

Transference-focused psychotherapy in an inpatient setting for borderline personality disorders: changes in symptomatology

Torvi Abel,^{1,2*} Moritz Happel,^{2*} Franca Daerr,^{1,2} Carsten Spitzer,³ Cord Benecke,⁴ Birger Dulz^{1,2}

¹Asklepios Clinic North – Ochsenzoll, Clinic for Personality and Trauma Disorder, Hamburg; ²Asklepios Proresearch, Hamburg; ³Department of Psychosomatics and Psychotherapeutic Medicine, University of Rostock; ⁴Department of Clinical Psychology, University of Kassel, Germany

*Share first authorship

Correspondence: Torvi Abel, Dipl.-Psych., Sierichstrasse 102, 22299 Hamburg, Germany. E-mail: praxis@t-abel.com

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ABSTRACT

This prospective, naturalistic, longitudinal study examined changes in borderline-specific symptoms in a six-month, manualbased transference-focused psychotherapy (TFP) inpatient treatment for patients with borderline personality disorder (BPD) in comparison to a waitlist control group. 74 patients with BPD received TFP in a multi-professional inpatient setting, of whom 27 patients represented the waitlist control group. 31 patients completed six months of treatment. Borderline-specific symptoms were measured by means of the Borderline Symptom List (BSL-23) prior to treatment (waitlist control group), at the beginning, after 3 months, and at the end of it. BSL-23 scores decreased significantly from the beginning to the end of the six-month inpatient therapy program with a medium effect size of d=0.54. There was no change in symptoms for the waitlist control group. Our findings suggest that inpatient TFP is effective in terms of the reduction of borderline-specific symptoms. In terms of this, the duration of the treatment seems to be a meaningful factor. Further research will investigate changes in specific psychodynamic aspects as well as in the follow-up measurement.

Key words: borderline personality disorder (BPD), transference-focused psychotherapy (TFP), inpatient, borderline-specific symptoms.

Introduction

Borderline personality disorder (BPD) is characterized by constant patterns of instabilities of identity, interpersonal relationships, behavior, and affectivity. These impairments are manifested along with psychopathological symptomology as self-destructive behavior, suicidality, dissociation, impulsivity, aggression, mood shifts, and a high number of comorbid disorders (DSM-5; American Psychiatric Association, 2013). Psychotherapy is the firstline treatment for people with BPD (Leichsenring *et al.*, 2023; Storebø *et al.*, 2020).

Regarding borderline-specific symptoms, studies indicate that a disorder-specific treatment is superior to a treatment-as-usual (TAU). Concerning the treatment of BPD, the following disorderspecific approaches are commonly used (*e.g.*, Storebø *et al.*, 2020):

- Dialectical behavior therapy (DBT; Linehan, 1993)
- Mentalization-based treatment (MBT; Bateman & Fonagy, 2014)
- Transference-focused psychotherapy (TFP; Yeomans *et al.*, 2017)

- Schema-focused therapy (SFT; Young et al., 2003)
- Cognitive analytic therapy (CAT; Ryle et al., 1997)
- Systems training for emotional predictability and problemsolving (STEPPS; Black et al., 2013)

Most of the treatments are conceptualized for and examined in outpatient settings of 6-24 months duration, with individual sessions once or twice a week. Some treatments comprise group therapy sessions, inpatient or day-hospital treatments, and psychoeducation (Storebø *et al.*, 2020). However, severe symptoms, debilitating psychosocial impairments, high comorbidity, and treatment resistance, or inability to engage in outpatient psychotherapy require an inpatient admission (Dulz *et al.*, 2023; Kröger *et al.*, 2013). Recently, a manual for TFP in the inpatient sector was developed (Dulz *et al.*, 2022). Based on this manual, we investigated the effectiveness of TFP in the inpatient sector.

Theory

Transference-focused psychotherapy (TFP)

TFP was developed as a psychodynamic treatment for borderline personality disorder by Otto F. Kernberg in the 1970s in the outpatient sector. Over the years, it has evolved into a manualized and disorder-specific treatment that is evidencebased, internationally established, and used both in the outpatient and inpatient sector, for individuals as well as for group sessions (Dammann et al., 2016; Sollberger et al., 2015; Yeomans et al., 2017). Kernberg's theoretical framework comprises the concept of borderline personality organization that forms the basis of all different types of personality disorders (Kernberg, 1984, 1996). It describes the psychological structure of personality disorders by specifying five dimensions: identity diffusion, archaic defense mechanisms, impaired reality testing (e.g., under stress in close relationships), lack of stable moral values and aggressions, and hate as a dominant emotional affect. Patients with severe personality disorders have internalized images of self and significant others, which are not integrated due to defense mechanisms such as splitting and projection. Thus, their internal world consists of multiple split-off object relations, positive and negative, each of them reflecting a dyadic unit of a self-representation, an object-representation and a dominant affect linking them (Kernberg et al., 2008). The dyadic units arise because of internalized, affectively intense experiences of early relationships (Kernberg et al., 2008). Symptoms of borderline personality disorder represent the lack of integration into the internal world, resulting in the supremacy of developmentally early defense mechanisms (Fischer-Kern et al., 2015).

TFP aims to reduce, at first, the borderline-specific symptoms (*e.g.*, self-harm, suicidality, aggression to others, destructive acts in relationships). Secondly, the treatment aims to improve the severe impairments in the borderline personality organization. For this purpose, TFP intervenes in the transference relationship from the beginning: the therapist focuses on the affectively dominant dyadic units that are actualized in the relationships and work with them by using clarification, confrontation, and interpretation. To limit and handle destructive and dangerous processes and behavior during the treatment, a contract is defined at the beginning, and the therapist actively sets limits to maintain the therapeutic work (Doering *et al.*, 2010; Dulz *et al.*, 2022; Dulz *et al.*, 2023; Yeomans *et al.*, 2017).



State of research: outpatient sector

The efficacy and effectiveness of TFP in the outpatient sector has been investigated in randomized controlled trials as well as non-randomized controlled trials demonstrating a reduction in the borderline-specific pathology as well as a positive impact on personality organization (Clarkin *et al.*, 2001; RCTs: Buchheim *et al.*, 2017; Clarkin *et al.*, 2007; Doering *et al.*, 2010; Fischer-Kern *et al.*, 2015; Giesen-Bloo *et al.*, 2006; Levy *et al.*, 2006). In the following, RCTs are presented which examined changes in psychopathology:

Clarkin *et al.* (2007) randomly assigned a sample of n=90 borderline patients to three different outpatient treatment groups (DBT according to Linehan, TFP, and a psychodynamic supportive treatment (SPT) according to Rockland) over one year. The results revealed that all treatments led to significant improvements in depression, anxiety, psychosocial functioning level as well as social adjustment. Significant improvements in suicidality were found for TFP and DBT, whereas TFP and SPT also showed improvements in the domain of anger. Additionally, TFP was found to be superior to the other therapies in the areas of irritability, verbal and direct attacks, and in changing to secure attachment patterns as well as improvements of reflective function (Clarkin *et al.*, 2006; Levy *et al.*, 2006).

Doering *et al.* (2010) compared changes in symptomology, psychosocial functioning, and borderline personality organization in a sample of n=104 women with BPD over 12 months during an outpatient treatment by an experienced community psychotherapist or TFP. In comparison, TFP showed significant improvements in borderline-specific symptoms, in the number of suicide attempts and inpatient admission. Furthermore, TFP was significantly superior regarding improvements in psychosocial functioning, borderline personality organization as well as reflective functioning (Doering *et al.*, 2010; Fischer-Kern *et al.*, 2015).

Giesen-Bloo *et al.* (2006) compared TFP with schema therapy in a multicenter study over three years in a sample of *n*=88 patients with BPD. For both treatments, significant improvements in borderline-specific symptoms, quality of life, and general and personality psychopathology could be revealed, but the effects in borderline-specific symptoms and general and personality psychopathology were significantly greater in schema therapy. As limiting aspect, the patients in the TFP group were more impaired and the TFP-therapists were poorly trained, not supervised according to the TFP-guidelines, and did not adhere to the manual (Dulz *et al.*, 2022; Yeomans, 2007).

State of research: inpatient sector

The complexity of inpatient treatment with numerous confounding variables and ethical problems makes the implementation of studies difficult, especially concerning RCTs in the inpatient sector (Kösters *et al.*, 2006).

In the recent Cochrane Review on psychological therapies for patients with BPD five studies were pursued in the inpatient sector and seven in a combination with an inpatient and outpatient setting (Storebø *et al.*, 2020). The studies in the inpatient sector investigated different treatments, but the Review pointed out that the evidence for effectiveness in this sector is limited (*e.g.*, DBT, MBT, SFT, and general psychodynamic therapy; see Stoffers *et al.*, 2012; Storebø *et al.*, 2020).

Only one TFP-based study has been published in the inpatient sector for adults and one in a day clinic setting for adolescents: the prospective, non-randomized study for adults compared a dis-





order-specific treatment (DST) with an inpatient treatment-asusual (TAU) over a period of 12 weeks (Sollberger *et al.*, 2015). The DST included the principles of TFP and modules of DBT. Changes in dropout, symptomology, and in borderline personality organization (esp. identity diffusion) were investigated for n=32participants in the DST group and n=12 participants in the TAU group. The small sample size and heterogeneity of the groups were cited as a central point of criticism (Agarwalla *et al.*, 2013; Sollberger *et al.*, 2015).

In the DST group, significant improvements were shown for anger, depression, and overall borderline personality organization, as well as significantly less dropout than in the TAU condition (Sollberger *et al.*, 2015; Agarwalla *et al.*, 2013). Further analysis of the same data by Dammann *et al.* (2016) revealed significant improvements in almost all interpersonal scales after 12 weeks of DST (pre-post design).

The efficacy of transference-focused psychotherapy for adolescents (TFP-A) with borderline personality organization was conducted in a day clinic setting. Jahn, Wieacker, Bender, and Krischer (2021) found that the capability of affect regulation increased during the TFP-A treatment: 120 adolescents were assigned to either TFP-A or TAU group and assessed in terms of aggression, irritability, depression, self-harm, internalizing behavior, and pathological personality traits at baseline and after twelve weeks. A significant reduction in self-destructive behavior could be revealed in the TFP-A in comparison to the TAU group.

The first results of research in the inpatient sector lead to our hypothesis that TFP in the inpatient sector can significantly reduce borderline-specific symptoms in adolescents and adults.

Methods

Study Design and Participants

The study was designed as a prospective, naturalistic, longitudinal study with a waitlist control group (WCG). Data collection, including self-report questionnaires and clinical interviews, comprised two phases and seven measurement points.

The first phase included the data collection of the WCG before the treatment (t0-t1) and the data collection of the treatment group (TG) during the first treatment period (t1-t3). The second phase contained the follow-up measurement. This paper focuses on the symptomatical changes collected by self-reports. The psychodynamic aspects measured by external and self-report tools, as well as the follow-up measurement, will

All patients applied for their treatment on their own. The indication was examined in a preliminary interview. After being accepted for the treatment, patients were asked to participate in the study. Written informed consent was obtained from each patient. The study was approved by the local ethics committee.

Inclusion criteria were age between 18 and 45 years, sufficient knowledge of the German language, and a borderline personality disorder according to the DSM–IV criteria as assessed by clinically experienced interviewers with the Structured Clinical Interview for DSM-IV Axis II Disorders (SKID-II; Wittchen *et al.*, 1997). Exclusion criteria were psychosis, major substance dependency, organic pathology or mental retardation, homelessness, and actual criminal proceedings.

Treatment and therapists

All participants were inpatients at the Asklepios Clinic North - Ochsenzoll in Hamburg, Germany, Clinic for Personality and Trauma Disorder. The core staff consisted of nursing professionals, psychiatrists, psychologists, non-verbal therapists, and social workers. This multi-professional team offered a disorder-specific treatment for patients with severe and complex personality disorders between 18 and 45 years. The concept and work were based on the TFP manual of inpatient treatment (Dulz *et al.*, 2022). All psychotherapists have completed the TFP training or were in advanced stages of their training. All nurses and specialized therapists received an adapted version (some modules) of the TFP training. 22 patients can be treated at the ward with a maximum duration of six months. If indicated, a second treatment interval is possible for three to four months.

All patients received an individual session (40 minutes) once a week and group sessions (each 60 minutes) twice a week by a psychodynamic psychotherapist. Further, every patient got one individual session (30 minutes) per week with their primary nurse. Additionally, non-verbal therapy sessions (*e.g.*, body-oriented psychotherapy, art and creative therapies) were provided to strengthen the expression of unconscious and non-verbalized contents and affects. Each patient participated in at least one non-verbal therapy continuously during their stay. Depending on the individual indication, different non-verbal methods were combined and offered as individual or group sessions. Pharmacotherapy in line with guidelines was used if indicated.

Nurses offered additional skill training, cared for the daily structure, and were available for short crisis interventions. Special-

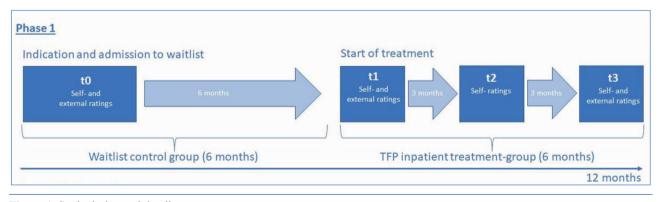


Figure 1. Study design and timeline.

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ized therapists provided imaginative techniques, sports activities, occupational therapies (*e.g.*, working in a garden), community activities (*e.g.*, theater), and social services for patients with financial difficulties or problems with the authorities. In addition, the team had weekly consultation meetings and regular supervision.

Outcome Measure

The short version of the Borderline Symptom List (BSL-23) measures the occurrence of borderline-specific symptoms (e.g., self-harm, dissociation, self-rejection) during the last 7 days with 23 items that are rated on a 5-point Likert scale ranging from 0=not at all to 4=very much (Bohus et al., 2007). Thus, a higher mean score of the 23 items indicates more severe borderline pathology. The psychometric properties of the BSL-23 were reported to be very good and showed a single-factor structure (Wolf et al., 2009). The internal consistency of the BSL-23 in our study was Cronbach's α=0.92 (n=74). Wolf et al. (2009) reported a mean of 2.05 (SD=0.90) for borderline patients (Axis-II-disorder, DSM-IV, n=379) and, in comparison, a mean of 1.40 for patients with Axis-I-disorder. A mean BSL-23 score of 1.87 (SD=0.8) in a sample of 241 patients with a diagnosis of BPD was revealed by Kleindienst et al. (2020). The authors divided the severity into six grades: none or low (scores from 0 to 0.28), mild (scores from 0.28 to 1.07), moderate (scores from 1.07 to 1.87), high (scores from 1.87 to 2.67), very high (scores from 2.67 to 3.47) and extremely high (scores from 3.47 to 4).

We collected several data concerning psychodynamic changes which will be presented in different publications.

Statistical Procedure

We calculated the mean of the BSL-23 for each patient at each time of measurement to assess borderline-specific symptoms.

Waitlist control group

To test the mean differences before the waiting period (t0) and admission (t1), we used paired sample t-tests as Shapiro-Wilk tests did not indicate non-normality of the data.

Change over time analysis

The number of patients at each point of measurement changed due to dropouts (*e.g.*, no inpatient admission, early discharge) and missing values (no valid data return). Thus, we report data analyses for three subsamples. For all subsamples, we utilized multilevel models (MLM):

- Starter analysis: all participants with data at least at t1
- Intention-to-treat analysis: all participants with data at least at t0
- Missing values analysis: data have been imputed for all measurement points using multiple imputations.

Multilevel models

To test if changes over time are significant, we used multilevel models (MLM) with maximum likelihood for all subsamples using the R package lme4 (Bates *et al.*, 2015). MLM is an adequate statistical approach for our data structure because it can handle several repeated measurement points and consider missing values at different measurement points. Regarding missing values, we calculated MLM with the original as well as imputed data.

We computed random intercept fixed slope models with the

factor time (categorical with 4 levels: t0, t1, t2, and t3) as a fixed effect. We used contrasts to test differences between the measurement points: t0-t1 (WCG), t1-t2 (first half of inpatient treatment), t2-t3 (second half of inpatient treatment), and t1-t3 (entire inpatient treatment).

Starter analysis

For this analysis, we included all participants who started therapy (*i.e.*, valid data at t1) regardless of whether they had data at t0, t2, or t3. To estimate the effect size in the outcome measure, Cohen's d was calculated. We used the formula for dependent variables and therefore considered only those participants with existing values at both selected measurement points t1 and t3. For this calculation, we utilized the values of our sample and not the implied means of the multilevel model and conducted a paired sample t-test.

Intention-to-treat analysis

In a separate analysis, we included 15 participants who dropped out between t0 and t1. Those patients are considered as intention-to-treat (ITT). We compared the differences in the BSL-23 between those 15 participants who dropped out and the remaining patients in the WCG. For this, we used Welch's instead of Student's t-test to provide better control of Type 1 error rates (Delacre *et al.*, 2017). After that, we conducted the MLM to test for significant changes over time.

Missing values analysis

We utilized multiple imputations as state-of-the-art in terms of dealing with missing values (*e.g.*, Schafer & Graham, 2002; Graham, 2009). This allows the insertion of plausible values in the place of missing values and, therefore, includes dropout/missing values in the analysis. To calculate multiple imputations, missing values need to be estimated iteratively by using an imputation model. After that, the values are pooled for the inferential statistics (Rubin, 1987).

To take the repeated measurements into account and to conduct MLM with the imputed data, we used the joint modeling approach (using the R package mitml; Grund *et al.*, 2021). According to Grund *et al.* (2016), we created 100 data sets with imputed values after a burn-in period of 50000 iterations, each of which was 5000 iterations apart. We had missing values for 43% of BSL-23 measurements and did not include other control variables in the imputation process. The parameters of the imputation phase indicated a successful imputation process with Rhat values not higher than 1 (Grund *et al.*, 2016). We used the statistical Software R (Version 3.6.3; R Core Team, 2020) and RStudio (Version 1.2.5033; RStudio Team, 2019).

Results

Sample characteristics

Data collection started in November 2016 and continued until October 2018. Figure 2 shows the participant flow. Of the 89 patients who agreed to participate in this study, 47 were admitted to the inpatient TFP program directly, while 42 were assigned to the waitlist. Of those, 15 had to be excluded for different reasons (Figure 2), but their data was used for the intention-to-treat analysis. In total, data were available from 74 participants (TG) after inpa-





The mean age in years of participants in the WCG was m=31.2 (SD=6.4). The mean age of participants who started therapy was m=30.3 (SD=5.8). The sample included more women than men in the WCG (w=20, m=7) as well as in the TG (w=56, m=18). Sociodemographic data of the participants at t0 and t1 are shown in Table 1.

The mean duration for participants in the WCG was m=2.5 months (SD=1.4, Min=0.87, Max=6.03) with a skewness of 0.76, which means that a large part of the values is in the low range with a shorter waiting period. The mean duration of treatment was m=4.2 months (SD=1.5, Min = 0.42, Max = 5.87) with a skewness of -1, indicating that most patients were treated more than 4.2 months. Welch's t-test showed no significant

difference between duration in the WCG or in the TG (t [50.59]=-5.17, n.s.).

Course of BPD symptoms

Table 2 presents the descriptive statistics of BSL-23 scores at various measurement points.

Waitlist control group

BSL-23 scores of the WCG did not differ between t0 and t1 (t [26]=-0.43, *n.s.*). This result was confirmed by the MLM (Table 3). Among those starting the inpatient treatment, there was no significant difference in BSL-23 scores between participants from the WCG and individuals being admitted directly without any waiting period (t [59.36]=-1.43, *n.s.*).

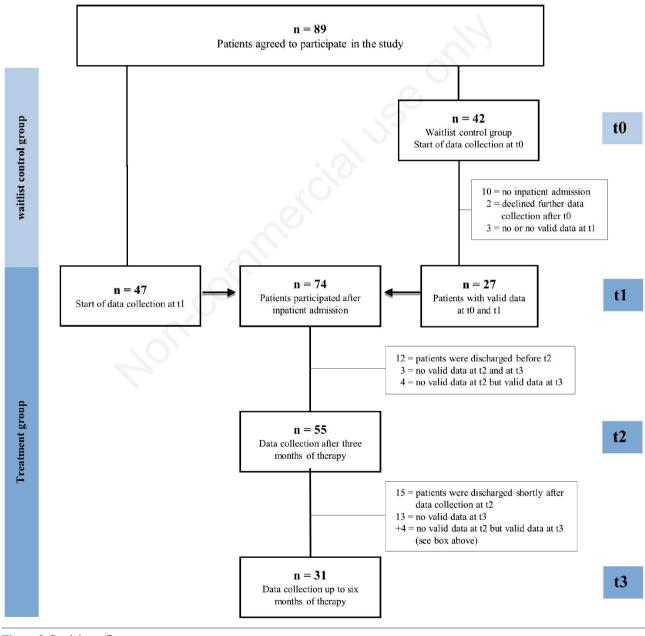


Figure 2. Participant flow.



Starter analysis

Results of the Starter analysis with original data are shown in Table 3 and 4. During the first half of the treatment, no significant differences were observed in borderline-specific symptoms. We found a nearly significant reduction of symptoms (p=0.051) during the second half of the treatment (t2-t3). Regarding the entire treatment (t1-t3), there was a significant reduction of borderline-specific symptoms (p<0.05). An Intraclass Correlation (ICC) of 0.5 indicated that half of the variance is explained by differences between as well as within participants.

Intention-to-treat analysis

In the context of ITT-analysis we included participants who dropped out after t0 (n=15) and compared their BSL-23 scores to the WCG. Shapiro Wilk tests showed no evidence for non-normality regarding the compared subsamples (W_{ITT} =0.92, *n.s.*; W_{WCG} =.98, *n.s.*). Therefore, we used Welch's t-tests. The BSL-23 scores of the dropped-out participants (n=15, M_{t0} =3.39, SD_{t0} =0.86) revealed significantly higher scores in comparison to the WCG (n=27, M_{t0} =2.75, SD_{t0} =0.69; t [24.27]=2.48, p<0.05). In comparison to the starter analysis, only minor differences in the results of the MLM were found in the ITT-analysis. In partic-

	WCG (t0)		TG (t1)		
	Μ	SD	Μ	SD	
Age (years)	31.2	6.4	30.3	5.8	
	Ν	%	Ν	%	
Gender	<u>27</u>	<u>100</u>	<u>74</u>	<u>100</u>	
Female	20	74	56	76	
Male	7	26	18	24	
School career	<u>27</u>	<u>100</u>	74	<u>100</u>	
No graduation	0	0	0	0	
Secondary school I (Hauptschule)	4	15	10	14	
Secondary school II (Realschule)	11	41	26	35	
Vocational diploma (Fachabitur)	5	19	8	11	
A-level (Abitur)	7	26	30	41	
Marital status	<u>27</u>	<u>100</u>	<u>73</u> ª	<u>100</u>	
Single	19	70	46	63	
Married	2	7	4	5	
Divorced	3	11	5	7	
In a relationship	3	11	18	25	

Table 1. Sociodemographic of the participants at t0 and t1.

aIn individual cases parts of sociodemographic data at admission were not available.

Table 2. Descriptive statistics for the borderline symptom list (BSL-23) for t0 to t3 for WCG and TG.

		t0		t1		t2		t3	
	n	M (SD)	n	M (SD)	n	M (SD)	n	M (SD)	
Waitlist	27	2.75 (0.69)	27	2.81 (0.75)	-		-		
Treatment	-	-	74	2.99 (0.81)	55	2.96 (0.88)	31	2.63 (0.9)	

Table 3. Difference scores of means for multilevel-model analysis for the borderline symptom list (BSL-23) for t0 to t3.

		Difference scores of means				
	t0-t1	t1-t2	t2-t3	t1-t3		
BSL-23	0.13	-0.08	-0.35	-0.43*	0.5	

*p <.05. BSL, borderline symptom list; ICC, intraclass correlation.

Table 4. Multilevel-model means and standard error for the borderline symptom list (BSL-23) for t0 to t3.

		Multilevel model means (SE)				
	t0	t1	t2	t3		
BSL-23	2.86 (0.14)	2.99 (0.14)	2.91 (0.14)	2.56 (0.16)		

BSL, borderline symptom list.





ular, improvement of symptoms in the second half of the treatment was now significant (p=0.049).

Missing values analysis

We conducted MLM after multiple imputation. Therefore, we could use a data set with data points for all participants (n=89) for all measurement points. Results showed similar values like the ITT subsample regarding change over time in the outcome (M_{t0} =3.00, SE_{t0}=0.13, M_{t1} =3.03, SE_{t1}=0.1, M_{t2} =2.96, SE_{t2}=0.1, M_{t3} =2.6, SE_{t3}=0.13) and the same pattern of significance tests: a significant reduction of symptoms for the second half of the treatment (p<0.05) as well as for the entire inpatient treatment (p<0.05), but no significant change for the first half of the treatment (n.s.).

Effect size

Cohen's d could only be calculated for participants who had pair-wise values for t1 and t3. For all participants who completed the treatment (n=31), we observed a medium effect size with d=0.54 for the entire treatment period. A paired sample t-test showed a significant difference (t [30]=2.99, p<0.05). The descriptive statistics in terms of Cohen's d are shown in Table 5.

Discussion

Our prospective, naturalistic, longitudinal study with a WCG investigated the changes in borderline-specific symptoms during a six-month inpatient psychotherapy. The treatment is based on the principles of TFP according to the associated manual for inpatient borderline therapy (Dulz *et al.*, 2022).

The results demonstrate a significant reduction of borderlinespecific symptoms (BSL-23) between the inpatient admission and the discharge with a medium effect size (d=0.54) for all participants who completed the treatment (n=31). In detail, it is shown that changes in borderline-specific symptoms increase with the length of treatment: No significant changes in symptoms were found in the WCG. After the first three months of the inpatient treatment, no significant change in symptoms was observed, but nearly significant changes were observed during the second half of the treatment.

In comparison to other studies, our patients seemed to experience a higher extent of distress and severity of borderline-specific symptoms: at baseline, they showed a mean of 2.99 (SD=0.14) in the BSL-23 after admission. According to the classification of Kleindienst *et al.* (2020), the score can be interpreted as very high in severity as well as in the amount of the diagnostic criteria of BPD. By comparison, in a sample of *n*=878 borderline patients who were treated in a psychosomatic hospital, Herzog *et al.* (2020) reported a mean of 2.1 (SD=4.9) from routinely recorded BSL-95 scores. Edel *et al.* (2017) revealed BSL 23 scores of 73 patients who were divided into two treatment groups in a psychiatric hospital: baseline scores for one group (*n*=35) were 2.0 (SD=1.0) and for the control group (*n*=38) were 2.0 (*SD*=0.8). Our patients improved concerning the classification of Kleindienst *et al.* (2020) from a 'very high' to a 'high' level of severity. The treatment needs to be in an inpatient setting because of the severe borderline pathology (esp. destructive behavior, high social impairments, paranoid perception), which is usually an expression of years of traumatic experiences in relationships. A high dropout rate indicates difficulties in persevering in a long-term, confronting treatment, presumably because of the deep fear of development and relationships. Even completing the treatment can be regarded as an improvement at such high levels of severity. The aim of inpatient treatment is to enable the patients to remain in an outpatient setting by reducing symptoms and improving borderline personality organization (Dulz *et al.*, 2022).

In sum, TFP inpatient treatment seems to be effective in changing borderline-specific symptoms in a sample of severely impaired patients, but only in full duration.

Interpretation according to TFP

How can these results be understood from a TFP-perspective? The TFP consists of several phases in which different aspects are in the center of the therapeutic work: initial phase (diagnostic, formation of therapeutic focus and frame), mid-phase (in-depth therapy), termination phase (separation and farewell processes). Regardless of the therapeutic phase, the entire team works in an interpersonal, active, and confronting way in the current relationship between the patient and the team member (transference relationship) from the beginning (Dulz *et al.*, 2022; Dulz *et al.*, 2023).

The development of a sustainable therapeutic relationship is difficult, especially in the therapy with borderline patients: the underlying severe character pathology with defensive mechanisms like splitting the experiences of self and others or the projection of negative and aggressive affects to the outside, patterns of unstable interpersonal relationships and the dysfunctional affect modulation with destructive behaviors shape the psychotherapeutic work (Yeomans *et al.*, 2017).

In the first part of the inpatient treatment (esp. initial phase), the establishment of a stable therapeutic alliance is the focus alongside the work on the defense mechanisms that influence the relationship. As a disorder-specific treatment, therapeutic alliance in TFP means a cooperation with the healthy part of the patient, not the self-destructive one. All members of the team concentrate on reducing destructive behaviors and relationship patterns.

During the first part, the persistence of symptoms can be related to the emotionally intense relationship contexts at the ward. High emotional closeness can be experienced as frightening, especially in severely impaired patients, because it can mobilize raw and painful emotions that are linked to traumatic experiences from early childhood (activation of dyadic units of self- and object-representations). These emotional distresses are externalized (*e.g.*, acting out, persisting symptoms) because they cannot be regulated and verbalized, and maladaptive defense mechanisms (splitting, projection) increase. As a result, the internal world is outside, and others are perceived in the following in a distorted, affectively overdetermined manner.

 Table 5. Descriptive statistics and Cohen's d for participants with data at t1 and t3.

		t1	t3			
	n	M (SD)	M (SD)	р	d	
BSL-23	31	3.09 (0.82)	2.63 (0.9)	< 0.05	0.54	

BSL, borderline symptom list.

A similar aspect can be found in the concept of mentalization: an emotionally close relationship context can lead to a loss of mentalization because of a strong and intense activation of the attachment system. Patients are overloaded, cannot regulate themselves, and relationships and internal states are externalized (Fonagy & Luythen, 2009). In the investigated inpatient TFP, a continued work in actual transference, time as well as strict limitations of destructive behavior is provided to work with these externalizations (acting out, the chaotic behavior and symptoms). Through this, patients make the experience that the external world differs to their internal one which can lead to a decline of maladaptive defenses (*e.g.*, reduction of the projective perception).

As a result, in the second part of the treatment (esp. midphase), more emotional calmness and stability comes into therapeutic work that enables to work on reflection of one's own behavior, the impact on others and the experience of emotion. Therefore, this phase focuses on the dominant object relations that are identified by the team (Yeomans *et al.*, 2017). In contact with several team members different facets of the patient's internal world are depicted due to their dissociated, splitted internal world. This can lead to contrary and inconsistent perceptual impressions (*e.g.*, paranoid patient *vs.* trustful patient, aggressive patient *vs.* needy patient). The different facets need to be recognized and discussed by the entire team and should be integrated into individual therapy. It should be emphasized that the entire duration of inpatient therapy is needed to bring out changes in patients with severe BPD.

Strength and limitations

Effectiveness studies are often criticized because of the lack of randomization and the high impact of confounding variables that result in a loss of internal validity. For example, according to the manual (Dulz *et al.*, 2022), different therapies (*e.g.*, non-verbal and pharmacological therapies) are included in the inpatient TFP setting, and therapists receive a TFP training or an adapted version of it to generate a confronting and interpersonal approach. However, it is not possible to differentiate whether the outcome of the treatment can be attributed to one specific therapy. An important limitation at this point is that we did not control for the effect of medication. Additionally, we failed to check the treatment integrity by using an adherence and competence measure, but the weekly consultation meetings and supervisons were supposed to secure the TFP focus.

However, the strength of a naturalistic design is clinically valuable knowledge that provides valuable input for psychotherapeutic practice. Overall, it is difficult to compare the evidence of different study designs. Rather, it should be emphasized that the different studies focus on different questions: effectiveness in the field versus the laboratory (Leichsenring & Rüger, 2004).

Waitlist control group

The main limitations concerning the WCG are due to the naturalistic design and ethical reasons. The inpatient admission occurred naturally and could not be controlled. As a result, the duration of patients on the waitlist varied and caused an imbalance between the WCG and the TG: The WCG had a waiting period with a mean of 2.5 months, whereas patients in the TG received therapy for a mean of 4 months. Furthermore, we did not collect information on whether patients got other treatments during the waiting period.

To deal with missing data and dropout, we used different sta-



tistical procedures like multilevel analyses and multiple imputation. The dropouts (26 % after 3 months of therapy and 58 % after 6 months of therapy) need to be differentiated: Some patients dropped out due to a lack of compliance, while others were discharged due to therapeutic limitations (e.g., lying, aggression against others, substance abuse). The dropout of 26 % corresponds to the findings of other studies focusing on patients with BPD (Barnicot et al., 2011; Iliakis et al., 2021). The dropout rate in the second half of the treatment is higher than the one in the first half. Iliakis et al. (2021) point out that a higher dropout risk is associated with longer study duration. An inpatient TFP, with its interpersonal and confronting approach and the strict limitations of destructive behavior, is a demanding setting. Especially during the second half, defense mechanism decline, which can lead temporarily to an increased paranoid perception before the beginning of integration. This could be an explanation for the high dropout rate in the second half. However, further studies must analyze whether and how patients respond to therapy (completer vs. non-completer).

Statistical procedure

For a valid analysis of the data, we used multilevel models, which take into account the longitudinal design and are also robust to missing values.

To keep the multilevel models as simple as possible and since we had no strong presumptions, we did not add control variables such as socio-demographic data or other measurement instruments. In further analyses, we will investigate interactions with these variables. Regarding the interpretation of the factor time in the multilevel models, we decided to define it as categorical (t0, t1, t2, t3) rather than continuous, especially since the delivery and return of the questionnaires took place at periods rather than at points in time.

Intention-to-treat analysis and imputation of missing values

The starter analysis showed only a nearly significant improvement for the second half of inpatient treatment. ITT-analyses and analyses, including missing values, showed that the second treatment phase led to a significant improvement. This supports the interpretation that the second half of treatment is necessary for a positive development of symptoms. However, since the inclusion of dropout or multiple imputation of missing values statistically increases the sample size and thus the power, the interpretation should be treated with caution. In addition, the inclusion of dropped-out participants who never made it to an inpatient admission biases the analyses, as their baseline scores indicated significantly higher impairments than the scores of the WCG.

Missing Values

Statistically, missing values were addressed using multiple imputation, a procedure that is considered as state-of-the-art. There were missing values for various reasons, but we assumed that they were all missing at random, a prerequisite for multiple imputations. We used parameters recommended by Grund *et al.* (2016) for multiple imputations and achieved good Rhat values. Nevertheless, the analysis of the imputed values must be interpreted cautiously, as we had to deal with a high percentage of missing values (43 %). The values of the follow-up measurement could be included to improve the process of the multiple imputations, and a detailed analysis of this data will be shown in a different paper.





Conclusions

In conclusion, this study's results demonstrated significant improvements in borderline-specific symptoms after six months of TFP inpatient treatment. The duration of the treatment seems meaningful. Although this study has methodological limitations, it can be assumed that TFP is effective in an inpatient setting.

Outlook

In further studies, changes in psychodynamic aspects (mentalization and personality organization) will be focused, as well as the follow-up measurement. To this end, the different self-rating questionnaires and the external rating (structural axis of the OPD-2) will be evaluated. Since studies about TFP in an inpatient setting are rare, it is important to conduct further investigations.

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