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ORIGINAL PAPER

Cognitive Behavioral Analysis System of Psychotherapy as group psychotherapy for chronically depressed inpatients: a naturalistic multicenter feasibility trial

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Abstract The Cognitive Behavioral Analysis System of Psychotherapy (CBASP) is a relatively new approach in the treatment of chronic depression (CD). Adapted as group psychotherapy for inpatients, CBASP is attracting increasing attention. In this naturalistic multicenter trial, we investigated its feasibility after 10 sessions of CBASP group therapy over a treatment time of at least 5 to a maximum of 10 weeks. Treatment outcome was additionally assessed. Across four centers, 116 inpatients with CD (DSM-IV-TR) attended CBASP group psychotherapy. Feasibility was focused on acceptance, and evaluated for patients and therapists after five (t1) and ten sessions (t2) of group psychotherapy. Observer- and self-rating scales (Hamilton Depression Rating Scale—24 items, $HDRS_{24}$; Beck Depression Inventory-II, BDI-II; World Health Organization Quality of Life assessment, WHOQOL-BREF) were applied before group psychotherapy (t0) and at t2. Dropouts were low (10.3%). Patients' evaluation improved significantly from t1 to t2 with a medium effect size ($d = 0.60$). Most of the patients stated that the group had enriched their treatment (75.3%), that the size (74.3%) and duration (72.5%) were 'optimal' and 37.3% wished for a higher frequency. Patients gave CBASP group psychotherapy an overall grade of 2 ('good'). Therapists' evaluation was positive throughout, except for size of the group. Outcome scores of $HDRS_{24}$, BDI-II, and WHOQOL-BREF were significantly reduced from t0 to t2 with medium to large effect sizes ($d = 1.48$; $d = 1.11$; $d = 0.67$). In this naturalistic open-label trial, CBASP, when applied as inpatient group psychotherapy, was well accepted by patients and therapists. The results point towards a clinically meaningful effect of inpatient treatment with CBASP group psychotherapy on depression and quality of life. Other potential factors that could have promoted symptom change were discussed. A future controlled study could investigate the safety and efficacy of CBASP group psychotherapy for inpatients.

Keywords Chronic depression · Depression · Cognitive Behavioral Analysis System of Psychotherapy · CBASP · Group psychotherapy · Inpatient · Feasibility

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Introduction

Of all the depressed patients, 20–35% develop a chronic form with a duration of at least 2 years [1–3]. Chronic depression (CD) is widespread with approximately 3–6% lifetime prevalence rates in community and primary care

samples [4]. Yet, despite many patients suffering from CD, specific treatment strategies remain underdeveloped. A modern approach particularly developed for the specific psychopathology of this patient group is the Cognitive Behavioral Analysis System of Psychotherapy [CBASP; 5]. CBASP is based on different psychological theories [6–12] and integrates treatment strategies from cognitive, behavioral, interpersonal, and psychodynamic schools of psychotherapy. In a large multicenter study in the USA, CBASP showed to be most effective in combination with antidepressant medication [13]. In a reanalysis of the original data, CBASP as monotherapy yielded better results than the prescribed antidepressant medication alone [14]. A recent meta-analysis of six randomized controlled trials (RCTs) showed further supporting evidence for CBASP [15]. Furthermore, the latest published study on chronically depressed outpatients yielded a moderate effect favoring individual CBASP over nonspecific supportive psychotherapy [16]. Administered in its form as group psychotherapy for outpatients, CBASP has also proved its efficacy [17]. Thus, in the European Psychiatric Association Guidance on psychotherapy for CD, CBASP is highly recommended [18]. Originally developed by James McCullough as individual psychotherapy for outpatients, it has been modified for group psychotherapy [19] and is currently used at various psychiatric settings in Europe, especially Germany, where it is delivered as an individual as well as group psychotherapy for inpatients [20, 21]. CD is characterized by heightened treatment-resistance, suicidality, and psychiatric comorbidities [4, 22–24], outlining the importance for an intense and specific treatment which can be delivered at inpatient settings. Group psychotherapy is considered to be effective [25–30] and cost efficient, particularly in the case of depression [31]. Hence, it is regularly used in German psychiatric and psychosomatic hospitals and inpatient clinics [32, 33]. Brakemeier et al. (2015) showed that an intense multidisciplinary 12-week CBASP inpatient program for CD led to a clinically relevant effect size, high rates of response (75.7%), and remission (40.0%) [21]. To our knowledge, this is the first trial examining the feasibility (acceptance) of CBASP as group psychotherapy for inpatients across different settings. The construct feasibility is used for a study which aims to determine whether an intervention is appropriate for further (RCT) testing [34]. Before investigating the efficacy of CBASP group psychotherapy, we wanted to examine to what extent CBASP administered in a group format to inpatients is accepted by both program recipients and deliverers. In line with Bowen et al. [34], we understand acceptability, amongst others, being one common measure of feasibility, which centers on the question of how patients and therapists react to the implemented program.

Methods

Patients

116 patients were recruited from 2010 to 2014 (see flow chart of patient recruitment Online Resource A1), at the Department of Psychiatry and Psychotherapy at the University of Freiburg, at the Section of Psychosomatic Medicine and Psychotherapy at the Department of Psychiatry and Psychotherapy at the University of Munich, at the Department of Psychiatry and Psychotherapy at the Philipps-University Marburg, and at the AMEOS Clinic Dr. Heines in Bremen. Each site ensured ethical approval for the study by their local research ethics committee. Patients were informed about the study and provided a written consent. The sample consisted of 116 inpatients meeting a diagnosis of CD according to DSM-IV-TR [35], age range 18–75 years and scoring above 14 on the $HDRS_{24}$ and/or above 12 on the BDI-II. We excluded patients experiencing acute suicidality, those diagnosed with bipolar disorder, or those who had a principal diagnosis of panic disorder, generalized anxiety disorder, social phobia, posttraumatic stress disorder, or any substance abuse or dependence disorder (except nicotine). Treatment-resistance of CD, i.e., inadequate response to at least two antidepressant medication trials and/or to two completed antidepressant psychotherapy trials (CBT, psychodynamic or analytical psychotherapy), of at least 22 sessions was recorded in a patient documentation form, but was not an exclusion criteria.

CBASP group psychotherapy for inpatients

The study centers received a manual on CBASP group psychotherapy written by Brakemeier and Normann [20]. The manual is based on CBASP by McCullough [5], but modified for inpatient group sessions. Requirements for CBASP group psychotherapy were that the group took place at least once and to a maximum of twice a week, the duration was not less than 90 min, and the group was half-open for a minimum of four and up to a maximum of twelve patients. The group was delivered by a therapist trained in CBASP and a co-therapist. CBASP group psychotherapy for inpatients involves, besides an opening round at the beginning and a closing round at the end, two main therapeutic techniques: training and applying the *Situational Analysis* (SA) and working with *Kiesler's Interpersonal Circle*. The SA [36] is the main therapeutic technique in CBASP group psychotherapy applied in a six + four-step procedure in the form of the Coping Survey Questionnaire. At the beginning of each session during the introduction phase, an interpersonal problem of a single group member is selected to be worked through using SA. Firstly, the Elicitation Phase comprises six steps whereby the problem is described from different

angles, mainly cognitive and behavioral. This is followed by the Remediation Phase characterized by four steps in which new cognitive insights and behaviors are suggested by role-playing the interpersonal situation. In addition, participants are taught the Circumplex Model by Kiesler [37], where they learn to understand how reciprocal behaviors are elicited during interactions, as well as appreciating that chronically depressed people often use maladaptive strategies of hostile–submissive behavior that elicit personally unsatisfactory reactions from others. Across all sites, patients stayed 1 week on the unit before participating in CBASP group psychotherapy. Group sessions lasted between 90 and 120 min, and took place 1 or 2 times a week (more details see below).

Study centers

Study centers differed in respect of the inpatient settings on the units, with a number of variables. For specifications refer to Table 1.

As the study had a naturalistic design, CBASP group psychotherapy was implemented in different ways in the study centers. Study center 4 started with two sessions per week for 90 min. Study centers 1, 2, and 3 with only one session with 105 min, 105–120 min, and 90 min, respectively. Study centers 1 and 2 increased their amount of sessions per week to two sessions, and in study center 1, the duration of each session was consequently reduced to 100 min. On each site, CBASP group therapy was delivered by two therapists with the exception of study center 3, where only one therapist delivered the group. Group sizes also varied between study centers with eight to ten patients in study center 4, seven to nine patients in study center 1 and eight patients in study center 3. Study center 2 started with between five and nine patients at the beginning, but increased the number of patients in the course to twelve.

Assessments

Personality disorders and personality disorder traits were assessed using the SCID-II [39]. Besides the full diagnosis, personality disorder traits can be assessed with the SCID-II as a dimension through a so-called D-score by adding up the raw scores for each personality disorder. In this study, a personality disorder trait was fulfilled when ≥50% of the highest possible D-score has been met. The Childhood Trauma Questionnaire [CTQ; 40] was applied in the assessment of traumatization caused by human relationship experiences in childhood. The CTQ is a 28-item retrospective self-report measurement, which assesses three types of abuse: emotional, physical, and sexual abuse, and two types of neglect: emotional, and physical neglect. Answers are given on a five-point Likert scale from 1 to 5 with scores ranging from 5 to 25. Cut-off scores are provided for each area of traumatization indexing the severity [41], while we used levels of at least 'moderate to severe' as an indicator of the presence of trauma. The applied German version has been developed providing good reliability and validity [42].

A 26-item Patient Evaluation Form (PEF) has been designed by Brakemeier, Strunk, Normann and Schramm (2010; unpublished; Online Resources A2) to measure patients' acceptance and feasibility of CBASP group psychotherapy in an inpatient setting. The PEF was completed

Table 1 Characteristics of study centers

Characteristics	Study center 1	Study center 2	Study center 3	Study center 4
Individual psychotherapy per week	2 × CBASP	2 × CBT or CBASP	2 × CBT or CBASP	1 × CBT or CBASP or PP
Pharmacotherapy[a]	√	√	√	√
Nurses trained in CBASP[b]	√	√	–	√
Psychoeducational interventions	√	–	√	√
Art therapy	√	Half of patients	–	√
Music therapy	Half of patients	Half of patients	–	–
Occupational therapy	√	–	√	√
Additional services offered	'CBASP Do it yourself'-behavioral activation strategy; leisure facilities, AT, PMR, exercise and sports programs	Acupuncture, monthly excursion, PMR, exercise and sports programs	AT, eutony, PMR, exercise and sports programs	Eutony, Qi Gong, breathing therapy, social skills training, PMR, exercise and sports programs

CBT cognitive behavioral psychotherapy, *CBASP* cognitive behavioral analysis system of psychotherapy, *PP* psychodynamic psychotherapy

[a] Patients in all study centers were treated with pharmacotherapy following the therapeutic recommendations of the current German National Health Policy guideline for unipolar depression [38]

[b] All units had a primary nursing system, *PMR* progressive muscle relaxation, *AT* autogenic training

right after the fifth (t1) and tenth (t2) group session. The first 17 items of the PEF are measured on a six-point Likert scale from −3 to +3 concerning several common factors of group psychotherapy, such as an individual's comfort in group settings or specific factors of the CBASP approach, e.g., evaluating Kiesler's Circumplex Model.

In our sample the PEF ($n = 65$) showed excellent internal consistency with .95 (Cronbach's α) and good test–retest reliability with $r = .81$ (refer also to results for item analysis in Online Resources A3). Items 18 to 21 aimed to evaluate the setting and are based on items of a questionnaire for a psychoeducational group therapy for inpatients [43]. These items are scored on a nominal scale. Finally, items 22–26 range from 1 to 6 on a Likert scale, using the German grading system (1='very good' to 6='insufficient'). These evaluate (1) patient's motivation and engagement in group psychotherapy; and (2) ask for an overall mark for the group psychotherapy. To test acceptability, we used the PEF questions regarding the psychotherapy setting for testing whether patients would evaluate the group as 'optimal' after ten sessions of group psychotherapy. Furthermore, we tested if patients gave the treatment at least an overall mark of 2. In addition, non-completers were recorded. In line with the literature, we tolerated a maximum number of 15% of dropouts to be an indicator of acceptance [27].

The Therapist Evaluation Form (TEF) is similar to PEF, and was completed by all therapists delivering the CBASP group psychotherapy. The TEF parallels the PEF and is a 19-item questionnaire designed by Brakemeier, Strunk, Schramm and Normann (2010; unpublished data). It is comprised by 11 items scored on a six-point Likert scale ranging from −3 to +3. These items aim to evaluate (1) the quality of the manual, (2) the necessary workload for the group therapy as well as (3) the usefulness of the specific treatment techniques, i.e., the SA and Kiesler's Circumplex Model. Cronbach's α for the TEF was .80 showing good internal consistency (refer also to 'results for item analysis' in Online Resources A3). Items 12–14 are equivalent to PEF's items evaluation of setting conditions and are also on a nominal scale. The final items (15–19) are scored on a six-point Likert scale, inquiring about the therapists' (1) motivation and engagement in the delivery of group therapy, (2) the group atmosphere and (3) asking for an overall mark for the group therapy. We applied the TEF to test the question if CBASP group psychotherapy was accepted by the therapists, and hypothesized that the majority will evaluate the setting as being 'optimal' and will give the group psychotherapy at least an overall mark of 2 (good).

Clinical primary outcome measure served the Hamilton Depression Rating Scale—24 item version [$HDRS_{24}$; 44]. The HDRS is the most commonly used clinician-administered scale measuring symptoms of depression as experienced in the previous week. The applied German version [45] has been extended by three items and implemented in the study by Keller et al. [13]. Response and remission rates according to $HDRS_{24}$ were reported, while remission was defined as a $HDRS_{24}$ score of 10 or less and response as a reduction of 50% or more in the $HDRS_{24}$ score from baseline.

Secondary clinical outcome measure was the Beck Depression Inventory—revised version [BDI-II; 46]. The BDI-II is a self-report instrument comprising 21 items based on DSM-IV criteria of major depressive disorder. It is widely used and its applied German version possesses good psychometric properties [46]. We also analyzed quality of life as a secondary clinical outcome, as assessed by the short version of the World Health Organization Quality of Life assessment [WHOQOL-BREF; 47]. Answers are given on a five-point Likert scale. The WHOQOL-BREF contains two items from the 'overall quality of life', and 'general health' domains of the longer WHOQOL-100, and 24 items each corresponding to the 24 factors of the WHOQOL-100. The 24 items are clustered into four further domains: physical health, psychological health, social relationships, and environment. All outcome measures were applied at baseline before start of the group psychotherapy (t0) and repeated after the tenth group session (t2).

Statistics

Paired *t* tests were calculated for PEF change in evaluation (items 1–17, 22–25) between points of measurement. Chi-square goodness-of-fit tests were applied to categorical data of the PEF (item 18–21) investigating the acceptance and the setting of CBASP group psychotherapy. Paired *t* tests were also conducted for clinical outcome measures. Effect sizes were calculated using Cohen's *d* [48] by dividing the difference of the within-group means by the pooled standard deviation. For clinical outcome measures, analyses were repeated for the intention-to-treat (ITT) sample. As post-treatment data for ITT analysis which was missing completely at random (MCAR) as confirmed by Little's MCAR test, missing data were replaced by multiple imputation (5 iterations) with estimation–maximization (EM) algorithm. Two semi-partial correlations were calculated between the PEF (items 1–17) at t1 and t2 and the primary outcome measure of depression ($HDRS_{24}$). Increases in the strength of the correlation were compared using the Meng's test [49]. *T* tests for single items of the PEF were Bonferroni corrected, applying an alpha level of $p < 0.003$ for items 1–17 and $p < 0.0125$ for items 22–25. *T* tests for the five subscales of the WHOQOL-BREF also used a corrected alpha level of $p < 0.01$. All other statistical tests were calculated with an overall alpha level of .05. All tests were two-tailed. Statistical analyses were performed using SPSS version 22 [50].

Results

Baseline patient characteristics

The sample consisted of 116 CD inpatients, of which 41.4% suffered from a double depression or recurrent major depression (39.7%), according to DSM-IV-TR (Table 2). $HDRS_{24}$ scores before the start of group psychotherapy were 28 points on average and thus bordering on severe depression (severe depression ≥ 30); BDI-II scores before first session of group psychotherapy were in the severe range with 32 points on average. In summary, 64.7% of the study sample suffered from an early onset depression, 72.4% reported being traumatized in childhood, 90% reported having suicidal thoughts and 31.0% reported an attempted suicide in the past. Almost half of the sample (48.4%) was diagnosed with a comorbid personality disorder, of which avoidant personality disorder (30.4%) and depressive personality disorder (28.4%) were the most frequent ones. The majority of the sample showed marked personality disorder traits (90.3%). 79 patients (77.4%) were classified as treatment-resistant to psychotherapy (12.7%), pharmacotherapy (15.7%) or both (49%). Treatment-resistance was defined according to Rush and Thase [51] as an inadequate response to two antidepressant trials of adequate doses and duration. The definition was used accordingly for treatment-resistance of psychotherapy for at least two completed antidepressant psychotherapy trials (CBT, psychodynamic or analytical psychotherapy) of at least 22 sessions.

Therapist characteristics

The sample of therapists administering CBASP group psychotherapy in the study centers consisted of 16 therapists, of which 14 were female. Mean age was $M = 32.69$ (SD = 7.06) years. Most of the therapists (13) were psychologists, while three were medical doctors. Overall, 68.8% were in advanced level of professional training or had already completed it. General clinical experience was $M = 55.4$ months (SD = 62.81) on average.

All therapists were initially trained in workshops by a licensed CBASP therapist for delivering CBASP group psychotherapy and started out as co-therapists in the CBASP group. Therapists had weekly CBASP supervision, and were supervised on a regular basis by the study investigator (ELB). Before CBASP training, therapists had an overall average experience in working with CBASP of $M = 15.79$ months (SD = 11.16) ranging from 0 to 40 months.

Feasibility (acceptance)

12 patients (10.3%) did not complete ten sessions of group psychotherapy and were thus considered as dropouts. Of these, four stopped their treatment on the unit, five did not attend the group psychotherapy regularly (more than two times absent), two proceeded with therapy but declined to fill out further questionnaires, and one was transferred to a closed unit due to a suicidal crisis, leaving 104 (89.7%) patients who completed ten sessions of CBASP group psychotherapy. There were no statistical differences between completer and non-completer on variables of severity of the illness ($HDRS_{24}$ and BDI-II baseline scores, personality disorders and personality disorder traits, and duration of index episode or CTQ sum scores).

70 patients[1] completed the PEF at the two measurement times t1 ($M = 58.53$, SD = 12.01) and t2 ($M = 65.60$, SD = 11.52). Patients' acceptance (items 1–17) increased over the course of group therapy [$t(69) = 6.70$, $p \leq 0.001$] with a medium effect size ($d = 0.60$). For single items, refer to Fig. 1.

101 patients answered PEF's questions at t2. Regarding the setting (items 18–21), no patient felt CBASP group psychotherapy had interfered with their overall treatment program. Goodness-of-fit test showed that 75.3% of patients believed CBASP group psychotherapy had enriched their treatment, which was the most significantly selected answer ($X^2 = 25.00$, $DF = 1$, $p \leq 0.001$). There was no difference between study centers for this item ($X^2 = 0.13$, $DF = 3$, $p = 0.988$).

Overall, 74.3% stated that the size of the group was 'optimal', which was the most significantly preferred answer ($X^2 = 75.38$, $DF = 2$, $p \leq 0.001$). The study centers also equaled in their given answer ($X^2 = 6.92$, $DF = 6$, $p = 0.323$).

72.5% felt the duration of sessions was 'optimal'; again, this was the significantly preferred answer ($X^2 = 68.99$, $DF = 2$, $p \leq 0.001$), but there were differences for this answer between study centers ($X^2 = 32.32$, $DF = 6$, $p \leq 0.001$). In center 2 for 29%, the duration of group sessions seemed to be too long, while in study center 1 only 7.9% and in study center 3 only 5.3% stated that they seemed to take too much time. In center 4, no one answered that sessions were too long, but half of the patients (50%) reported that they were too short.

[1] We received the PEF ($n = 101$) of almost all patients completing the 10 group sessions. However, we had a smaller sample after 5 sessions (t1) as we handed out the questionnaires and did not receive them back or failed to follow up on this. This left 70 for comparison of t1 and t2.

Table 2 Baseline characteristics of the study sample ($n = 116$)

Characteristics	
Age, years; *M* (SD)	45.16 (11.87), range 19–71
Sex, female; *n* (%)	69 (59.5)
Marital status: in a relationship/married; *n* (%)	52 (44.8)
Level of education[a]; *n* (%)	
High	50 (43.1)
Intermediate	42 (36.2)
Low	24 (20.7)
Training qualification[b]; *n* (%)	
High	26 (22.4)
Intermediate	5 (4.3)
Low	85 (73.3)
Employed; *n* (%)	41 (35.3)
Diagnosis of CD according to DSM-IV-TR; n (%)	
Double depression	48 (41.4)
Chronic major depression	18 (15.5)
Recurrent major depression without complete inter-episode recovery	46 (39.7)
Dysthymic disorder	4 (3.4)
Comorbid personality disorder[c]; *n* (%)	45 (48.4)
Comorbid personality disorder trait[d]; *n* (%)	84 (90.3)
$HDRS_{24}$ at baseline[e]; *M* (SD)	28.17 (7.62), range 8–52
BDI-II at baseline[f]; *M* (SD)	32.39 (9.47), range 10–54
Duration of index episode, months; *M* (SD)	83.83 (117.43), range 2–600
Number of episodes in the past; *M* (SD)	2.66 (2.50), range 0–20
Earlier inpatient treatments; *M* (SD)	2.02 (2.16), range 0–12
One or more suicide attempts; *n* (%)	36 (31.0)
Suicidal thoughts[g]; *n* (%)	102 (90.3)
Treatment-resistance[h]; *n* (%)	
Psychotherapy only	13 (12.7)
Pharmacotherapy only	16 (15.7)
Psychotherapy and pharmacotherapy	50 (49.0)
Overall	79 (77.4)
Early onset depression[i]; *n* (%)	75 (64.7)
Early trauma[j]; *n* (%)	84 (72.4)

Results for intent-to-treat sample ($n = 116$), *M* mean, *SD* standard deviation

[a] High = "university-entrance diploma", Intermediate = "secondary school level I certificate", Low = "certificate of secondary education or no certificate"

[b] High = "university/university of applied sciences", Intermediate = "master school", Low = "apprenticeship or no qualification"

[c] Personality disorder = fulfillment of SCID-II criteria [39]

[d] Personality disorder trait = ≥50% of the maximum SCID-II D-Score

[e] Patients with a nonclinical $HDRS_{24}$ score but a clinical BDI-II score ($n = 4$) were included

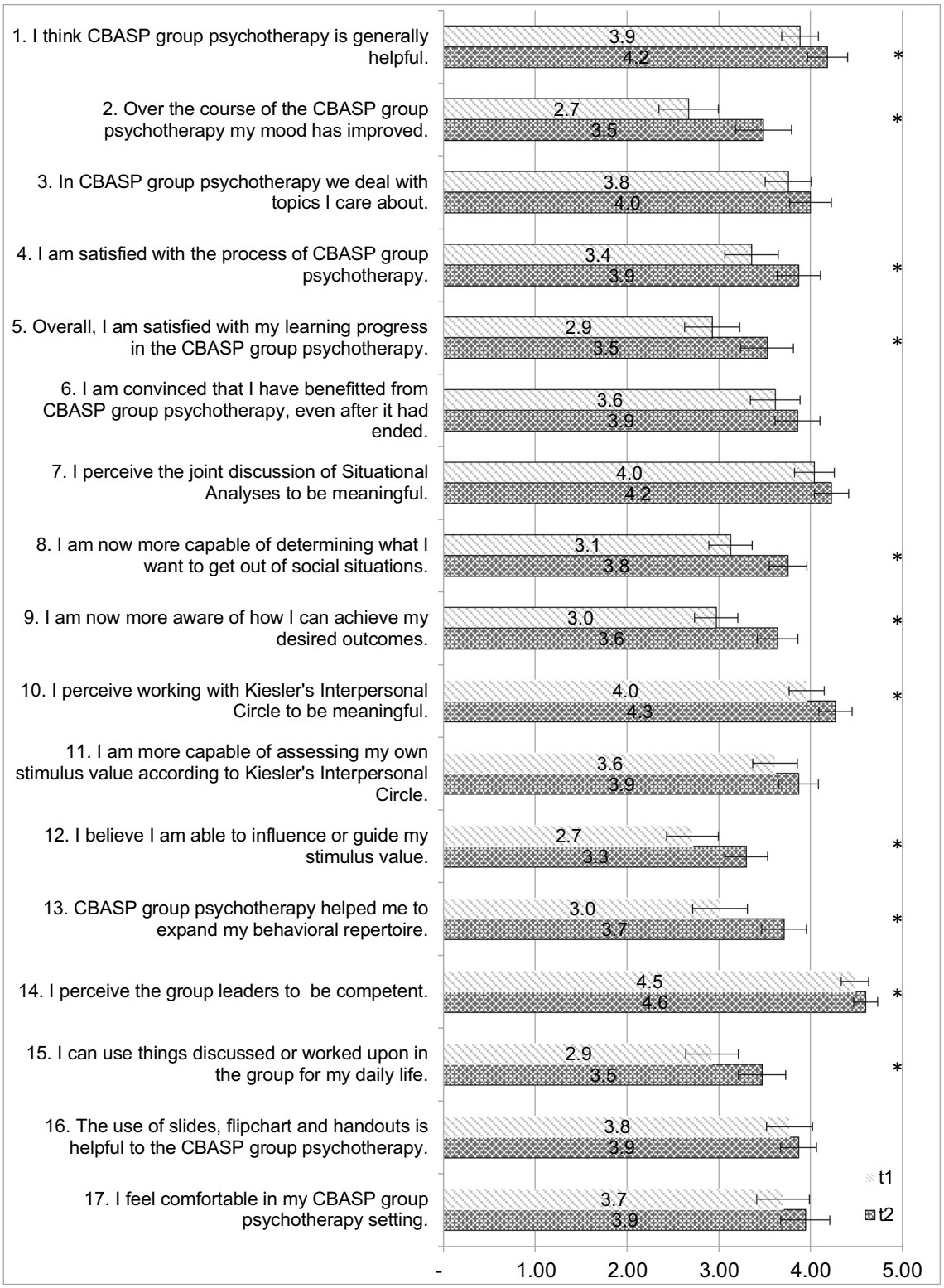
[f] Patients with a nonclinical BDI-II score but a clinical $HDRS_{24}$ score ($n = 2$) were included

[g] At least 1 on item number 9 of the BDI-II [46]

[h] Self-reported inadequate response to two antidepressant trials and/or to two completed psychotherapies (CBT, psychodynamic or analytical psychotherapy) of at least 22 sessions [51]

[i] Before age 21 years

[j] At least 'moderate to severe' on one subscale of the CTQ [41]



Note. Results for 70 patients filling out the PEF at both time points (t1 and t2); scale: 0 (strongly disagree), 1 (disagree), 2 (somewhat disagree), 3 (somewhat agree), 4 (agree), 5 (strongly agree); error bars represent 95% confidence interval (CI) of the mean; *p < 0.003 for items: 1, 2, 4, 5, 8, 9, 10, 12, 13, 14, 15.

Fig. 1 Evaluation of CBASP group psychotherapy with the PEF (item 1–17) after five (t1) and ten sessions (t2) of CBASP group psychotherapy ($n = 70$)

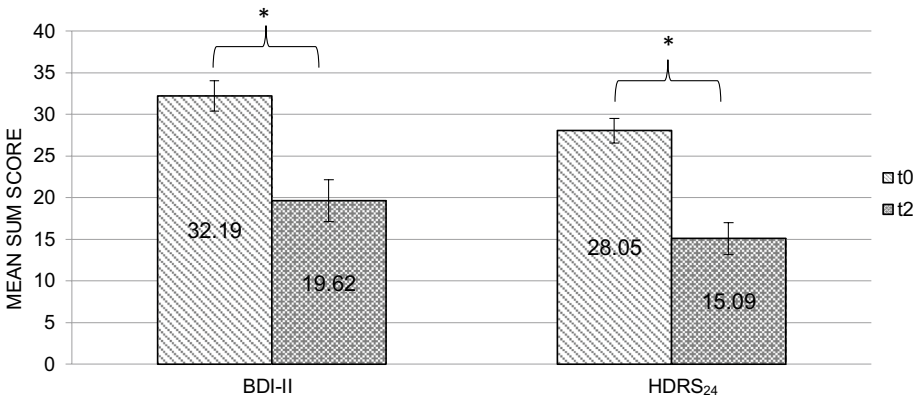


Fig. 2 Change in depression scores from before the start of group psychotherapy (t0) and after ten sessions (t2) of CBASP group psychotherapy for BDI-II ($n = 104$) and $HDRS_{24}$ ($n = 104$)

Note. Results for 104 patients completing the treatment (12 dropouts); error bars represent 95% confidence interval (CI) of the mean; *p < 0.05.

62.7% judged that the frequency of group therapy sessions to be 'optimal'. This was the significantly preferred answer ($X^2 = 54.02$, $DF = 2$, $p \leq 0.001$). Patients of the study centers answered similarly ($X^2 = 9.73$, $DF = 6$, $p = 0.137$). In study center 1 where the group started out with one session per week, 50% of patients declared the frequency as being too low. However, in study center 3 where the group therapy was also delivered only once a week, 21.1% answered that the frequency was too low.

The PEF items 22–25 enquired about patient's motivation and commitment on a scale based on the German grading system. The items 'My own motivation for CBASP group psychotherapy' ($M = 2.23$, SD = 0.99), 'My own contribution during CBASP group sessions' ($M = 2.43$, SD = 1.08), 'My personal commitment to continue training and/or exploration of specific topics in between CBASP group sessions' ($M = 2.86$, SD = 1.06), and 'Mutual support of group members' ($M = 2.35$, SD = 1.13) were answered with a grade of 2 ('good') to 3 ('satisfying'). *T* tests were calculated for each single item. However, patients only judged their own contribution during CBASP group sessions as being significantly better from t1 to t2 [t(70) = 2.83, $p = 0.006$]. On the final item of the PEF (item 26), patients gave CBASP group psychotherapy an overall mark of 2 ('good'; $M = 1.96$, SD = 0.80) at t2.

Therapists' ($n = 16$) acceptance as measured by the TEF was thoroughly positive. Most of the therapists were confident about the duration (93.8%) and frequency (87.5%) of the group sessions. However, two-third of the therapists (62.5%) found that the size of the group was too large. This was the predominant answer by therapists from the study center 2, where the group included 12 patients. Therapists also answered very positively to the questions regarding their own motivation and commitment for delivering CBASP group psychotherapy and graded it with 1 ('very good') and 2 ('good'), giving an overall mark for CBASP group psychotherapy of 1.6.

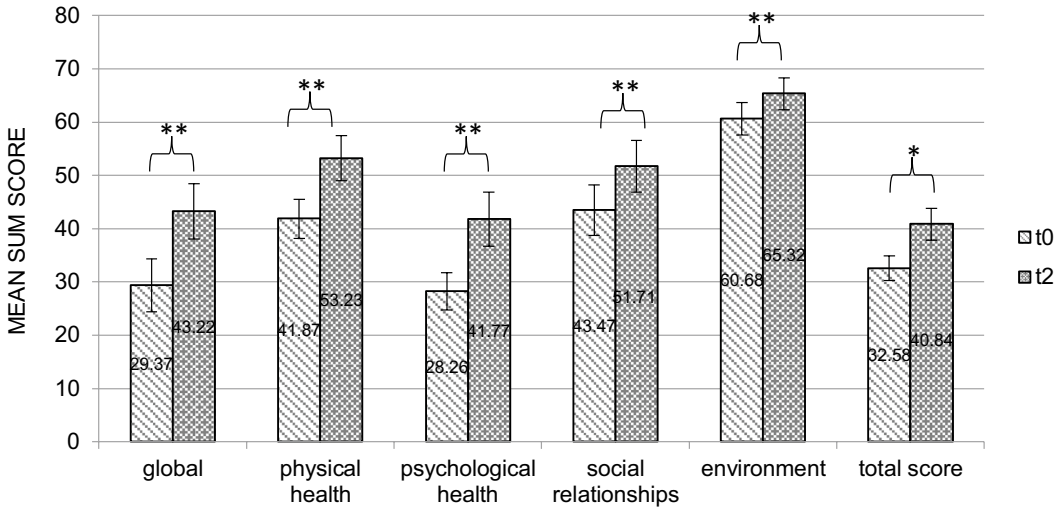
Outcome measures

Results for the observer-rated symptoms as measured by the $HDRS_{24}$ showed that participants improved significantly over time from 'moderately' ($M = 28.05$, SD = 7.60) to 'mildly' depressed ($M = 15.09$, SD = 9.83) between t0 and t2 [t(103) = 12.90, $p \leq 0.001$] with a large effect size of $d = 1.48$. The *t* test of the BDI-II scores for the completer sample revealed that patients' self-reported depressive symptoms decreased from 'severe' ($M = 32.19$, SD = 9.42) to 'mild-moderately' ($M = 19.62$, SD = 12.98) between t0 and t2 [t(103) = 9.98, $p \leq 0.001$] with a large effect size of $d = 1.11$ (Fig. 2). The analysis was repeated for $HDRS_{24}$ and BDI-II for the ITT sample and remained statistically significant [$HDRS_{24}$: t(3226) = 12.71, $p \leq .001$; BDI-II: t(386) = 10.40, $p \leq .001$].

In the ITT sample, 39 patients (33.6%) fulfilled criteria for remission ($HDRS_{24} \leq 10$) and 50 (43.1%) fulfilled criteria for response (decrease in symptom severity of ≤50% on $HDRS_{24}$) at t2. In the completer sample, 39.0% received full remission and 50% responded.

Quality of life scores could be retrieved at t0 and t2 for study centers 1, 2, and 4 ($n = 83$).[2] These indicated a significant improvement in patients' subjective quality of life according to WHOQOL-BREF scores [t(82) = −5.93, $p \leq 0.001$] and a medium effect size ($d = 0.67$). The analysis was repeated for the ITT sample and remained statistically significant [t(489) = −5.88, $p \leq .001$]. Figure 3 shows scores for each domain of the WHOQOL-BREF.

[2] We had to exclude patients in study center 3, because the study center deviated from the protocol and failed to let the questionnaire being filled out at t2.



Note. Results for 83 patients filling out the WHOQOL-BREF at both time points (t0 and t2) in study centers 1, 2, and 4; patients in study center 3 did deviate from the protocol and did not fill out the questionnaire at t2; error bars represent 95% confidence interval (CI) of the mean; **p < 0.01; *p < 0.05.

Fig. 3 Change in quality of life scores from before the start of group psychotherapy (t0) and after ten sessions (t2) of CBASP group psychotherapy for WHOQOL-BREF ($n = 83$)

Depression scores and acceptance

As acceptability ratings (PEF items 1–17) changed over the course of CBASP group psychotherapy, as did the scores of depression, we decided to calculate the correlation between evaluation of group psychotherapy at t1 and depression severity by $HDRS_{24}$ at t2, partialling out the influence of the level of depression at t0. A weak relationship was yielded with $r = -.40$, $p = 0.001$ for the acceptance rating at t1 and stronger medium relationship with $r = -.52$, and $p \leq 0.001$ for the acceptance rating at t2, indicating that the better patients rated the group psychotherapy the lower their depression scores were (shared variance = 27%). Even though there was a tendency towards a higher correlation between depression scores and evaluation of group psychotherapy after 10 sessions compared to after only 5 sessions of group therapy, this did not reach significance ($Z = 1.21$, $p = 0.225$).

Discussion

The primary aims of this multicenter study were to examine feasibility, specifically acceptance of the treatment, and the outcome after ten sessions of CBASP as a group treatment embedded in an inpatient setting over a treatment time of a maximum of 10 weeks.

The question if CBASP group psychotherapy is accepted by the patients was tested with the hypothesis that the dropout rates of CBASP group psychotherapy are below 15%. This chosen percentage of dropouts was based on other group psychotherapy studies for depression [27]. The number of dropouts in this study was lower (10.3%), thus pointing towards acceptance. Applied therapeutic techniques, organizational setting, as well as motivation and engagement were assessed by patients and therapists via questionnaires of PEF and TEF, respectively, to grade treatment. Patients answered all questions positively throughout. Regarding the overall score (items 1–17), answers were significantly more positive after ten sessions (t2) compared to after five sessions (t1) of group psychotherapy. The largest improvement from t1 to t2 was noted in the patient's mood (item 2: 'Over the course of the CBASP group psychotherapy, my mood has improved'). However, it was apparent that those items that were more general or that regarded the evaluation of others were the five most positively answered items at t2 (items 14, 10, 1, 7, 3). Depressive patients are biased in their view of themselves versus others. Compared to non-depressed subjects, depressed participants tend to be more positive when judging others [52–54]. Following this trend of a better assessment of others, the best-ranked item was for how the patients perceived their group therapists' competence (item 14). The last five items with the lowest score involved the active stance of the patients and were self-evaluative (item 12, 2, 5, 15), e.g., 'Overall I am satisfied with my learning process in the CBASP group psychotherapy' (item 5). The lower scores on these items could be caused by chronically depressive patients who are worse in actively engaging in group psychotherapy, or judge themselves as less active and participative due to a negative self-concept (negative

self-evaluation bias), as originally described in the cognitive theory of depression by Beck [55] and later empirically supported [56].

It was also hypothesized that majority of patients would evaluate the setting of CBASP group psychotherapy as being 'optimal'. We found that most patients (75.3–62.7%) were satisfied with the setting regarding synergy with other therapies, size of the group, duration of the group session, and frequency of group sessions. Therefore, we conclude that CBASP group psychotherapy was accepted by these inpatients.

There were differences in patients' evaluation in study centers regarding the duration of the group. In study center 2, sessions lasted between 100 and 120 min, and of these patients approximately one-third answered that the duration was too long, while in study center 4 where sessions lasted only 90 min, half of the patient sample stated that the sessions were too short. The duration of sessions in study center 1 and 3 with 105 min was criticized as taking too much time only by about five and eight percent, respectively. Based on this, we conclude that the duration of CBASP group psychotherapy sessions should preferably not exceed 105–110 min.

Even though most of the patients evaluated the frequency of the group sessions as 'optimal', almost 40% stated that they would prefer a higher frequency. Especially in center 1 at a time where CBASP group psychotherapy had been implemented just once a week, half of the patients stated that they would prefer a higher frequency. In center 3, the group was delivered only once a week, but only approximately 20% of patients answered that the frequency was too low; the smaller frequency in this center could have been counterbalanced by the smaller group size. There might be interdependency between these factors, which needs to be examined further in future studies.

Furthermore, it was hypothesized that patients gave CBASP group psychotherapy an overall grade of 2 (good) or better on a scale of 1 (very good) to 6 (unsatisfactory). As patients gave CBASP group psychotherapy a mark of 2 ('good'), we interpret this as an indication for its acceptance. In relation to the therapists facilitating the group, it was hypothesized that the majority evaluated the setting as being 'optimal' and that they gave the group psychotherapy at least an overall grade of 2. Therapists were more positive in their evaluation than patients. They gave the group an overall mark of 1.6 pointing towards therapists' acceptance of the treatment. While therapists were confident with the duration of the group therapy session and its frequency, they stated critically that the size of the group was too large. However, this was not mirrored in the answer given by the patients. While a meta-analysis has yielded no association between group size and outcome of group therapy on depression [57], one recent trial, however, found that amongst psychiatric inpatients, more than one-third ranked size of the group as burdensome and higher mood state deterioration was self-reported in psychotherapy groups that were larger [58]. As there is inconsistent and sparse research on whether psychotherapy group size has an impact on acceptance and clinical outcome, future studies should investigate this by manipulating group sizes systemically. Regarding therapists, a larger group might be more stressful for them (e.g., more frequent interruptions, distractions or withdrawal of group members), requiring therefore more professional facilitation skills as it is often much less predictable in process. Thus, therapists delivering CBASP group psychotherapy to a large group of patients with CD with a high amount of personality disorders, treatment-resistance and early traumatization should be experienced and particularly supported in supervision.

Primary clinical outcome measure was the $HDRS_{24}$. Depression scores significantly decreased from the baseline to after the tenth CBASP group session with a large pre-post effect size ($HDRS_{24}$ $d = 1.48$). Secondarily, we analyzed self-rated depression scores, which yielded a slightly smaller effect size (BDI-II $d = 1.11$). The difference of a higher effect size for the observer-rated decline in depression can be observed in other studies [16, 17, 21, 59, 60] and is a phenomenon studied by Zimmerman et al. [61], who found that three quarters of patients in remission as rated by clinicians did not consider themselves to be remitted from depression. Such discrepancies between BDI and HDRS score responses may also be related to different symptom domains reflected by the self-construct of depressive symptoms, according to Beck (BDI) and behavioral signs and somatic/vegetative symptoms of depression ($HDRS_{24}$) [62]. Our effect sizes are comparable to other recently published studies.[3] In an RCT by Schramm et al. [16] comparing outpatient CBASP (24 individual sessions over 20 weeks) to supportive psychotherapy, the within-group effect size of $HDRS_{24}$ reached $d = 1.23$. Their patient group was comparable on various demographic and clinical characteristics, although our inpatient sample showed a higher percentage of personality disorders (32.1%) and treatment-resistance (12.4%). Rates of response (38.7%) were slightly higher in our group as were rates of remission (21.8%), but we used a less strict definition with $HDRS_{24} \leq 10$. In an outpatient case series by Swan et al. [59], a similar pre- to post-effect size of BDI-II ($d = 1.04$) and a comparable effect size of $HDRS_{24}$ ($d = 1.49$) after 18.5 h of individual CBASP therapy on an average were reported. Remission rates ($HDRS_{24} \leq 8$) were accordingly lower with 30.4%, as were the percentage of response with 30.4 (defined as $> 8 \leq 15$ and 50%

[3] All effect sizes of studies were recalculated if necessary using the formula $M2 - M1/\mathrm{SD}_{\mathrm{pooled}}$, where $\mathrm{SD}_{\mathrm{pooled}} = \sqrt{((\mathrm{SD}_1^2 + \mathrm{SD}_2^2)/2)}$ to allow for direct comparisons.

reduction in $HDRS_{24}$ score). Another study for outpatients by Wiersma et al. [63] yielded within-group effect sizes for the CBASP arm with 24 individual sessions on an average of $d = 0.60$ on self-rated depressive symptoms after 8 weeks and $d = 1.37$ after 52 weeks. Remission rates on a self-rated measurement (IDS-SR score of ≤13) at week 52 were 19.4% and response (50% reduction) 31.3%, and thus considerably lower than our results. Compared to a study by Sayegh et al. [64] in which outpatients received 12 sessions of CBASP group psychotherapy, the achieved medium effect size of $d = 0.59$ as measured with BDI was smaller than in our study. Unfortunately, no rates for remission or response were provided. Additionally, in another outpatient study by Michalak et al. [17] which applied 2.5 h of weekly CBASP group psychotherapy over the course of 8 weeks, both effect sizes on $HDRS_{24}$ and BDI-II were smaller than in our study ($HDRS_{24}$ $d = 1.28$; BDI-II: $d = 0.77$), indicating that an inpatient treatment with ten sessions of CBASP group psychotherapy could be more effective. Accordingly, remission rates ($HDRS_{24} \leq 8$) were lower with 26%. The study by Brakemeier et al. [21] showed that an intense multidisciplinary 12-week CBASP inpatient program for CD led to an effect size for change on $HDRS_{24}$ of $d = 2.57$ and high rates of response (75.7%), and remission (40.0%) defined as $HDRS_{24} \leq 10$.[4]

In our study, change in quality of life over the course of CBASP group psychotherapy was also investigated as patients with CD are severely impacted. Quality of life scores increased over the same time period represented by a medium effect size (WHOQOL-BREF; $d = 0.67$). Compared to a study of depressed patients who remitted during treatment and were assessed after 1 month after discharge from the psychiatry [65], our patients who were assessed after ten sessions of group psychotherapy scored better on the global domain as well as on domains of physical health and environment. Even though CBASP patients improved most on psychological health over the course of group treatment, they still scored worse on psychological health and social relationships compared to the sample by Angermeyer et al. [65]. McCullough [66] noted the specific impairment of patients with CD on being in contact with the social environment. Regarding the low scores on the social relationship subscale of the WHOQOL-BREF, our study's data seem to support his theory.

In summary, CBASP group psychotherapy is highly accepted as shown by low rates of dropout and positive evaluation by patients and therapists. Collected data on the outcome showed a reduction of depression severity and an increase in quality of life scores over the course of treatment. This was the case, though our patient sample was considerably treatment-resistant (77.4% psychotherapy, pharmacotherapy or both), and chronically ill (duration of current episode: 6.9 years.).

A weak to moderate relationship was yielded between the increase in acceptability of the group treatment and the reduction in depression scores, showing that those patients who evaluated the group therapy better, did so not only because they were less depressed.

There are obvious methodological limitations of the study. This was an open-label feasibility trial and we were primarily interested in the evaluation of the group psychotherapy concerning its acceptability amongst patients and group therapists. However, we additionally measured and reported the outcome after ten sessions of CBASP group psychotherapy in a naturalistic design. Clinically meaningful improvement in the primary outcome measure of depression was found; however, these results should be interpreted with caution. Although $HDRS_{24}$ raters were not directly involved in patient treatment, it cannot be ruled out that they unwittingly evaluated the process more positively because of expectations. Therefore, we added a self-administered depression scale and received a high correlation between change (t2–t0) of self- and observer-rated depression symptoms ($r = .70$, $p \leq 0.001$). Changes on the self-rating BDI-II were slightly smaller but still large in effect size. Yet, ascertainment bias on the patient's side due to expectations of a treatment can also impact on their self-evaluation of symptoms [67]. In addition, the lacking randomization enables a possible selection bias in allocating a favored intervention to participants. Thus, it cannot be excluded that the sample consisted of patients who were hoping that they would finally benefit from an approach said to treat chronic or treatment-resistant depression. Combined with the fact that they had to agree to attend the CBASP group on a regular basis, this hampers the comparison with other studies, in which patients were allocated to treatments without respect to their preferences [68].

Interpreting the outcome in the absence of a control group is also problematic, when considering that especially subjective symptoms of depression or the depressive complains can naturally diminish over time [69]. On the other hand, our sample consisted of patients who had a chronic form of depression which should not easily be subjected to natural fluctuations, even though due to the one-arm pre-post-design, natural fluctuations cannot be controlled for. Response shift as another phenomenon exaggerating the reported effect size has to be considered. Patients could have reported their symptoms differently in the post-assessment because their internal standards of depression could have changed. Over the course of the group psychotherapy,

[4] The study by Brakemeier et al. (2015) followed 70 patients in the 12-weeks inpatient program at the Department of Psychiatry and Psychotherapy at the University of Freiburg. Of these 44 patients were also recruited for this study, but time points of assessment were different.

we noticed that patients often befriend. They might get to know other patients who suffer the same or even more from chronic depression, so that their scale of interpretation of their own symptoms could have changed at post-assessment [70]. As most of the patients stayed longer in their inpatient treatment, they might have felt the need to establish a positive impression and to avoid criticism by exaggerating their reduction on depressive symptoms in the clinical interview at post-treatment. Hence, it cannot be rejected that patients' answers were influenced by social desirability, as it is known that reporting the level of depression is biased by the phenomenon [71]. We also do not report follow-up data which could have led to time-term bias and we do not know if clinical improvements declined again after discharge [72].

Further limitations concern the additional specific and nonspecific interventions. First and foremost, the patients received individual psychotherapy which could comprise psychodynamic, CBT and CBASP, but we did not record the specific approach applied for each patient systematically. In some centers, an overall CBASP inpatient treatment program had already been established, in which other nonspecific therapies (e.g. art therapy) were integrated and the primary nursing system was established so that CBASP-trained nurses could also support patients in their homework of conducting SAs. Patients also received unspecified therapies while on their units, which were not reported. This needs to be taken into account in subsequent studies designed to compare CBASP group psychotherapy only with CBASP group psychotherapy with additional individual psychotherapy. Above all, it should be noted that pharmacotherapy was not standardized and followed therapeutic recommendations of the current guideline [38].

The interpretation of the antidepressant impact of CBASP group psychotherapy is hampered by missing information on concomitant treatment, e.g., the issue that we did not record medication at baseline and its changes during the study. Even though most patients received pharmacotherapy, 64.7% of the sample was treatment-resistant to pharmacotherapy at baseline. Therefore, we assume that the overall effects of pharmacological treatment were rather limited.

A further limitation is that two newly designed questionnaires were applied to measure the patients' and therapists' acceptance, and thus we could not rely on sound psychometric properties of these measures. The questionnaires were based on the one applied by Vieweg and Trabert [43], but the authors did not state its reliability or validity. In our sample, psychometric properties were good (see above and Online Resources A3). However, as these were not well established questionnaires, results still have to be interpreted conservatively.

CBASP group psychotherapy is a new approach and had not previously been studied in an inpatient setting. This outlines the importance of investigating its therapeutic feasibility (acceptance) by patients and delivering therapists. The current feasibility trial therefore fulfills its main aim and provides initial evidence for the feasibility of CBASP as group psychotherapy for a difficult-to-treat inpatient groups across different clinics. Our sample was marked by early childhood trauma, suicidal thoughts, and a manifestation of a long history of depression, resulting in frequent inpatient stays, treatment-resistance (inadequate response to at least two antidepressant medication trials and/or to two completed antidepressant psychotherapy trials of at least 22 sessions), and suicide attempts. Our results provide preliminary evidence that CBASP can be adapted as group psychotherapy for inpatients across different settings, and serves as a basis for a future RCT study investigating this specific approach.

In addition, the study points towards promising outcomes regarding depression symptomatology and quality of life. The group setting provides a safe venue where patients can learn by modeling and via interpersonal learning [73]. Moreover, the specific inpatient setting allows for a more condensed and frequent treatment, which might be advantageous for such a highly complex patient group. Based on these findings, randomized controlled trials are warranted to further investigate CBASP as group therapy based inpatient treatment.

The limitations outlined above notwithstanding the naturalistic nature of this multicenter trial provides initial evidence that CBASP as group therapy for inpatients remains a promising concept, which is currently being implemented in a variety of clinical settings in Germany.

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Compliance with ethical standards

Conflict of interest F.P. received speakers' honoraria from Mag&More GmbH and neuroCare GmbH, Germany, as well as research support from Brainsway Inc., Israel. C.K. received fees for an educational program from Aristo Pharma, Janssen-Cilag, Lilly, MagVenture, Servier, and Trommsdorff as well as travel support and speakers' honoraria from Aristo Pharma, Janssen-Cilag, Lundbeck and Servier. V.E. reported receiving honoraria for workshops on CBASP. E.-L.B. reported receiving book royalties and honoraria for workshops and presentations relating to CBASP. There are no other financial interests in relation to this article.

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