Towson, MD: Clinical Psychometric Research.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49, 71–75.
- First, M. B., Gibbon, M., Spitzer, R. L., Williams, J. B. W., & Benjamin, L. (1996). *User's guide for the structured clinical interview for DSM-IV Axis II personality disorders (SCID-II)*. New York, NY: Biometrics Research Department, New York State Psychiatric Institute.
- First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. (2002). *Structured clinical interview for DSM-IV axis I disorders — patient edition (SCID-I/P, 11/2002 revision)*. New York, NY: Biometrics Research Department, New York State Psychiatric Institute.
- Graham, J. W. (2009). Missing data analysis: making it work in the real world. *Annual Review of Psychology*, 60, 549–576.
- Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment*, 26, 41–54.
- Guney, S. (2011). The positive psychotherapy inventory (PPTI): reliability and validity study in Turkish population. *Social and Behavioral Sciences*, 29, 81–86.
- Hodgson, J. W. (1981). Cognitive versus behavioral—interpersonal approaches to the group treatment of depressed college students. *Journal of Counseling Psychology*, 28, 243–249.
- Hone, L. C., Jarden, A., & Schofield, G. M. (2015). An evaluation of positive psychology intervention effectiveness trials using the re-aim framework: a practice-friendly review. *The Journal of Positive Psychology*, 10, 303–322.
- Horvath, A. O., & Greenberg, L. S. (1989). Development and validation of the working alliance inventory. *Journal of Counseling Psychology*, 36, 223–233.

- Huang, H., & Liu, X. (2011). Effects of group interpersonal psychotherapy and group cognitive behavioral therapy on social anxiety in college students. *Chinese Mental Health Journal*, 25, 324–327.
- Kincade, E. A., & Kalodner, C. R. (2004). The use of groups in college and university counseling centers. In J. L. DeLucia-Waack, C. R. Kalodner, & M. Riva (Eds.), *Handbook of group counseling and psychotherapy* (pp. 366–377). Los Angeles, CA: Sage Publications.
- Kliem, S., Kröger, C., & Kosfelder, J. (2010). Dialectical behavior therapy for borderline personality disorder: a meta-analysis using mixed-effects modeling. *Journal of Consulting and Clinical Psychology*, 78, 936–951.
- Linehan, M. (1993). *Cognitive-behavioral treatment of borderline personality disorder*. New York, NY: The Guilford Press.
- Linehan, M. (2015). *DBT skills training manual* (2nd ed.). New York, NY: The Guilford Press.
- Meaney-Tavares, R., & Hasking, P. (2013). Coping and regulating emotions: a pilot study of a modified dialectical behavior therapy group delivered in a college counseling service. *Journal of American College Health*, 61, 303–309.
- Neacsu, A. D., Eberle, J. W., Kramer, R., Wiesmann, T., & Linehan, M. M. (2014). Dialectical behavior therapy skills for transdiagnostic emotion dysregulation: a pilot randomized controlled trial. *Behaviour Research and Therapy*, 59, 40–51.
- Neacsu, A. D., Rizvi, S. L., Vitaliano, P. P., Lynch, T. R., & Linehan, M. M. (2010). The dialectical behavior therapy ways of coping checklist: development and psychometric properties. *Journal of Clinical Psychology*, 66, 563–582.
- Panos, P. T., Jackson, J. W., Hasan, O., & Panos, A. (2014). Meta-analysis and systematic review assessing the efficacy of dialectical behavior therapy (DBT). *Research on Social Work Practice*, 24, 213–223.
- Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A handbook and classification*. New York and Oxford: Oxford University Press and Washington, DC: American Psychological Association.
- Pistorello, J., Fruzzetti, A. E., MacLane, C., Gallop, R., & Iverson, K. M. (2012). Dialectical behavior therapy (DBT) applied to college students: a randomized clinical trial. *Journal of Consulting and Clinical Psychology*, 80, 982–994.
- Rashid, T. (2015). Positive psychotherapy: a strength-based approach. *The Journal of Positive Psychology*, 10, 25–40.
- Rashid, T., & Ostermann, R. F. O. (2009). Strength-based assessment in clinical practice. *Journal of Clinical Psychology: In Session*, 65, 488–498.
- Seligman, M. E. P. (2002). *Authentic happiness: Using the new positive psychology to realize your potential for lasting fulfillment*. New York: Free Press.
- Seligman, M. E. P. (2011). *Flourish: A visionary new understanding of happiness and well-being*. New York: Simon & Schuster.
- Seligman, M. E. P., Rashid, T., & Parks, A. C. (2006). Positive psychotherapy. *American Psychologist*, 61, 774–788.
- Simons, J., & Gaher, R. (2005). The distress tolerance scale: development and validation of a self-report measure. *Motivation and Emotion*, 29, 83–102.
- Sin, N. L., & Lyubomirsky, S. (2009). Enhancing well-being and alleviating depressive symptoms with positive psychology interventions: a practice-friendly meta-analysis. *Journal of Clinical Psychology*, 65, 467–487.
- Smith, T. B., Dean, B., Floyd, S., Silva, C., Yamashita, M., Durtschi, J., et al. (2007). Pressing issues in college counseling: a survey of American college counseling association members. *Journal of College Counseling*, 10, 64–78.
- Todd, D. M., Deane, F. P., & McKenna, P. A. (1997). Appropriateness of SCL-90-R adolescent and adult norms for outpatient and nonpatient college students. *Journal of Counseling Psychology*, 44, 294–301.
- Valentine, S. E., Bankoff, S. M., Poulin, R. M., Reidler, E. B., & Pantalone, D. W. (2015). The use of dialectical behavior therapy skills training as stand-alone treatment: a systematic review of the treatment outcome literature. *Journal of Clinical Psychology*, 71, 1–20.
- Wagner, D., Rathus, J., & Miller, A. L. (2015). Reliability and validity of the life problems inventory, a self-report measure of borderline personality features, in a college student sample. *Journal of Psychology and Psychotherapy*, 5, 199.
- Watson, J. C. (2013). Rethinking the provision of counseling services: a paradigm shift for college counselors. *Journal of College Counseling*, 16, 3–5.