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Effectiveness, response, and dropout of dialectical behavior therapy for borderline personality disorder in an inpatient setting

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ABSTRACT

To examine the effectiveness of dialectical behavior therapy for inpatients with borderline personality disorder (BPD), small sample sizes and, predominantly, tests of statistical significance have been used so far. We studied 1423 consecutively admitted individuals with BPD, who were seeking a 3-month inpatient treatment. They completed the *Borderline Symptom List* (BSL) as the main outcome measure, and other self-rating measures at pre- and post-treatment. Therapy outcome was defined in three ways: effect size (ES), response based on the reliable change index, and remission compared to the general population symptom level. Non-parametric conditional inference trees were used to predict dropouts. In the pre-post comparison of the BSL, the ES was 0.54 (95% CI: 0.49–0.59). The response rate was 45%; 31% remained unchanged, and 11% deteriorated. Approximately 15% showed a symptom level equivalent to that of the general population. A further 10% of participants dropped out. A predictive impact on dropout was demonstrated by substance use disorders and a younger age at pre-treatment. In future research, follow-up assessments should be conducted to investigate the extent to which response and remission rates at post-treatment remain stable over time. A consistent definition of response appears to be essential for cross-study and cross-methodological comparisons.

Dialectical behavior therapy (DBT; Linehan, 1993a, 1993b) is currently the most frequently investigated psychosocial intervention for borderline personality disorder (BPD). The four core elements of DBT are individual therapy, which takes place once a week; weekly skills training within the group; telephone coaching by the individual therapist; and supervision for the therapeutic team (Linehan, 1993a, 1993b). The treatment concept was originally conceived on an outpatient basis, but has been adapted to the inpatient setting (Swenson, Sanderson, Duilt, & Linehan, 2001). The short- and long-term effectiveness of inpatient DBT was shown by various work groups (Bohus et al., 2004; Fassbinder et al., 2007; Höschel, 2006; Kleindienst et al., 2008; Kröger et al., 2006; Simpson et al., 2004). For inpatient DBT, moderate to large effect sizes emerged at the end of treatment with regard to self-reported, general, or depressive symptom severity (ES = 0.56 to 0.84 and ES = 0.59 to 1.90, respectively), and large effect sizes were found with regard to psychosocial functioning as rated by others (ES = 0.80–1.33). However, the results of these studies are based on relatively small samples ($N = 20$ to $N = 50$), which, moreover, were treated in university establishments.

To date, mean value comparisons and effect sizes as a benchmark for assessing the effectiveness of a treatment are predominant in the publications on DBT, whereas the clinical significance enables an individual assessment of the change status (cf. Jacobson, Roberts, Berns & McGlinchey, 1999). Using the parameters of clinical significance, it can be determined whether, at post-treatment, a patient has reliably deteriorated or improved (response), or whether the symptom level has adjusted to that of a clinically unimpaired sample (remission). Only in one completer sample ($N = 31$) was the clinical significance indicated in addition to the ES of 0.84 following a three-month inpatient DBT treatment: According to this, 42% of patients at post-treatment (Bohus et al., 2004) and 50% within 21 months after the end of therapy (Kleindienst et al., 2008) were remitted in terms of general symptom strain.

One of the main aims of DBT is to lower dropout rates (Linehan, 1993a), even though no significant difference in the mean dropout rates between DBT (24.7%) and control conditions (27.3%) was found in a meta-analysis (Kliem, Kröger, & Kosfelder, 2010). In the face of these (partially) high dropout rates, ranging from 4.2% to

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61.1% (SD = 15.6%), it seemed to be important to identify characteristics that are associated with discontinuation of treatment. To the best of our knowledge, four studies have examined differences compared to completers and predictive factors for inpatients who dropped out of DBT (Bohus et al., 2004; Kröger et al., 2006; Perroud, Uher, Dieben, Nicastro, & Huguelet, 2010; Rüsch et al., 2008). While no differences in any aspect were found between completers and dropouts in the Bohus et al. (2004) and Kröger et al. (2006) studies, dropouts in the Rüsch et al. (2008) study reported more trait anxiety, fewer lifetime suicide attempts, and higher experiential avoidance (without error correction for multiple testing). The latter two characteristics were both confirmed in a stepwise logistic regression as dependent variables for dropout. However, lower education was found to be the only predictive characteristic in the Perroud et al. (2010) study, which did not include those characteristics (i.e., lifetime suicide attempts and experiential avoidance) that were found in the Rüsch et al. (2008) study.

These results were based on small sample sizes, ranging from 40 to 60 mostly female participants, with the exception of the Perroud et al. (2010) study, with 447 participants. In addition, low dropout rates were reported, ranging from 12% to 25.8%, with the exception of the Rüsch et al. (2008) study, with 46%. Therefore, sample sizes and dropout rates made it difficult to find any differences between completers and dropouts due to a lack of statistical power. The use of a regression analysis in the Rüsch et al. (2008) study implies a larger sample size than 60 participants, and requires a confirmation in a cross-validation analysis. Since individuals with specific co-occurring mental disorders were excluded (e.g., anorexia nervosa, substance use disorders, Bohus et al., 2004; Rüsch et al., 2008), these conditions could not be included in the analyses, even though they might also be suggested as risk factors for a discontinuation of treatment (Kröger et al., 2010; Linehan et al., 2002). Hence, results need to be confirmed and expanded in further analyses, which should be based on larger sample sizes with fewer exclusion criteria.

The aim of the current study is, therefore, to use a large consecutive sample of patients admitted to a 3-month DBT program in order to draw on various parameters for assessing its effectiveness regarding disorder-specific symptom strain and further complaints. For this purpose, in particular, effect sizes should be calculated in comparison to the clinical significance through the RCI method (Jacobson & Truax, 1991). Moreover, a further aim is to identify predictors of discontinuation of therapy.

Method

Participants

The participants were admitted consecutively to a psychosomatic care hospital, which is certified according to DIN EN ISO 9001:2008, in the period from March 2006 to October 2011. For the diagnosis of mental disorders and personality disorders, the German versions of the Structured Clinical Interview for DSM-IV Axis I Disorders (SKID-I; Wittchen, Wunderlich, Gruschitz, & Zaudig, 1997) and for Axis II Disorders (SKID-II; Fydrich, Renneberg, Schmitz, & Wittchen, 1997) were used. All participants had to a) be over the age of 18 years, b) show no indications of mental retardation, dementia, or schizophrenia, c) show no acute symptoms of a severe organic disease that are associated with the development of the mental illness, and d) show no substance dependence with current intoxication, which would indicate an admission at a specialized unit for detoxification. Other mental disorders were not excluded. Each patient was informed about the course of the study in writing and was required to provide consent to it. The treatment period amounted to a maximum of twelve weeks.

The analysis included N = 1423 patients with BPD, of whom n = 1075 were women (75.5%). Table 1 shows the sociodemographic data and comorbid mental disorders. The mean age lay at 32.0 years (SD = 10.27). Approximately 14% lived in a partnership. On average, each patient had 3.70 (SD = 1.59) Axis I disorders and 0.90 (SD = 0.6) Axis II disorders, in addition to BPD. The length of stay in the clinic amounted to an average of 63.9 days (SD = 19.65). Hence, several participants were discharged with the support and permission of the therapists before the three months were over, because these patients had legal or other obligations (e.g., lawsuit, start of school) and changes in managing their daily life (e.g., admission at a therapeutic apartment-sharing community). The treatment was not ended in the standard manner by 148 (10.4%) patients (discontinuation with or without physician consent or transfer). Of these individuals, 93 did not fill out the postal survey questionnaires (missing values).

Therapists and treatment

The multidisciplinary teams consisted of 5 certified DBT therapists, 5 certified DBT co-therapists, and 5 DBT therapists in advanced training. Moreover, they also intermittently included physicians in training as specialists for psychosomatic medicine or for psychiatry and psychotherapy, and psychotherapists in training. Also, the teams consistently included social education workers and art and movement therapists who possessed basic knowledge of DBT through in-house and external training programs. The teams discussed the individual patients on a daily basis. Moreover, recurring structural or content-based questions were tackled at least twice yearly in a half-day workshop.

Table 1
Socio-demographic characteristics and co-occurring mental disorders (N = 1423).

Characteristics	n	%
Marital status		
Single	1026	72.1
Married	200	14.1
Divorced	110	7.7
School education		
In school education	28	2.0
No school-leaving qualification	52	3.7
Special needs or lower-track school-leaving qualification	327	22.9
Medium-track school-leaving qualification	515	36.2
University-entrance-level school-leaving qualification	76	5.3
Other	10	0.7
Employment status		
Never employed	190	13.4
In training	234	16.4
Military service/civilian service (in lieu of military service)/ voluntary social year	22	1.5
Housewife/househusband	272	19.1
Pensioner	98	6.9
Laborer	77	5.4
Skilled worker/craftsperson	39	2.7
Employee	297	20.9
Civil servant	23	1.6
Self-employed	27	1.9
Other	83	5.8
Prior treatments		
Outpatient psychiatric	842	59.2
Outpatient psychotherapeutic	960	67.5
Mental disorders		
Affective disorders	1363	95.8
Substance use disorders	264	18.6
Anxiety disorders	588	41.3
Somatoform disorders	97	6.9
Eating disorders	527	37.1