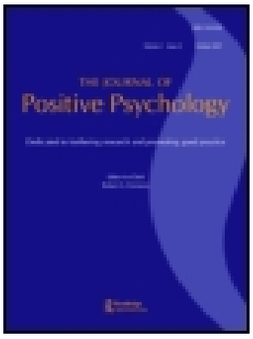

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A comparative study of the efficacy of group positive psychotherapy and group cognitive behavioral therapy in the treatment of depressive disorders: A randomized controlled trial

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ABSTRACT

This study examined the efficacy of Positive Psychotherapy (PPT) as an alternative approach to the treatment of depression and contrasted it with the well-established Cognitive Behavioral Therapy (CBT). Ninety-two individuals who met DSM-IV criteria for a depressive disorder were randomly assigned to either manualized group PPT or group CBT. The primary outcome measures were posttreatment and 6-month follow-up changes in self-reported and observer-rated depressiveness. The secondary outcome measure was general psychological distress. Additionally, potential moderating variables were tested and satisfaction with treatment was assessed as an additional criterion for evaluation. Based on intention-to-treat analyses using linear mixed models, PPT showed consistently moderate to high within- and between-group effect sizes, which were larger compared to those for CBT. Overall satisfaction with therapy, however, did not differ significantly between groups. None of the tested moderators significantly influenced therapy success. Our findings support the efficacy of group PPT over an active control condition.

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Positive psychotherapy; positive psychology; CBT; efficacy; depression; group therapy

1. Introduction

Depression is a highly prevalent mental disorder and very common among adults (Kessler et al., 2003). Over the last few decades, depression has evidently become more prevalent, particularly among young age groups (Hautzinger, 2013; Steel et al., 2014). In recent years, increased public recognition of the devastating personal and financial implications of depression has led to the development of promising psychological interventions for this disorder. An overview of psychological interventions shows that cognitive behavioral therapy (CBT) is highly effective in the treatment of mild to moderate depression (Cuijpers et al., 2013; Hautzinger, 1993; Imel, Malterer, McKay, & Wampold, 2008). In accordance with the current state of traditional treatments for depression, CBT operates from a deficit-oriented medical model, where treatment focuses primarily on the alleviation of symptoms and psychopathology.

However, symptoms of depression, often involve a lack of positive emotions, engagement, perceived meaning, positive relationships, and accomplishment (Rashid & Seligman, 2013). Commonly, these symptoms are conceptually and primarily understood as consequences or mere correlates of depression. Rashid and Seligman (2013), however, suggested that these symptoms should be seen as etiological causes of depression. In addition, they argued that building positive resources related to specific symptoms, specifically positive emotions, character strengths, meaning, positive relationships, and intrinsic motivation toward accomplishments, likely alleviate depression and may buffer against future relapses (Seligman, Rashid, & Parks, 2006).

In contrast to standard deficit-oriented interventions, such as CBT, Positive Psychotherapy (PPT) is a strengths- and resource-based, rather than a problem-focused therapeutic approach, that is broadly based on the principles of Positive Psychology. PPT systematically amplifies the positive resources of clients and 'without dismissing, minimizing, or hastily replacing negatives with positives, Positive Psychotherapy (PPT) dispenses equal effort on positives' (Rashid & Howes, 2016, p. 321) with the aim of undoing psychopathology. It comprises 14 distinct empirically supported Positive Psychology Interventions (PPIs), either as sole practices or in sets of two or three practices (Rashid & Seligman, 2018). After their empirical validation, these practices were organized into a cohesive protocol of 14 sessions that constitute Positive Psychotherapy (PPT).

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1.1. Theoretical background

1.1.1. Authentic happiness, PERMA, and positive psychotherapy

Positive emotions, engagement, and meaning were the first three basic components addressed in Positive Psychotherapy primarily based on Seligman's (2002) conceptualization of '*Authentic Happiness.*' Although his '*Authentic Happiness Theory*' (2002) had been frequently cited when it was published, Seligman (2011) refined it to the well-known *'Flourishing theory'* that assumes that in order to reach optimal well-being (i.e. flourishing) people need to be oriented towards five elements. In addition to the already existing three components P (*Positive Emotions*), E (*Engagement*), and M (*Meaning*), he added two additional ones: (R) '*Positive Relationships'* and (A) '*Accomplishment.*' The first character of each component forms the well-known acronym 'PERMA' which at the same time also signifies the PERMA- or flourishing-model (Seligman, 2011) as a new theory of psychological health. As mentioned above, PPT assumes that a lack of or a deficit in these five elements can be seen as a pathogenic agent that leads to depression (Rashid & Seligman, 2013). Accordingly, PPT was developed to help depressed people address these deficits and develop PERMA as a means of becoming able to flourish. Thus, PPT can be seen as a psychological intervention that fosters flourishing among individuals with depression.

1.1.2. Empirical evidence on positive psychotherapy

Until now Positive Psychotherapy (PPT) as a standalone cohesive treatment model using the PPT manual (Rashid & Seligman, 2018; Seligman, Rashid, & Parks, 2006) has been tested in 20 studies in attempt to provide empirical evidence for its efficacy and effectiveness. Most studies were conducted in a group setting and addressed a variety of clinical disorders (depression, anxiety, psychosis, borderline personality disorder, and nicotine dependence).

In terms of the reduction of depressive symptoms and psychological distress, PPT was initially validated with clients experiencing moderate to severe depressive symptoms in individual and group settings (Seligman et al., 2006). A randomized controlled trial with individually administered PPT in a clinical sample of 11 patients with severe depressive symptoms led to improvement and higher remission rates of major depressive disorder and also lower levels of psychiatric distress than both treatment-as-usual or treatment-as-usual plus antidepressant medication (Seligman et al., 2006, Study, p. 2). Similarly, group-based PPT applied to 21 mildly to moderately depressed college students led to significantly fewer depressive symptoms compared to a no-intervention control group. The gains made by the participants in the PPT group were retained for at least one year (Seligman et al., 2006, Study, p. 1). In line with these findings, participants in a PPT treatment (N = 9) showed a significant decrease in depression at a rate of 45% compared with a non-treatment control group, and therapeutic gains were maintained at the 1-month post-intervention follow up point (Reinsch, 2012).

Four of these studies have compared PPT directly with two other manualized treatments: Dialectical Behavior Therapy (DBT) and Cognitive Behavioral Therapy (CBT). Concerning symptoms of distress, PPT resulted in significantly lower symptoms in post-treatment outcome measures when compared to control- or pre-treatment scores, with medium to large effect sizes (Rashid, 2015). In terms of depression, PPT performed at least equally well (e.g. Asgharipoor, Farid, Arshadi, & Sahebi, 2010). Taken together, the initial findings regarding PPT's efficacy and effectiveness are promising, but share some limitations including very small sample sizes (between 8–21 participants). Moreover, while evidence for the effectiveness of PPT in reducing depressive symptoms is steadily growing, patients vary in their response to it and little is known about variables that moderate its outcomes. No studies to date have directly examined the influence of individual difference variables on the effectiveness of PPT.

1.1.3. Aims and research questions

The aim of the present study, therefore, was to extend knowledge in relation to PPT's efficacy in reducing depressive symptoms and common psychological distress in a large sample of Austrian people suffering from depressive disorders. Additionally, we were interested in identifying potential moderator variables that would influence treatment outcomes. For these purposes, we conducted a randomized controlled study applying group-based PPT (see Rashid & Seligman, 2018; Seligman et al., 2006) and comparing it with the standard intervention for treating depression, namely CBT (Schaub, Roth, & Goldmann, 2006), again group-based. Both treatments were manualized and were grounded in empirically supported PPT-, and CBT-protocols.

In light of the outcomes of the existing research literature, we hypothesized a decrease in self-reported as well as observer-rated depressive symptoms and in patients' overall psychological distress level in both intervention conditions. Extrapolating results from other studies, such as the one by Asgharipoor et al. (2010) and Rashid (2015), we further hypothesized that both treatments would be at least equally effective and PPT would be non-inferior. Additionally, we predicted that participants in the PPT condition would report higher treatment satisfaction

than those in the CBT group, because accumulating positive resources and flourishing according to Seligman's PERMA-Model would contribute to people's wellbeing and happiness and thus enhance their satisfaction with the treatment. At least, we hypothesized that baseline characteristics (age, gender, education, medication, location, comorbidity, number of attended therapy sessions) would moderate treatment effects.

In the present paper only results on negative outcomes (depressive symptoms and patients' overall psychological distress) and moderating variables are presented, together with results on perceived satisfaction with treatments. Findings related to positive outcomes (enhancement of happiness and well-being) will be reported elsewhere (Furchtlehner, Schuster & Laireiter, under review).

2. Design and methods

In the present study both treatments were compared in a randomized controlled non-inferiority trial with pre- and post-treatment measurements and a six-month follow-up. To evaluate outcomes, self-report and observer-rated measures were implemented. Outcome evaluation was carried out by the first author who also led two of the seven PPT groups.

2.1. Treatment conditions

As a treatment condition, PPT (Rashid & Seligman, 2018; Seligman et al., 2006) is a 14-week-, two-hours-per-week manualized intervention administered in groups of 6 to 7 individuals. Each PPT treatment session involves psychoeducation based on experiential learning and homework assignments. The goal is to make clients understand and practice the different aspects of flourishing according to the PERMA-model, such as positive emotions, engagement, meaning, positive relationships, and accomplishment. Homework, however, is the most important component of this intervention. Clients are required to complete exercises in a structured and self-directed manner, and each exercise takes at least one hour to complete. Some exercises run throughout the whole intervention (e.g. the 'Three Good Things' application; Seligman et al., 2005) where clients keep a journal on a daily basis about positive things, minor or important, that happened during the course of the day to offset the impact of negativity-bias (Rashid & Seligman, 2013). All participants received the same homework exercises in a fixed sequence and at each of the weekly session clients were given clear instructions on how to complete their exercises. Table 1 provides an overview of the session-by-session topics of the PPT condition.

Positive Psychotherapy was compared with a standard control treatment for depression (CBT) based on the manualized 12-session program for group therapy designed by Schaub et al. (2006). This treatment is also psychoeducational in nature but focuses on disorder-related information based on a multidimensional functional concept of depression, which includes aspects of vulnerability, stressors, and coping. Moreover, it covers information and treatment options on building up rewarding activities, cognitive restructuring, and relapse prevention according to a session-by-session protocol with homework assignments. To render both treatments comparable according to their intervention doses, we added two additional sessions to the CBT manual. Based on the stress-vulnerability model of this therapy concept, one extra session deals with stress and stressors as possible causal agents of depression. Based on CBT principles, specific stress management strategies are imparted (cognitive, instrumental, and regenerative strategies; cf. Kaluza, 2015) with a particular focus on relapse prevention. 'Savoring' was the topic of the second extra session, as in German language countries savouring is a major aspect of (Cognitive) Behavioral Therapy in the treatment of depression (e.g. Lutz, 2011). Thus, both therapies comprised 14 two-hour weekly group sessions (120 min) and each treatment was conducted according to its respective protocol. Table 2 presents an overview of the session-by-session topics of CBT and its extra sessions.

2.2. Recruitment and subjects' inclusion and exclusion criteria

The required sample size was estimated using G*Power 3.1 software (Faul, Erdfelder, Lang, & Buchner, 2007). Hypothesizing non-significant differences and non-inferiority of PPT relative to CBT, the calculated total sample size to find a small effect of Cohen's $d = 0.30$ with a power of $\beta = .80$ and an α – level of 0.05 was $N = 90$ participants. The present study was conducted as a two-centre-study with different modes of client-acquisition. In Salzburg, participants were recruited by diverse strategies, such as a university press release, newspaper advertisements, emails to all students and employees registered or working at the university, flyers distributed to pharmacies and physician practices, as well as emails to mental health care institutions for depressives. At Linz, participants were recruited at the residential psychiatric hospital after their discharge. Inclusion criteria were: being between 18 and 60 years of age, having a mild to moderate major depressive disorder, single episode or recurrent, major depressive

Table 1. An overview of session-by-session description of positive psychotherapy *.

Session	Content
1. Orientation	Topic: The absence of positive resources in maintaining depression HW: Clients introduce themselves through a story in which they share a real-life event that shows them at their best
2. Character Strengths	Topic: Defining character strengths and discussion about their role in problem solving HW: Clients complete an online task (SSQ; Signature Strengths Questionnaire)
3. Signature Strengths	Topic: Computing Signature Strengths; discussion about goal setting to target specific problems or to cultivate more engagement HW: Clients frame specific goals into a concrete Signature Strengths Action Plan (SSAP)
4. Good & Bad Memories	Topic: Bad and bitter memories and how they perpetuate psychological distress; discussion about positive cognitive reappraisal strategies HW: Clients write about 3 bad memories and reflect on their impact in maintaining depression
5. Forgiveness	Topic: Forgiveness as a potential option to transform feelings of anger and bitterness HW: forgiveness letter
6. Gratitude	Topic: Gratitude as an enduring thankfulness; discussion about good and bad memories with an emphasis on gratitude. HW: gratitude letter
7.Mid-Therapy-Feedback Session	Topic: Signature Strengths Action Plan; follow-up of the forgiveness and gratitude assignments; necessary changes are made
8. Satisficing vs. Maximizing	Topic: Concepts of satisficing & maximizing and discussion about one's own level HW: Clients identify and plan areas where they can benefit from satisficing
9. Hope, Optimism & Posttraumatic Growth	Topic: Optimism and hope in detail (clients think and write about times when important things were lost but other opportunities opened up); potential growth from trauma is also explored and specific strategies are discussed to explore optimism in everyday life HW: Specific strategies to exercise optimism in everyday life
10. Positive Relationships	Topic: the role and importance of positive relationships in well-being Clients practice Active-Constructive Responding (ACR) – a strategy to foster positive relationship communication HW: Clients self-monitor for active-constructive opportunities
11. Signature Strengths of Others	Topic: Identification of character strengths of other family members HW: Clients ask family members to complete the SSQ online task and draw a family tree of strengths; discussion about family members' signature strengths
12. Savouring	Topic: Savouring and its types and techniques with a savouring exercise; strategies to safeguard against adaption HW: Clients plan a savouring activity using specific techniques
13. Altruism	Topic: the therapeutic benefits of helping others HW: Clients plan to give the gift of time to someone using their signature strengths
14. The Full Life	Topic: Integration: Full Life as the integration of positive emotions, engagement, positive relationships, meaning and accomplishment; discussion about therapeutic gains and experiences and ways to sustain positive changes are devised

Note: HW = Homework
* based on Seligman et al. (2006)

disorder in partial remission, dysthymia with or without double depression and at least normal intelligence. Exclusion criteria were: currently undergoing psychotherapeutic or psychological treatment, having a severe major depressive disorder, current substance dependence, current severe eating disorder, current panic disorder, hypomanic, manic or bipolar disorder, or having psychotic disorders. Participant recruitment took place from May 2014 to October 2015. All subjects interested in participating at the study were prescreened and screened using procedures described in the next section. The final sample consisted of $N = 92$ participants. The flowchart in figure 1 demonstrates the recruitment procedure and the final composition of the sample.

2.3. Sample

The demographic and clinical characteristics of both samples at baseline are summarized in Table 3. We tested whether randomization was successful by testing for differences between the conditions in terms of demographic and clinical characteristics and baseline levels of patient-reported and observer-rated depressive symptoms, overall psychological distress as well as number and intensity of symptoms. No significant differences were found between the treatment conditions regarding gender, age, education, dropout, diagnoses, and the baseline scores for the applied instruments.

2.4. Outcome measures

To evaluate PPT's efficacy, primary and secondary outcome measures were defined and assessed. Depressive symptoms as a primary outcome were measured by score changes in two self-report questionnaires (Beck Depression Inventory, BDI-II, Depression Happiness-Scale, DHS) and one observer-rated scale (Montgomery Asberg Depression Rating Scale, MADRS). As a secondary outcome, the Brief Symptom Inventory (BSI) was applied to quantify overall psychological distress level. For outcome evaluation, the Global Severity Index (GSI) was used. Satisfaction with the assigned therapy was assessed at the end of treatment by a self-generated five-item measure.

Table 2. Overview of session-by-session description of extended cognitive behavioral group therapy for depression (based on Schaub et al., 2006).

Topic	Session	Description
Psychoeducation	1	- Introduction
		- Organizational issues
		- Therapy concept
		- Do's and don'ts of how to behave in groups
		- Symptoms
	2	- Vulnerability stress model and vulnerability stress coping model
	3	- Medication and how antidepressants work
		- Other treatment strategies and psychotherapeutic approaches
Behavioral activation	4	- The vicious circle of depression
		- The depression spiralling effect
	5	- Positive activities and how to plan them
	6	- Importance of balance between positive activities and requirements/challenges (self-reinforcement)
Cognitive therapy	7	- Introduction to cognitive behavioral therapy
		- The cognitive triad of depression
		- The A-B-C theory
	8	– Cognitive distortions and how to change them
		- How to stop rumination
	9	- Typical depressive core beliefs and how they are influenced by automatically depressive thoughts
	10	- Identifying and changing depressive core beliefs
Relapse prevention	11	- Early warning signs of depression
		- Relapse prevention based on medication
		- How to deal with crises
	12	- How to handle depression
		- Follow-up care
		- Conclusion
Extra session 1	13	- Stress management: how depression is influenced by stress
		- Stressors and automatic thoughts
		- Stress reaction (thoughts, emotions, physical reaction, behavior)
		- Stress management strategies (instrumental, cognitive, palliative-regenerative)
Extra session 2	14	- Savouring: how depression is influenced by a lack of savouring
		- Savouring strategies comprising all sensory perceptions (taste, olfaction, tactile sense, sense of sight, sense of hearing)

Demographic characteristics and the structural features of the therapies (number of sessions completed) were used as moderator variables to analyse differential outcomes in PPT.

2.4.1. Primary outcomes

The revised *Beck Depression Inventory-II* (BDI-II; Beck et al., 1996; German adaptation by Hautzinger, Keller, & Kühner, 2006) consists of 21 sets of statements; each set is arranged in order of increasing severity from which the participant has to choose the statement that best describes his/her feelings during the last 2 weeks. A value of 0 to 3 is assigned to each response resulting in scale values ranging from 0 to 63; 0–9 indicating no or minimal depression, 10–18 mild depression, 19–29 moderate depression, and 30–63 severe depression. The BDI-II has good clinical sensitivity and a high reliability ranging from α = 89 to α = .94 (Hautzinger et al., 2006). In the present study internal consistency was high with Cronbach's alpha = .89.

The *Depression-Happiness Scale* (DHS; McGreal & Joseph, 1993) is a bipolar 25-item self-report questionnaire containing items assessing the continuum from depression to happiness. The total score ranges from 0 to 75, with higher scores indicating greater feelings of happiness and lower scores indicating greater feelings of depression. Internal consistency is high with a Cronbach's alpha = .93 (McGreal & Joseph, 1993). In the present study, the internal consistency was also very high with a Cronbach's alpha = .92. For the purposes of the present study, the English items were translated into German and retranslated into English by two independent bilingual experts who were fluent in both languages.

The *Montgomery Asberg Depression Rating Scale* (MADRS; Montgomery & Asberg, 1979) is an observer-rated instrument used to measure the severity of depressive episodes in patients with mood disorders. It consists of 10 items including the core symptoms of depression (e.g. sadness, pessimistic thinking patterns, and suicidal ideation). Each item yields a score ranging from 0 to 6, so the overall score ranges from 0 to 60, with higher scores indicating more severe depression. According to the manual, the scale has very good inter-rater reliability ranging from r = .89 to.97. Cronbach's alpha for the total scale was .84 in the present study.

2.4.2. Secondary outcomes

The German version of the *Brief Symptom Inventory* (BSI) developed by Derogatis (Franke, 2000) is a shortened version of the 90-item Symptom Checklist (SCL-90; Derogatis, 1977) consisting of 53 symptoms rated on

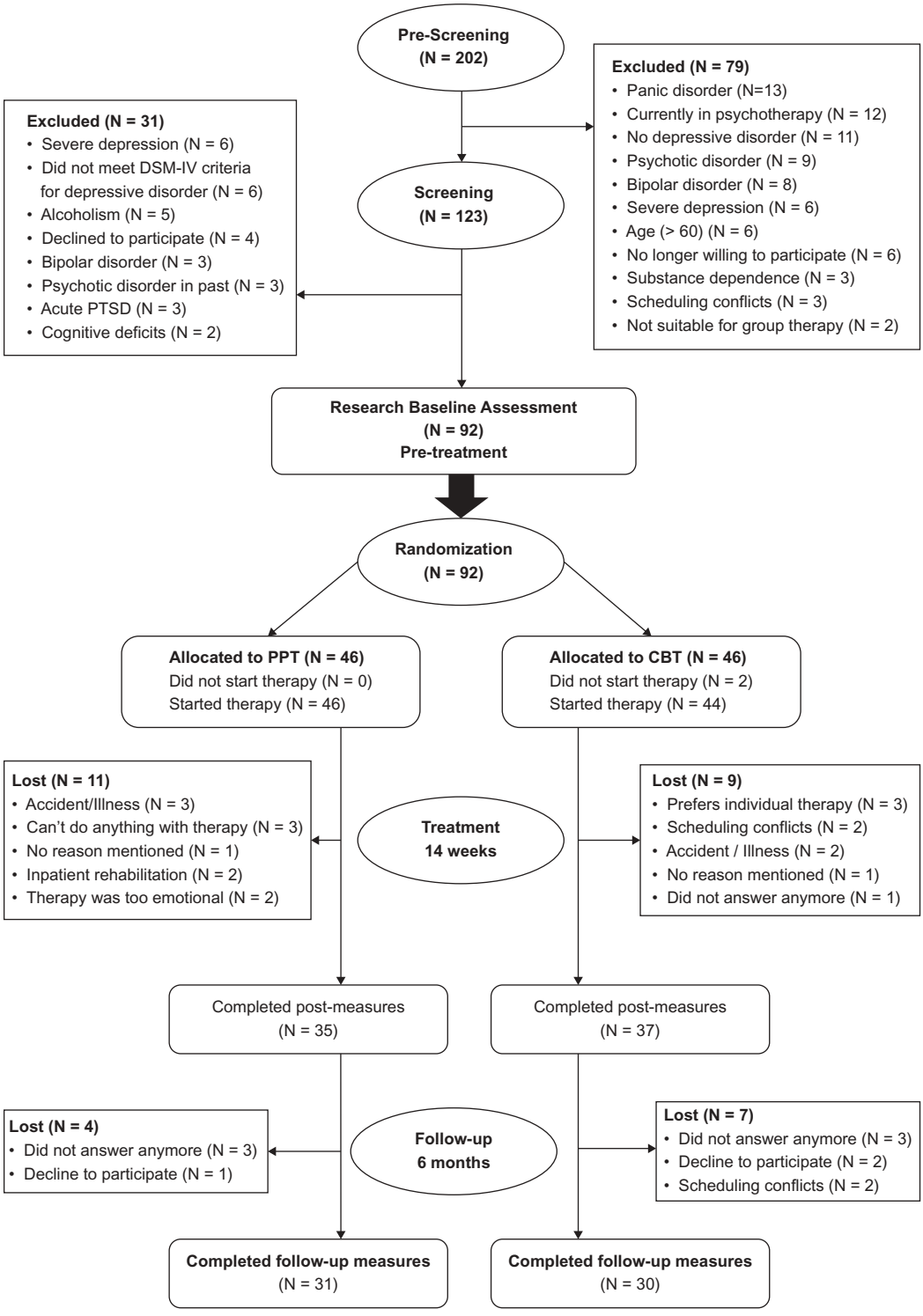

Figure 1. Flowchart of participants through each stage of the study

a 5-point Likert-type scale. Ratings characterize symptom intensity during the last seven days. BSI contains nine primary dimensions (somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism) and three global indices of distress, namely Global Severity Index, Positive Symptom Distress Index, and Positive Symptom Total. In the present study, we employed the most widely used one, specifically the Global Severity Index (GSI), which is

Table 3. Demographic and clinical characteristics of the study samples at baseline.

	Treatment group (PPT) (n = 46)	Control group (CBT) (n = 46)	Total (N = 92)	Statistics
Demographic characteristics				
Gender: *n (%)*	Female: 31 (67.4)	Female: 28 (60.9)	Female: 59 (64.1)	χ^2 (1, N = 92) = 0.43, p = .43
Age: *Mean (S.D.)*	39.78 [11.53]	41.46 [13.35]	40.66 [12.4]	t(90) = − 0.61, p = .54
Education: ≥ 9 years: *n (%)*	15 (32.6)	17 (36.9)	32 (34.8)	χ^2 (3, N = 92) = 3.07, p = .38
≥ 12 years: *n (%)*	21 (45.7)	16 (34.8)	37 (40.2)	
≥ 16 years *n (%)*	10 (21.7)	13 (28.3)	23 (25.0)	
Applied instruments				
BDI-II: *Mean (S.D.)*	24.4 [10.83]	25.17 [11.22]	24.61 [10.99]	t(90) = −0.49, p = .62
MADRS: *Mean (S.D.)*	21.04 [8.22]	22.80 [9.80]	21.91 [9.07]	t(88) = −0.92, p = .36
DHS: *Mean (S.D.)*	33.46 [15.60]	32.74 [16.51]	33.10 [15.98]	t(90) = 0.21, p = .83
BSI: *Mean (S.D.)*	1.12 [0.57]	1.22 [0.69]	1.17 [0.63]	t(90) = − 0.76; p = .45
Drop Out (pre to post)	n = 11	n = 9	N = 20	χ^2 (1, N = 92) = 0.26, p = .61
Clinical characteristics of Diagnosis by SKID-I				χ^2 (7, N = 92) = 5.57, p = .59
Single Episode of Major depression				
– mild: *n (%)*	1 (2.2)	2 (4.3)	3 (3.3)	
– moderate: *n (%)*	10 (21.7)	6 (13.0)	16 (17.4)	
– partial in remission: *n (%)*	1 (2.2)	3 (6.5)	4 (4.3)	
Recurrent Major depression				
– currently mild: *n (%)*	1 (2.2)	4 (8.7)	5 (5.4)	
– currently moderate: *n (%)*	24 (52.2)	23 (50.0)	47 (51.1)	
– currently partial in remission: *n (%)*	1 (2.2)	0 (0.0)	1 (1.1)	
Dysthymia				
– with double depression: *n (%)*	6 (13)	7 (15.2)	13 (14.1)	
– without double depression: *n (%)*	2 (4.3)	1 (2.2)	3 (3.3)	
Severity of depression				
– partial in remission: *n (%)*	2 (5.2)	3 (7.8)	5 (5.4)	
– mild: *n (%)*	2 (5.2)	6 (15.8)	8 (8.7)	
– moderate: *n (%)*	34 (89.5)	29 (76.3)	63 (68.5)	

Note: BDI-II: Beck Depression Inventory-II; MADRS: Montgomery Asberg Depression Rating Scale; DHS: Depression-Happiness Scale; BSI: Brief Symptom Inventory; SCID-I: Structured Clinical Interview for DSM-IV Axis I Disorders

designed to quantify patient-level severity of illness and provides a single composite score for the outcome of a treatment to reduce symptom severity. The internal consistency of GSI is generally very high ranging from α = .92 to .96 for different German samples (Franke, 2000), comparable to the alpha value that was found in the present study (α = .93).

2.4.3 Satisfaction with treatment

Satisfaction with the assigned treatment was assessed immediately after the last session. Participants were administered a self-designed questionnaire consisting of 5 items: (1) *the contents of the therapy sessions seemed logical to me*, (2) *the topics of the therapy sessions seemed comprehensible to me*, (3) *worksheets had a logical structure*, (4) *worksheets were user-friendly*, and (5) *therapists' feedback seemed helpful to me*. Each item was rated using a 6-point Likert-type scale (0 = strongly disagree; 1 = disagree; 2 = slightly disagree; 3 = slightly agree; 4 = agree; 5 = strongly agree). The total score ranged from 0 to 25, with higher scores indicating more satisfaction with the intervention. Cronbach's alpha for the total scale was .81 in the present study.

2.4.4 Moderator variables

Finally, the following variables were tested as potential moderators influencing the outcomes of PPT: (1) demographics, such as age, gender, education level, medication, comorbidity, and (2) structural characteristics of the treatments, such as the number of attended therapy sessions or location.

2.5. Procedure

Half of the study was conducted at the Outpatient Treatment Centre of the Department of Psychology of the University of Salzburg (Austria) and the other half at the Wagner-Jauregg state psychiatric hospital in Linz (Austria). The University of Salzburg's research ethics board as well as the federal ethics committee of Upper Austria granted approval for the study prior to commencing participant recruitment. Individuals were selected and assessed using a three-step approach by independent clinical psychologists undergoing training and trained postgraduate students. All those who applied to participate were first pre-screened on the phone or face-to-face in the hospital before those who met basic criteria on diagnosis and demographic variables were invited to an individual assessment session of approximately 3 hours in length. During the course of this assessment, each participant received detailed information about the study including a description of the measures and the timetable as well as an introduction to

both treatment conditions and randomization process. Furthermore, inclusion and exclusion criteria based on the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I; Wittchen et al., 1997) were set. In cases where the criteria were not fulfilled an appropriate therapeutic option was provided as an alternative. Those who fulfilled the inclusion criteria and agreed with randomization and all other treatment conditions, completed baseline assessments and provided informed consent. After participants had undergone all assessments, they were randomly assigned to one of the treatment conditions (PPT vs. CBT), using a true random number service (www.random.org). Approximately 2 weeks later, they were contacted by the project manager, who informed them about the randomization outcome and the exact starting date. At Salzburg, four groups of PPT and CBT containing six to seven participants each were conducted consecutively; at Linz there were three groups in each condition, which followed the same procedure. The interventions and the data acquisition took place over a period of more than two years, beginning in May 2014 and finishing in October 2016. In all cases, data were collected anonymously; there was no monetary compensation or any form of compensation for participation.

2.5.1 Treatment application and trainers

Treatments were applied in a single trainer setting by seven female psychologists aged between 25 and 44. One trainer in each condition had received postgraduate training in clinical psychology and has been working in this field for several years; the other five were currently receiving training in clinical psychology. In total, there were five psychologists as group leaders in each treatment condition (two of them conducted two groups each). To minimize effects due to different educational and experiential levels, three of the seven trainers conducted groups in both PPT and CBT. Due to the structural requirements of the respective institution or group leaders' individual preference for the one condition over the other, assignment of the group leaders was not random. Regardless of their current educational and experiential background, trainers had received extensive introduction to and training in their respective protocols by two clinical psychologists who had sufficient clinical practice and experience in the respective treatments. Additionally, all group leaders had to participate in weekly supervisions with their trainers. As an additional control, every group leader had to protocol each session and the protocols were compared with the proposed manualized session's process by independent raters.

2.6. Data analysis

Statistical analyses were carried out using IBM SPSS 24 (IBM Inc., Armonk, NY, USA). To test potential differences in participants' demographic and clinical characteristics at baseline, we performed descriptive analyses using chi-square tests and independent t-tests. Cronbach's Alpha was applied for reliability analyses at baseline. Means (M) and standard deviations (SD) for each outcome measure were calculated at baseline, post-test, and at the 6-month follow-up.

Outcomes were calculated by using treatment-completer analyses alone and by integrating missing data in accordance with the intention-to-treat principle (ITT) including all randomized participants. Linear mixed models (LMM) were performed to test the efficacy of the treatments, as LMM are less sensitive to missing data (Gueorguieva & Krystal, 2004). A restricted maximum likelihood estimation (REML) and compound symmetry were chosen in the model specifications. Pairwise comparisons between measurement points (pre to post, pre to follow-up, post to follow-up) or randomized groups, were performed to investigate changes of outcomes more precisely. To examine putative moderators of treatment response, we applied LMM based on the three-way interaction of treatment x time x moderator. The potential moderators were entered individually due to the large number of interaction terms.

Effect sizes were calculated for the amount of change, using Cohen's d formula (small effect d = 0.20 to 0.50; medium effect d = 0.50 to 0.80: large effect d = 0.80 and higher; Cohen, 1988). Change scores for all applied clinical measures (BDI-II, DHS, MADRS, and BSI) were evaluated by calculating the reliable change index (RCI; Jacobson & Truax, 1991) which controls for measurement errors through the twofold application of the instruments. Furthermore, the concept of clinically significant improvement (CSI) was applied to depressive symptoms, being defined as a reliable change combined with a post-treatment score below the usual clinical cut off score of the instruments.

3. Results

In the following sections, only the results of ITT-analyses are presented. These findings parallel those of the completer analyses, with the only difference being smaller effect sizes. Means and standard deviations for all applied scales are presented in Table 4.

Table 4. Means and standard deviations of all three time periods for BDI-II, MADRS, DHS and BSI.

	Pre			Post			Follow-up		
	N	M	SD	N	M	SD	N	M	SD
BDI-II									
PPT	46	24.04	10.84	46	9.30	10.26	46	10.92	10.73
CBT	46	25.17	8.82	46	21.49	9.32	46	17.79	10.24
MADRS									
PPT	46	21.04	7.40	46	8.80	7.97	46	11.15	8.44
CBT	46	22.80	6.66	46	14.60	7.41	46	17.33	8.35
DHS									
PPT	46	33.46	14.52	46	48.28	15.39	46	47.44	15.86
CBT	46	32.74	13.22	46	35.18	13.94	46	37.10	15.26
BSI									
PPT	46	1.12	0.54	46	0.57	0.57	46	0.60	0.58
CBT	46	1.22	0.49	46	1.16	0.51	46	1.10	0.58

Note: BDI-II: Beck Depression Inventory; higher scores indicate more depression. MADS: Montgomery Asberg Depression Scale; higher scores indicate more depression. DHS: Depression-Happiness-Scale; higher scores indicate greater happiness and less depression. BSI: Brief Symptom Inventory; higher scores indicate greater severity of illness.

3.1. Primary outcome

Beck Depression Inventory-II (BDI-II). Based on patients' self-reports, linear mixed models analyses revealed a statistically significant intervention x time interaction, resulting in a F-value of $F_{(2,\ 147.55)} = 11.51$, $p \leq .001$. This showed that those in the PPT condition had lower levels of depressiveness over time than those in the CBT group. The corresponding effects are presented in Table 5 and in Figure 2. In addition, a statistically significant effect for time was found, $F_{(2,\ 147.55)} = 45.38$, $p \leq .001$. Post hoc pairwise comparisons revealed that in both the PPT and CBT group BDI-II scores were significantly reduced at post-treatment, $p \leq 0.001$ for PPT and $p = .041$ for CBT, and at the 6-month-follow-up, $p \leq 0.001$ for both groups, compared to baseline scores. Table 5 presents information regarding effect sizes for both groups.

Moreover, there was a statistically significant effect for group, resulting in a F-value of $F_{(1,\ 93.22)} = 10.53$, $p = .002$. Pairwise comparisons revealed that after treatment, depressiveness in BDI-II was significantly lower in PPT compared to CBT ($t(76) = -4.68$, $p \leq .001$), based on a post-between-effect size difference of $d = 1.24$, that can be regarded as high (Cohen, 1988). Also, at the 6-month follow-up there was a statistically significant group difference ($t(61) = -2.14$, $p \leq .036$) with a lower level of depressiveness in the PPT group.

Reliable change (RCI) was observed in 65% of the PPT group and clinically significant improvements were observed in 47.83% of the group, whereas no reliable deterioration was observed. In contrast, in the CBT condition, only 17.4% of the participants improved reliably and only 6.5% showed clinically significant improvements. Four patients (8.7%) deteriorated reliably.

Depression-Happiness Scale (DHS). Results of the linear mixed models analyses indicated a statistically significant group by time interaction effect, $F_{(2,\ 146.70)} = 7.45$, $p \leq .001$, as shown in Figure 2. Furthermore, there was a significant main effect for time, $F_{(2,\ 146.70)} = 18.02$, $p \leq .001$. Post hoc comparisons demonstrated that participants in the PPT group showed significantly higher scores at post-treatment, $p \leq .001$, and at the 6-month-follow-up, $p \leq .001$, compared to baseline. Participants in the CBT condition, however, did not show significantly higher scores after treatment, $p = .434$, but there was a trend toward less depression at the 6-month-follow-up, p = .073, compared to baseline. The significant main effect for the PPT group, $F_{(1,91.94)} = 6.58$, $p = .012$, with further pairwise comparisons revealed that participants in the PPT group obtained significantly higher scores on the DHS at post-treatment, $p \leq .001$, and at the 6-month-follow-up, $p = .043$, than the CBT did. Considering the reliable change index (RCI), 50% of the PPT group improved reliably, while one participant (2.17%) showed reliable

Table 5. Effect sizes (Cohen's *d*) for BDI-II, MADRS, DHS, and BSI.

		Effect sizes (based on estimated means)			
	Pre-to-Post *within* effect sizes	Pre-to-Follow-up *within effect sizes*	Post-to-Follow-up *within effect sizes*	Post-*between effect sizes*	Follow-up *between effect sizes*
BDI-II					
PPT	1.47 [1.00–1.92]	1.28 [0,82–1.72]	−0.15 [−0.56–0.26]	−1.24 [−1.68 – −0.79]	−0.66 [−1.07 – −0.23]
CBT	0.41 [−0.01–0.81]	0.77 [0.34 – 1.19]	0.38 [−0.04–0.79]	-	-
MADRS					
PPT	1.61 [1.13–2.07]	1.25 [0.79–1.68]	−0.29 [−0.70–0.12]	−0.76 [−1.18 – −0.33]	−0.74 [−1.16 – −0.30]
CBT	1.16 [0.70–1.60]	0.72 [0.04–0.89]	-0.35 [−0.76–0.08]	-	
DHS					
PPT	−0.99 [−1.41 – −0.55]	−0.92 [−1.34 – −0.48]	0.05 [−0.36–0.46]	0.89 [0.46–1.31]	0.66 [0.24–1.08]
CBT	-0.18 [−0.59–0.23]	-0.31 [−0.71–0.11]	-0.13 [−0.54–0.28]	-	
BSI					
PPT	0.99 [0.55–1.41]	0.93 [0.49–1.35]	−0.05 [−0.46–0.36]	−1.09 [−1.52 – −0.64]	−0.86 [−1.28 – −0.43]
CBT	0.12 [−0.29–0.53]	0.22 [−0.19–0.63]	0.11 [−0.30–0.52]	-	

Note: 95% confidence intervals are shown in square brackets. BDI-II: Beck Depression Inventory. MADRS: Montgomery Asberg Depression Rating Scale. DHS: Depression-Happiness-Scale. BSI: Brief Symptom Inventory.

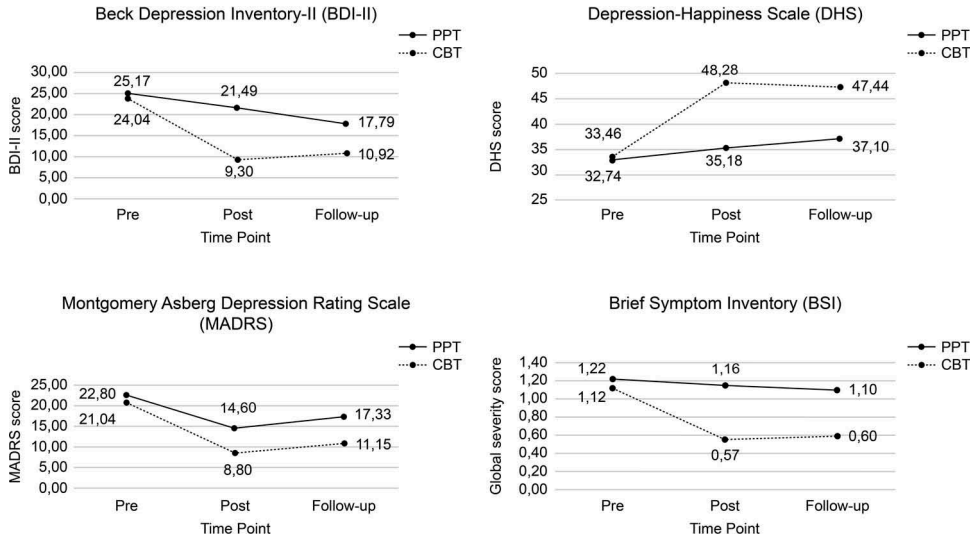

Figure 2. Plots of means for BDI-II, DHS, MADRS, and BSI

Table 6. Means and standard deviations of feedback questionnaire and t values of comparisons between PPT and CBT.

	PPT (*n* = 39)		CBT (*n* = 38)		
	M	SD	M	SD	t
(1) The contents of the therapy sessions seemed logical to me	4.31	0.77	4.29	0.65	0.11
(2) The topics of the therapy sessions seemed comprehensible to me	4.51	0.56	4.34	0.63	1.27
(3) The worksheets had a logical structure	3.90	0.99	4.26	0.72	−1.84 †
(4) The worksheets were user-friendly	4.05	1.02	4.13	0.84	−0.38
(5) Therapists' feedback seemed helpful to me	4.64	0.54	4.24	0.88	2.43 *
(6) Total score	21.41	3.01	21.26	2.94	0.22

Notes: PPT = Positive Psychotherapy; CBT = Cognitive Behavioral Therapy; † $p \leq .10$,* $p < .05$, ** $p < .01$, *** $p \leq .001$; Each item was rated on a 6-point Likert-type scale (0 = strongly disagree; 1 = disagree; 2 = slightly disagree; 3 = slightly agree; 4 = agree; 5 = strongly agree). The total score ranges from 0 to 25, with higher scores indicating greater satisfaction.

Table 7. Moderators of treatment outcome for BDI, MADRS, BSI, and DHS for PPT group.

	BDI-II			MADRS			BSI			DHS		
	F	*df*	*p* Value	*F*	*df*	*p* Value	*F*	*df*	*p* Value	*F*	*df*	*p* Value
Age	0.914	27, 16.683	0.594	1.121	11, 27.606	0.437	1.464	27, 17.155	0.207	1.120	27, 15.619	0.418
Gender	0.040	1, 43.613	0.843	1.897	1, 42.891	0.176	0.793	1, 42.938	0.378	0.738	1, 43.858	0.395
Education	0.124	2, 41.564	0.884	0.065	2, 39.936	0.937	0.274	2, 40.939	0.761	0.209	2, 40.809	0.812
Medication	0.138	1, 43.125	0.712	0.033	1, 41.383	0.857	0.215	1, 42.446	0.645	0.006	1, 42.242	0.940
Location	2.67	1, 43.184	0.110	2.059	1, 40.297	0.159	0.277	1, 42.213	0.601	1.381	1, 43.033	0.246
Comorbidity	0.002	1, 42.889	0.968	0.027	1, 41.381	0.870	0.672	1, 42.371	0.417	0.812	1, 43.032	0.372
Session *N*	0.860	9, 38.388	0.568	1.271	9, 39.101	0.283	1.311	9, 37.501	0.264	0.918	9, 39.733	0.520

Notes: PPT: Positive Psychotherapy; BDI: Beck Depression Inventory-II; MADRS: Montgomery-Asberg Depression Rating Scale; BSI: Brief Symptom Inventory; DHS: Depression-Happiness Scale

deterioration. In contrast, in the CBT condition, there were 7 (15.21%) participants who showed reliable deterioration and only 8 participants (17.39%) showed reliable improvements.

Montgomery Asberg Depression Rating Scale (MADRS). As illustrated in Figure 2, analyses indicated a significant main effect for time, $F_{(2,\ 144.35)} = 46.39$, $p \leq .001$. Pairwise comparisons revealed statistically significant decreases in observer-rated depressive symptoms on the MADRS score for both conditions at post-intervention, $p \leq .001$ for both PPT and CBT, and at the 6-month-follow-up, $p \leq .001$ and $p = .016$ respectively, compared to baseline. Furthermore, there was a statistically significant main effect of group, $F_{(1,\ 83.78)} = 10.07$, $p = .002$, showing that those in the PPT condition had statistically significant lower scores on depressiveness at post-intervention, $p = .002$, and at the 6-month-follow-up, $p = .008$, than those in the CBT condition. Reliable change (RCI) was observed in 50% of the PPT group and clinically significant improvement in 36.95% of the group, while no reliable deterioration was observed. In contrast, in the CBT condition, 39.13% of participants improved reliably and 8.7% showed clinically

significant improvement. In two patients (4.34%), reliable deterioration was observed.

3.2. Secondary outcome

Brief-Symptom-Inventory (BSI) – GSI. As illustrated in Figure 2, a statistically significant interaction effect between group x time was found, resulting in an F-value of $F_{(2,\ 142.76)} = 10.10$, $p \leq .001$, indicating that participants in the PPT condition showed less severe symptoms over time than participants in the CBT condition. The effect of time on the GSI was also statistically significant, $F_{(2,\ 142.76)} = 18.40$, $p \leq .001$. Pairwise comparisons revealed that in the PPT condition there was a reduction in symptom severity at post-treatment, ($t(38) = 7.11$, $p \leq .001$), as well as at the 6-month-follow-up, ($t(28) = 5.77$, $p \leq .001$), compared to baseline scores. In the CBT group, however, there was no statistically significant reduction of symptoms as evidenced by the GSI score over time. Moreover, the main effect for the group was statistically significant with an F-value of $F(_{1,\ 90.08)} = 11.55$, $p \leq .001$. At post-treatment as well as at the 6-month-follow-up, the PPT condition had statistically significant lower GSI scores than the CBT condition, $p \leq .001$ and $p = .003$, respectively. In the PPT group, reliable change (RCI) was detected in 41.30% of the participants, while no reliable deterioration was observed. In contrast, in the CBT condition only 19.57% of the participants improved reliably; however, 21.74%, showed reliable deterioration.

3.3. Satisfaction with applied interventions

Satisfaction with applied therapy. Results of the feedback questionnaire are summarized in Table 6. Generally, there was no statistically significant difference between the PPT and CBT group concerning overall satisfaction with the treatment received, $t(75) = .237$, $p = .13$, indicating that participants in both PPT and CBT groups were satisfied with their respective treatment with scores ranging in the upper part of the scale.

Going into more detail, there was no group difference in responses to the three following statements: (1) *the contents of the therapy sessions seemed logical to me* ($p = .91$), (2) *the topics of the therapy sessions seemed comprehensible to me* ($p = .21$), and (4) *the worksheets were user-friendly* ($p = .71$). Concerning item (3), *the worksheets had a logical structure* ($p = .07$), there was a tendency for higher scores in the CBT group, indicating that participants in the CBT condition tended to assess the worksheets more logical than participants in the PPT group. On the last item (5), *therapists' feedback seemed helpful to me*, however, there was a statistically significant group difference, $t(75) = 2.43$, $p = .017$, such that participants in the PPT condition considered therapists' feedback more helpful than participants in the CBT condition.

3.4. Moderators of outcome in PPT

LMM Analysis on moderators of the treatment outcome of PPT are presented in Table 7. None of the moderators were significant ($p = .11$ to $p = .97$) for any of the outcome measures (BDI-II, MADRS, DHS, and BSI), suggesting that baseline characteristics and the research site did not affect study results in any meaningful way.

4. Discussion

The present study aimed at investigating the efficacy of PPT in reducing depressive symptoms and common psychological distress in a large sample of Austrian people suffering from depressive disorders. Our findings indicated that PPT, which is based upon the assumption that depression can be treated effectively by building up positive resources (e.g. positive emotions, character strengths, and positive relationships), is effective in alleviating depressive symptoms for up to 6 months. This is the first study to date to compare the efficacy of PPT to the effects of the well-established Cognitive Behavioral Therapy (CBT) in a large sample of Austrian individuals undergoing group therapy. The present results clearly indicate the efficacy of PPT for treating depression, with effects lasting for at least 6 months. However, we only observed minor effects in the CBT condition, which is being discussed in detail later on.

The primary outcome of this study was the reduction of depressive symptoms. Findings indicated significant differences between treatment conditions at post-treatment and at the 6-month-follow-up for patient- and observer-rated depression scores. In all measures, PPT resulted in larger effects than CBT. Based on participants' self-report measures, PPT group participants had lower levels of depressive symptomatology over time than those in the CBT group. Furthermore, PPT showed consistently larger effect sizes compared to the CBT condition, which had small to moderate effects. Regarding observer-rated depressiveness, both conditions had significantly lower scores at post-treatment and at the 6-month-follow-up compared to baseline scores. Findings at post-treatment and at the 6-month-follow-up, however, revealed significant differences between conditions. Additionally, PPT had larger effect sizes than the CBT group, which had low to moderate effect sizes.

Regarding the secondary outcome measure, PPT resulted in significantly lower levels of overall psychological distress in terms of number and intensity of

symptoms at all measurement points compared to the CBT condition. Moreover, PPT indicated consistently higher effect sizes compared to CBT, the latter of which showed hardly any effect. Even though there were significant differences in the outcome measures, there was no significant difference between participants in the PPT and CBT conditions concerning overall satisfaction with applied therapy. None of the moderators tested was significant in any of the outcome measures. The current results are consistent with and provide empirical support to the body of evidence (e.g. Seligman et al., 2006) showing that depression cannot only be treated effectively by focusing on negative symptoms but primarily and even exclusively on positive resources and happiness. However, the present study advances research by demonstrating consistently high and stable effects for manualized, group-based PPT. Finally, this is, to our knowledge, the presently largest randomized controlled trial on PPT versus CBT in the treatment of depression (N = 92). Interestingly, the outcomes of PPT were even better than suggested by previous literature. Several reasons could be responsible for this surprising result; in our study, participants were not blinded to the treatment conditions. Being involved in a study with a new approach to treat depression may have alerted participants attitudes toward the topic and raised expectations or treatment preferences. Therefore, participants in standard CBT may have been disappointed regarding the outcome of randomization, leading to a potential nocebo effect. Contrary to expectations, remission rates and effect sizes for CBT were lower than those found in previous research (e.g. Asgharipoor et al., 2010; Chaves, Lopez-Gomez, Hervas, & Vazquez, 2017). A possible explanation is that treatment adherence was not systematically assessed but was checked instead by means of intensive and regular supervision by experienced supervisors and the therapists' protocol of each session. These protocols, however, suggest adequate adherence to treatment manuals in both groups. As treatment was provided by seven therapists with different experience levels, we additionally counterbalanced the therapists in order to control for the moderating role of therapists in terms of 'talented' or 'experienced' therapists. However, controlling for the therapists` experience did not change the general pattern of results. Another possible explanation could be that group processes within the respective treatment condition moderated its effectiveness. Group cohesion has a powerful impact on the treatment effects of group interventions (Yalom & Leszcz, 2005). Inharmonic group dynamics may influence an intervention's outcome, as people may not engage in the treatment as intensively as in a group with harmonic group dynamics. This was supported by the CBT therapists' feedback that in some groups there was low group cohesion and participants showed low engagement in homework. Therefore, this moderator should be incorporated in future studies. Finally, in our study, we did not identify any baseline characteristics that played a role in the efficacy of PPT, suggesting that PPT might operate independently from common patient characteristics, exerting a therapeutic effect regardless of patient demographics. The rather small sample size, however, limits this finding. As moderator variables are especially important to identify from an applied perspective to grasp an understanding of which individuals are more likely to benefit from PPT, further work in this field needs to be done.

4.1 Limitations

When interpreting our findings, however, several *limitations* have to be considered. In the following paragraphs, we discuss the main limitations. Due to ethical reasons, we could not prevent participants from seeking additional treatment during the follow-up period. Thus, follow-up findings must be interpreted with caution, because in this study we did not take into consideration whether participants made use of further psychotherapy or sought additional help within the post-treatment phase and at the 6-month-follow-up assessment. Consequently, the extent to which differences in help-seeking behavior has an impact on follow-up outcome measures cannot be inferred. It could be that any further (psycho) therapy within the 6-month follow-up period overestimated the sustainability of the treatments' effects.

Another limitation is that we did not include a control condition or a waiting-list control group, respectively. It would have been interesting to compare the treatment effects of PPT or CBT in relation to an untreated control group to control for spontaneous remission, for instance. In our study, however, people were asked to participate as an additional service within the institution. Due to that, it was not possible to implement a control condition without any treatment or a waiting-list control group.

The fact that group leaders were not randomly assigned to the intervention group could be seen as a further limitation that may have caused some bias. Assignment was primarily based on the group leaders' individual preference for the one or the other treatment or structural requirements of the respective institution. Due to these reasons, other group leaders' characteristics like therapeutic experience, personal engagement, or therapeutic abilities were not randomly assigned and thus may have impacted the results. In one of both

treatment conditions, group leaders with greater treatment expertise could have led to better outcomes. To minimize this potential bias, we counterbalanced therapists as much as possible.

Furthermore, MADRS assessors were not blinded to treatment allocation, and therefore we cannot rule out observer biases in clinician-rated depressiveness. However, the results were similar for observer- and patient-rated outcomes. Moreover, one of the study's authors (LF) was involved in the treatment and its evaluation, thereby heightening the risk of bias. To minimize such biases, multiple preventive steps were taken: First, all specifications were met beforehand, and screenings, and randomization as well as all questionnaires were applied by different independent study assistants. Besides, data were collected anonymously. Additionally, the study was conducted at two independent centres and LF was not involved in the treatment and assessment in Salzburg at all. Comparisons between both study sites did not yield different outcome patterns.

Lastly, there was a loss of subjects and missing data in both groups. Eighteen percent of the sample dropped out at post-assessment and 29% dropped out during the 6-month follow-up. However, as linear mixed-models are robust against missing data (Snijders & Bosker, 2011) and dropout was equally distributed, the principal study findings should hold true.

4.2 Conclusion

In summary, our findings support the assumption that depression can be treated effectively not only by reducing its negative symptoms but primarily and even exclusively by building positive resources. We successfully replicated the findings of Seligman et al. (2006) and other authors (e.g. Asgharipoor et al., 2010) on PPT's efficacy in treating depression. Furthermore, this study advances existing research by demonstrating consistently large effect sizes. At the same time, we did not identify any moderators of treatment success, suggesting PPT might operate independently from common patient characteristics, exerting a therapeutic effect regardless of such characteristics. However, the small sample size restricts the generalizability of this finding and putative moderators should be investigated using a meta-analytic strategy. An important study limitation was that the effects of group-based CBT were smaller than expected. Therefore, more comparative studies are required to further establish the efficacy of PPT.

We do not believe, however, that the effect of PPT is specific to depression, and we expect that increasing positive resources is a means of buffering against a variety of mental health disorders and issues. Therefore, we strongly suggest that further research investigates the efficacy of PPT in the treatment of other emotional disorders. Moreover, research on the long-term sustainability of these effects is necessary.

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