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LONG-LASTING SYMPTOMS IN BORDERLINE PERSONALITY DISORDER: DEFINING AN EMERGENT POPULATION WITH DIFFERENTIAL CLINICAL AND THERAPEUTIC FEATURES

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ABSTRACT

Although the clinical symptoms of borderline personality disorder (BPD) tend to remit over time, a substantial proportion continues to present “long-lasting symptoms” (LLS) such as negative affect, depression, emptiness and persistent psychosocial impairment. The aim of this study was to compare the sociodemographic, clinical and therapeutic variables in individuals with BPD with and without LLS. A total of 620 participants with BPD were included. The patients were divided into two subgroups according to the presence of LLS or not. We evaluated changes in the prevalence of patients with LLS treated at our BPD unit over a 20-year period. The groups were compared in sociodemographic, clinical and drug treatment characteristics. We also evaluated the impact of dialectical behavioral therapy-skill training (DBT-ST) on polypharmacy. The prevalence of individuals with long-lasting BPD symptoms increased significantly over the study period (from <1% to 16%). The LLS group was characterized by less clinical severity, higher comorbidity with affective disorders but lower comorbidity with eating disorders, more disability and more medication-taking. Patients with LLS who received DBT-ST experienced a significant decrease in the use of benzodiazepines and the number of medications prescribed compared to those that

did not receive DBT-ST. No specific instruments were administered to assess comorbidity or BPD symptom severity. The influence of DBT-ST on clinical outcomes was not evaluated. Clinicians should be aware of the specific features of BPD in this subset of older patients with LLS in order to better identify and address their specific therapeutic needs.

Keywords: borderline personality disorder, long-lasting symptoms, recovery, polypharmacy, skills training.

Research Article

INTRODUCTION

The estimated community lifetime prevalence of BPD is 2.7%, with higher rates in adolescents (2-3%) and lower rate in adults older than age 40 (0.4%)[1,2]. Given the lower prevalence in older adults, many researchers have concluded that BPD tends to "disappear" as patients age[3]. In addition, data from long-term follow-up studies suggest that symptoms tend to ameliorate over time[4,5,6], with a mean long-term diagnostic remission rate of 60%[7]. In fact, BPD symptoms appear to decrease even over time periods as short as 2 years after diagnosis, although not all symptoms are affected equally with the passage of time. For example, while anger and affect instability appear less likely to disappear over time, self-injury and abandonment prevention behaviors appear to be more likely to fade with time[8].

This decreasing tendency appears to be specific to impulsivity-related behaviors (e.g., self-injury, risky behaviors, and substance abuse), whereas symptoms related to negative affect (such as distress, depression and emptiness)—together with suicidality (whose risks remain high despite the decrease in self-harm behavior)—may persist or worsen with age[4,9,10,11]. Although clinical studies have consistently found that symptomatic remission is common in individuals with BPD, prolonged recovery is

relatively rare[12,13] due to the persistence of functional impairment[14]. Moreover, both remission and recovery are less likely in BPD than in other personality disorders[6].

In short, while the presentation of BPD appears to change over time, this condition continues to negatively impact psychosocial functioning. In addition, symptomatic remission (based on the Diagnostic and Statistical Manual of mental disorders criteria) is not a sufficient predictor of recovery from BPD[13].

Some studies have found that the clinical presentation of BPD in older patients differs significantly from the presentation observed in younger patients[4,9]. For example, younger patients are more likely to present poorly controlled behaviors, which they can learn to manage effectively with time and treatment. However, as they age, these "behavioral control strategies" might not ameliorate negative affect, leading to the "quiet desperation" that some patients report[11,15]. By contrast, older individuals with BPD are more likely to present co-occurring affective disorders, emotion dysregulation, poorly-controlled anger, more somatic symptoms and complaints, feelings of emptiness, social impairment, less substance use and differences in meeting specific BPD criteria[4,9,16,17].

In the context of routine clinical practice, polypharmacy is common in patients with BPD[18,19,20,21], even though the data do not support this practice and all clinical guidelines recommend avoiding polypharmacy[22,23]. A study found a trend towards more medication use (somatic and psychopharmaceuticals) and more polypharmacy in older BPD patients compared to other types of personality disorders[24]. The use of sedatives in this population is particularly concerning due to the risk of severe adverse effects.

Despite the overall tendency for patients with BPD to experience clinical remission over time, it is clear that a considerable subgroup of these individuals continues to present symptoms as they grow older and experience persistent psychosocial impairment. These symptoms, which can be conceptualized as “long-lasting BPD symptoms” (LLS), have been defined as symptoms (mainly low mood, poor psychosocial adjustment and feelings of emptiness) that persist over time in patients who show some degree of clinical improvement[25]. In fact, these temperamental and interpersonal characteristics have emerged as clinical hallmarks of BPD in the elderly[6,9].

Most of the available research on BPD has centered on patients in early adulthood without long-lasting symptoms. For this reason, it is important to clearly identify the differential clinical features of BPD in older patients in order to help clinicians avoid overlooking the presence of BPD in older individuals and to detect LLS that require specific treatment[26]. However, comparative data on the therapeutic response between older and younger BPD patients are scarce.

In this context, the aim of the present study was to compare the sociodemographic and clinical variables in patients with and without LLS of BPD. We hypothesized that impulsivity would be less prevalent in adults with LLS but that these patients would be more likely to present affective comorbidity and psychosocial impairment. We also expected that older adults with LLS would differ significantly from younger adults in terms of drug treatment characteristics (number and type of medications) and psychotherapeutic adherence.

METHOD

Participants

This naturalistic study included 620 patients consecutively admitted to the BPD outpatient unit at the Department of Psychiatry at the Hospital de la Santa Creu i Sant Pau (Barcelona, Spain) during a 20-year period (January 2001 to January 2021). This outpatient unit is part of Spain's Public National Mental Health Service and provides free specialized care for patients with BPD.

Individuals included in this therapeutic program are referred from other psychiatric units (psychiatric emergency units, acute hospitalization units, outpatient general mental health services and private mental health centers, among others) to confirm the suspected diagnosis and to receive BPD-specific treatment. Most of the individuals included in this study had previously received pharmacological and psychological treatment in other clinical units and did not respond to previous pharmacological and psychological interventions.

Given the retrospective study design, all patients were treated according to clinical protocols in place at the BPD unit at the time of admission. Admission to the BPD treatment program requires a confirmed diagnosis of BPD by clinical interview and two semi-structured diagnostic interviews: the validated Spanish versions of the Structured

Clinical Interview for DSM-IV axis II disorders (SCID-II)[27] and the Revised Diagnostic Interview for Borderlines (DIB-R)[28]. All evaluations were performed by an experienced psychiatrist and a clinical psychologist.

The 620 patients were subdivided in two groups. The first group consisted of patients aged 18 to 40 years of age without long-lasting symptoms (non-LLS group; n=549). The second group consisted of patients > age 40 with LLS (> 20 years since onset of BPD symptoms) (LLS group; n=71). Patients with “late-onset personality disorder” that emerge in late life were not included in this group.The cut-off (age 40) was selected for the following reasons: 1) community epidemiological studies report that the prevalence of BPD in adults over age 40 is only 0.4%[1], and 2) the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-5) indicates that interpersonal and occupational stability in patients with BPD generally occurs between third and fourth decades of life[1,29].

Of the 620 patients, 377 were included after January 2010 when our unit first recorded Dialectical Behavioral Therapy-Skills Training (DBT-ST) intervention and follow-up the effect of this intervention. All patients participated in the usual BPD treatment program,

which consisted of the reliable confirmation of BPD diagnosis with validated instruments, greater accessibility and emergency attention in crisis, higher frequency and duration of visits, therapeutic team with specific experience, family care, psychoeducation of the disorder, general management, and, finally, supervision of pharmacological treatment. The decision to participate in specific DBT-ST was optional. To determine the impact of DBT-ST on polypharmacy, we divided this cohort (n=377) into two groups according to whether they participated in the DBT-ST intervention (DBT-ST group; n=182) or not (control group; n=195).

Study design

Inclusion criteria were as follows: age ≥ 18 years; primary diagnosis of BPD (DSM-IV diagnostic criteria) confirmed by SCID-II and DIB-R; absence of comorbid psychotic disorder or bipolar disorder; and no neurological disease, intellectual disability, or any severe physical condition that could affect the intervention.

All study data were obtained from patients' medical records. The following variables were collected: age; gender; lifetime comorbid axis I disorders based on a clinical interview (yes/no, classified into four groups: affective disorders, anxious disorders,

substance use disorders, and eating disorders); lifetime comorbid axis II disorders based on SCID-II (yes/no; classified in three clusters: A, B, C); DIB-R total score; DIB-R subscale scores (affect [DIB-aff], cognition [DIB-cog], impulsive action patterns [DIB-imp], and interpersonal relationships [DIB-per]); and current medications.

All medications were classified into four categories, as follows: 1) antidepressants; including selective serotonin reuptake inhibitors (SSRI), tricyclic antidepressants, and dual-action agents; 2) benzodiazepines; 3) mood stabilizers; and 4) antipsychotics (first and second generation). We determined whether the participant was taking any drugs (yes/no) from the aforementioned categories and the total number of drugs (all categories) per patient.

We also calculated the medication load index described by Hassel and colleagues[30], which measures the total medication load. A detailed description of this index is available in a previous study[25]. Briefly, however, the composite total medication load index is designed to summarize the dose and variety of the different medications taken by the patient. The index score is the sum of all individual medication codes in each medication category for each participant. We also calculated the sedative load index,

which includes all medications that contribute to sedative load. Only those medications that were regularly used by the patients were considered when comparing the indices at each time point.

Written consent to participate in the study was not considered necessary as all data were collected retrospectively from routine admission data and anonymized. However, we checked the patients' medical records to ensure that there was no written objection to the use of this information. The study adhered to the principles outlined in the Declaration of Helsinki and was approved by the Clinical Research Ethics Committee at the Hospital de la Santa Creu i Sant Pau.

Instruments

All participants completed the following instruments.

Structured Clinical Interview for DSM-IV Axis II Disorder (SCID-II). A semi-structured interview designed to assess DSM-IV personality disorders. The Spanish validation study showed that this instrument discriminates well between personality disorders and has good inter-rater reliability[27].

Diagnostic Interview Revised for Borderlines (DIB-R). This instrument is designed to diagnose BPD and to assess the severity of the condition in the last 2 years. This interview also confirms that the patient currently meets criteria for BPD. The Spanish version has demonstrated good internal consistency (Cronbach's alpha, 0.89; sensitivity, 0.81; and specificity, 0.94)[28].

Psychotherapeutic intervention

DBT-ST. DBT-ST is an adaptation of the DBT format drawn from one of the four intervention modes of the standard version[15]. DBT-ST consisted of weekly skills training sessions (120 minutes each) delivered over a six-month period. The program consists of four main modules: mindfulness, distress tolerance, emotion regulation and interpersonal effectiveness. Upon completion of this six-month program, patients were invited to repeat the program to further reinforce the skills. All training sessions were conducted by two experienced psychotherapists, each with more than 10 years of clinical experience and specific training in DBT (Behavioral Tech Inc.; Seattle, WA, USA). The treatment groups consisted of 9-12 participants. None of the participants received any other type of individual or group psychotherapy during the study period.

Control group. This group included all patients that did not participate in the DBT-ST intervention for any reason, which included any of the following: scheduling conflicts; work-related issues; preference for other types of therapy; preference for individual therapy; and preference for private psychotherapy. Although these individuals did not receive any specific psychotherapeutic intervention for BPD, compared with general mental health services, they valued the higher frequency of psychiatric visits, attention in crisis, family care, and greater experience in the management of BPD. This follow-up visits also include supervision of pharmacological treatment avoiding, if possible, the excessive use of medications.

Statistical analysis

Data were analyzed using IBM SPSS Statistics for Windows, v. 25.0. All data were screened for skewness and kurtosis to test assumptions of normality. All hypotheses were tested to a two-sided significance level of 0.05.

Demographic and clinical data at baseline were described using measures of frequency, central tendency, and dispersion. To compare between-group (non-LLS vs. LLS) differences in baseline characteristics, chi-square tests (or Fisher's exact test if

expected frequencies were < 5) were used for categorical variables and ANOVAs for independent samples for continuous variables. To assess changes in the prevalence of older patients during the 20-year study period, we grouped the sample into four 5-year periods, as follows: 2001-2005, 2006-2010, 2011-2015, and 2016-2020. The percentage of older participants across these periods was compared using Chi-square tests (or Fisher's exact test when expected frequencies were < 5).

To study the impact of DBT-ST treatment on pre-post differences in the mean number of drugs per patient and in the medication and sedative load indices, we conducted multivariate repeated-measures ANOVAs. Treatment effects were assessed by entering each variable as a dependent variable: time (pre- and post-treatment) was entered as a within-subjects factor, and group condition (LLS vs. non-LLS) was entered as a between-subject factor.

Finally, to determine the impact of DBT-ST on reducing medication usage, we compared the DBT-ST group to the non-DBT-ST group in terms of the percentage of patients that discontinued use of each of the four drug categories (antidepressants,

benzodiazepines, mood stabilizers, and antipsychotics). For this analysis, chi-square tests (or Fisher's exact tests if expected frequencies were < 5) were used.

RESULTS

Sample characteristics

The overall sample consisted of 620 patients with a primary diagnosis of BPD. Of these, 71 (11.4%) were > 40 years of age with long-lasting BPD symptoms. In this older subgroup, the mean (SD) time from onset of first BPD presentation was 26.96 (3.75) years (range, 21-37). During the study period, there was a significant, progressive increase in the percentage of older patients treated at the unit, which increased from 0.9% in the first 5-year period (2001-2005) to 16.2% in the final period (2015-2020) ($p < 0.001$) (Figure 1).

Table 1 summarizes the differences between the groups in sociodemographic and clinical characteristics. Compared to the non-LLS group, the LLS group had less clinical severity (DIB-R total scores), especially with regard to impulsivity and

interpersonal relationship problems. In addition, a significantly higher percentage of the LLS group had comorbidity with affective disorders although comorbidity with eating disorders was significantly lower. A higher percentage of the LLS group were receiving disability payments (29.9% vs 8.8%). Despite the lower overall severity of BPD in the LLS group compared to the non-LLS group, these patients were taking, on average, more medications; in addition, a higher proportion were receiving polypharmacy (≥3 medications; LLS 59.2% vs. non-LLS 48.9%, p=0.6).

Differences between groups in medication use after completion of the DBT-ST intervention

We compared the participants treated at the BPD unit between January 2010 and January 2020 (n=377) who participated in the DBT-ST program (n=182) versus those who did not participate (controls, n=195). There were no differences between the LLS and non-LLS groups in terms of the number of participants who agreed to participate in DBT-ST.

Table 2 shows the changes in prescription patterns in the 182 patients who received DBT-ST, showing that participants with LLS experienced a significant effect of time. A

significant decrease in the number of medications prescribed and, in the medication and sedation load indices after completion of DBT-ST, with a large effect size. Compared to the non-LLS group, the ANOVA showed no significant Group x Time interaction, there were no differences in terms of reduction of the number of medications taken, the medication and sedation indices, nor in the use of any class of medication (i.e., no group x time interactions; all p-values > .53). Both groups (LLS and non-LLS) experienced a similar reduction in medication usage post-intervention.

Next, we compared the subset of patients with LLS (n=55) who received the DBT-ST intervention (n=28) to those who did not (n= 27) (Table 3). In the DBT-ST group, the number of medications, medication and sedation load indices both decreased significantly after DBT-ST, with a large effect size. Similarly, the use of benzodiazepines decreased significantly in the DBT-ST group (from 64.3% to 39.3%) versus no decrease in the patients who did not receive DBT-ST (Table 3).

DISCUSSION

Although the clinical symptoms of BPD tend to remit over time, a significant proportion of patients present long-lasting symptoms and an impaired psychosocial functioning, which can persist into older adulthood. The findings of the present study show that the prevalence of older individuals with long-lasting BPD symptoms seeking care at our specialized unit has increased significantly in the last 20 years. Our data show that, compared to younger BPD patients, those with LLS present lower levels of impulsivity, fewer interpersonal relationships problems, and less comorbidity with eating disorders but more comorbidity with affective disorders. Despite the lower overall severity in the LLS subgroup, these patients take more medications and are more likely to be on polypharmacy than individuals without LLS. Importantly, DBT-ST appears to help to reduce polypharmacy in both older and younger patients with BPD.

The sociodemographic and clinical profile of individuals with BPD treated at our BPD unit has changed in the last two decades. A new subpopulation—patients over age 40 with LLS—has emerged in the 20-year study period. Importantly, the prevalence of this clinical subtype has increased over time (from < 1% in 2001 versus 16% in 2021). This finding is highly relevant, especially given that most longitudinal studies of BPD (and clinical trials) have not included people over age 40. In fact, this is why our

understanding of treatment alternatives for this subgroup is so limited. In real-world clinical practice, these older patients do not disappear; rather, they still seek treatment for their symptoms, as evidenced by their growing prevalence in our BPD treatment unit. Given the unique characteristics of these patients, there is a need to identify and apply specific therapeutic interventions to help to prevent or at least ameliorate these chronic symptoms. In this regard, it could be useful to develop and apply a clinical staging model across the lifespan and to design interventions tailored to the specific stage of BPD, thus shifting attention towards the individual's level of impairment[31].

Our results show that this older population of patients with LLS present less severe disease and other clinical features that differentiate them from their younger counterparts; however, overmedication is more prevalent. In our cohort, this older subpopulation with LLS had less severe BPD (DIB-R total scores), mainly due to lower impulsivity behavior scores and fewer interpersonal relationship difficulties. This finding regarding impulsivity is consistent with several long-term follow-up studies, which have also found that impulsivity improves over time. Notably, some studies have observed that these patients present a decrease in activity and social life across their lifespan, which may be an "adaptation mechanism" (avoidant pattern) related with the

apparent “improvement” in relationship problems[14]. In our sample, the individuals with LLS had less comorbidity with eating disorders, in line with previous reports, suggesting that comorbidity rates between BPD and eating disorders decrease significantly over time. For example, Zanarini’s group found that most individuals with BPD who met criteria for eating disorders experienced remission over time[32].

Unexpectedly, we found that the prevalence of drug use disorder was similar in both younger and older patients. BPD, especially among younger individuals, is generally characterized by greater impulsivity and a preference for short-term rewards. This inability to focus on the long-term, together with high levels of impulsivity, predisposes patients to substance use disorders (SUD)[2,33].

However, longitudinal studies show that prevalence rates tend to decrease over time[34]. In our sample, we expected lower impulsivity among the older group and, therefore, a lower prevalence of associated SUD; however, one-third of the individuals with LLS presented comorbidity with SUD. While the reason for this high rate of comorbid SUD in these patients is not entirely clear, it would be reasonable to hypothesize that patients with LLS may use substances not as a risk behavior, but rather as a form of

experiential avoidance due to higher levels of emotional distress. Unfortunately, due to the lack of data, this is only a hypothesis that future studies may confirm or reject. By contrast, the LLS group showed worse functioning (i.e., more disability) and higher comorbidity rates with affective disorders, a finding that is consistent with previous reports showing that "depression" (major depressive disorder or dysthymia) appears to be associated with slower remission and is a predictor of persistence of BPD into older adulthood[9]. The decrease in impulsivity-related behaviors can be misinterpreted as clinical remission and give a false sense of stability.

Previous studies by our group have shown that although polypharmacy is more the rule than the exception in this patient population[19], DBT-ST can help to reduce medication use[25]. In this regard, it is worth underscoring that older adults with LLS—despite having less severity and lower levels of impulsivity—take more prescription drugs, and polypharmacy is common. The reason for this appears to be that psychiatrists faced with the presence of chronic and affective symptoms tend to prescribe drugs for symptom relief. Another potential explanation could be that the polypharmacy is due to the psychiatrist's inability to stop the gradual deterioration (or lack of improvement) in the patient's condition. In this context, polypharmacy might be

a way to compensate for the lack of specific psychotherapy programs for BPD patients with persistent symptoms. Finally, some clinicians may underrecognize the disorder in older individuals because the symptoms in these individuals differ from those typically observed in younger patients, together with the high comorbidity with affective symptoms. In any case, due to the observational, cross-sectional design of our study, it is not possible to determine the specific direction of this association.

Most treatments of BPD focus on the acute symptoms (i.e., self-injury behaviors and impulsivity) and DBT-ST is specifically indicated for the treatment of severe emotional dysregulation and behavioral dyscontrol. However, the value of DBT-ST for the treatment of LLS of BPD in older populations remains unclear due to the scant data available. Nonetheless, our findings suggest that DBT-ST can benefit these patients by reducing polypharmacy. This is important given that polypharmacy is contraindicated in this population. More specifically, we found that DBT-ST can significantly reduce the number of medications (particularly, benzodiazepines) and medication and sedation load indexes in patients over age 40, similar to the previously-reported effects of DBT-ST in younger patients[25]. This finding suggests that DBT-ST may be a useful therapeutic option for older patients with LLS, even though these

patients tend to present less impulsivity, and fewer self-injury behaviors and/or interpersonal problems. Nevertheless, it is important to emphasize that DBT-ST alone might not be sufficient to address the specific therapeutic needs of this subpopulation, whose clinical presentation differs from the traditional presentation of BPD, on which most BPD treatments are based. New psychotherapeutic strategies are needed to address functionality, patients' personal views of recovery, and life satisfaction in this older population with LLS. In this regard, a recent study performed to assess the feasibility and acceptability of a new intervention combining DBT and contextual-based skills designed to foster wellbeing in patients with long-lasting symptoms of BPD reported highly promising results[31].

This study has several limitations. First, determination of comorbidities was based on clinical interview alone, without the use of any specific instruments. In addition, DIB-R scores may not necessarily be the best indicator of severity for certain domains. Third, we did not use scales designed to assess clinical changes and improvements to evaluate the efficacy of DBT-ST, mainly because a decrease in medication use does not necessary imply better functionality. Future studies should be developed to address these limitations. Despite these limitations, the study has several important

strengths, including the application of the DIB-R, which assesses all relevant symptoms in the last two years (i.e., those that most closely associated with distress and disability). Other strengths include the large sample size and the longitudinal nature of the study, which help to better define and characterize this emerging and growing population of older patients with LLS.

Conclusion

As the population continues to age, the number of older patients with BPD is expected to increase, which implies that the burden of this disorder on society will continue to grow. Our findings suggest that the clinical features of BPD in this older group appear to differ from those observed in younger patients. In addition, we also found that DBT-ST can reduce polypharmacy in older BPD patients with LLS. In this regard, it is important for clinicians to be aware of the specific features of this subpopulation in order to properly address their therapeutic needs. A better understanding of the course of BPD could significantly improve the clinical management of these patients over their lifespan.

Legend for Figure 1. This figure shows the changes in the percentage of older patients (> age 40) with long-lasting BPD symptoms from 2001 to 2020. The linear trend was significant ($p < 0.001$).

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Table 1. Baseline demographic and clinical characteristics of the full cohort (n=620) with differences between groups.

Variables	Total (n=620)	Non-LLS (n=549)	LLS (n=71)	χ^2	*F*	*p*
Age, mean (SD)	29.93 (7.9)	28.02 (6.1)	44.69 (3.6)		496.8	< .001
Females, n (%)	546 (88.1%)	485 (88.3%)	61 (85.9%)			n. s
Clinical variables						
DIB-R score, mean (SD)	7.32 (1.2)	7.37 (1.2)	6.9 (1.1)		9.39	.002
DIB-Aff	1.77 (0.4)	1.78 (0.4)	1.73 (0.5)			n. s
DIB-Cog	0.86 (0.7)	0.87 0.7)	0.79 (0.7)			n. s
DIB-Imp	2.36 (0.7)	2.38 (0.7)	2.15 (0.8)			.014
DIB-Per	2.33 (0.8)	2.35 (0.7)	2.15 (0.8)			.038
Axis I comorbidity, n (%)	467 (75.3%)	412 (75%)	55 (77.5%)			n. s
Affective disorders	176 (28.4%)	145 (26.4%)	31 (43.7%)	9.2		.002

Anxiety disorders	155 (25%)	135 (24.6%)	20 (28.2%)		n. s
Eating disorders	205 (33.1%)	195 (35.5%)	10 (14.1%)	13.0	< .001
Substance use disorders	229 (36.9%)	202 (36.8%)	27 (38%)		n. s
Pharmacological treatment					
Medications, mean (SD)	2.52 (1.6)	2.46 (1.5)	2.99 (1.8)	6.7	0.01
0	76 (12.3%)	70 (12.8%)	6 (8.5%)		
1	95 (15.3%)	85 (15.5%)	10 (14.1%)		
2	138 (22.3%)	125 (22.8%)	13 (18.3%)		
3	148 (23.9%)	130 (23.7%)	18 (25.4%)		
4	90 (14.5%)	82 (14.9%)	8 (11.3%)		
≥5	73 (11.8%)	48 (10.3%)	16 (22.5%)		
Antidepressants	462 (74.5%)	405 (73.8%)	57 (80.3%)		n. s

Benzodiazepines	349 (56.3%)	305 (55.6%)	44 (62%)	n. s
Mood stabilizers	257 (41.5%)	225 (41.0%)	32 (45.1%)	n. s
Antipsychotics	217 (35.0%)	191 (34.8%)	26 (36.6%)	n. s

Abbreviations: DIB-R, Revised Diagnostic Interview for Borderlines; DIB-aff, subscale DIB-R affect; DIB-cog, subscale DIB-R cognition; DIB-imp, subscale DIB-R impulsive action patterns; DIB-per, subscale DIB-R interpersonal relationships; LLS, long-lasting symptoms; n.s., not significant; SD, standard deviation.

Table 2. Between-group differences in pre-post changes in prescriptions following the DBT-ST intervention (N = 182).

	Patients without LLS (N= 154)		**Patients with LLS (N= 28)**			
	Pre	**Post**	**Pre**	**Post**	**Time Main Effect**	
	Mean (SD)				F	η²
Medications, n	2.54 (1.69)	1.84 (1.28)	3.32 (1.86)	2.54 (1.55)	44.36***	.19
Medication load	4.06 (2.79)	2.91 (2.11)	5.18 (2.95)	3.82 (2.32)	56.92***	.24
Sedation load	2.37 (2.04)	1.25 (1.50)	3.11 (2.23)	2.07 (1.80)	64.21***	.26
Percentage patients	%				**Diff % Non-LLS vs. LLS**	
On medication	89	88.2	96.4	96.4	0.8% vs. 0%	
Antidepressants	76.5	80.4	85.7	82.1	3.9 % vs. -3.6 %	
Benzodiazepines	52.3	24.8	64.3	39.3	-27.5% vs. -25%	
Mood stabilizers	41.8	31.4	50	39.3	-10.4% vs. -10.7%	
Antipsychotics	35.9	26.1	39.3	46.4	-9.8 vs. 7.1%	

Abbreviations. LLS, long-lasting symptoms. DBT-ST, Dialectical Behavioral Therapy-Skills Training; SD, standard deviation.

*** P < .001

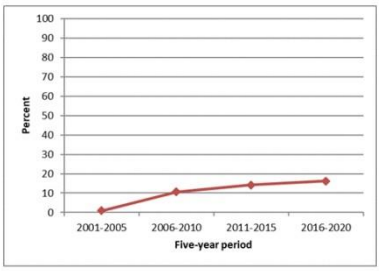
Group x Time Effect no significant interaction (p > .05)

Table 3. Effect of DBT-ST on participants with long-lasting symptoms (N = 55).

	LLS with DBT-ST (n=28)		**LLS without DBT-ST (n=27)**		
	Pre	**Post**	**Pre**	**Post**	**Group x Time interaction**
	Mean (SD)				F η²
Medications, n	3.32 (1.86)	2.54 (1.55)	2.33 (1.96)	2.41 (1.94)	15.58*** .22
Medication load	5.18 (2.95)	3.82 (2.32)	3.63 (3.31)	3.44 (3.26)	11.30** .17
Sedation load	3.11 (2.23)	2.07 (1.80)	2.07 (2.41)	2.11 (2.48)	17.49*** .24
Percentage	%	%	%	%	
On medication	96.4	96.4	81.5	81.5	n. s.
Antidepressants	85.7	82.1	66.7	66.7	n. s.
Benzodiazepines	64.3	39.3	55.6	55.6	< 0.01
Mood stabilizers	50	33.3	42.2	40.7	n. s.
Antipsychotics	39.3	46.4	25.9	25.9	n. s.

Abbreviations. LLS, long-lasting symptoms. DBT-ST, Dialectical Behavioral Therapy-Skills Training; M, mean; SD, standard deviation.

** P < .01, *** P < .001



Legend for Figure 1. This figure shows the changes in the percentage of older patients (> age 40) with long-lasting BPD symptoms from 2001 to 2020. The linear trend was significant ($p < 0.001$).

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