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Societal cost-of-illness in patients with borderline personality disorder one year before, during and after dialectical behavior therapy in routine outpatient care

Till Wagner [a, *], Thomas Fydrich [a], Christian Stiglmayr [b], Paul Marschall [c], Hans-Joachim Salize [d], Babette Renneberg [e], Steffen Fleßa [c], Stefan Roepke [f, **]

[a] Department of Psychology, Humboldt-University, Unter den Linden 6, 10999 Berlin, Germany
[b] Arbeitsgemeinschaft für Wissenschaftliche Psychotherapie, Witzlebenstraße 30a, 14057 Berlin, Germany
[c] Institute of Health Care Management, University of Greifswald, Friedrich-Loeffler-Straße 70, 17489 Greifswald, Germany
[d] Central Institute of Mental Health, Medical Faculty Mannheim, Heidelberg University, D6, 68159 Mannheim, Germany
[e] Department of Clinical Psychology and Psychotherapy, Freie Universität Berlin, Habelschwerdter Allee 45, 14195 Berlin, Germany
[f] Department of Psychiatry, Charité-Universitätsmedizin Berlin, Campus Benjamin Franklin, Eschenallee 3, 14050 Berlin, Germany

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ABSTRACT

Societal cost-of-illness in a German sample of patients with borderline personality disorder (BPD) was calculated for 12 months prior to an outpatient Dialectical Behavior Therapy (DBT) program, during a year of DBT in routine outpatient care and during a follow-up year. We retrospectively assessed resource consumption and productivity loss by means of a structured interview. Direct costs were calculated as opportunity costs and indirect costs were calculated according to the Human Capital Approach. All costs were expressed in Euros for the year 2010. Total mean annual BPD-related societal cost-of-illness was €28026 (*SD* = €33081) during pre-treatment, €18758 (*SD* = €19450) during the DBT treatment year for the 47 DBT treatment completers, and €14750 (*SD* = €18592) during the follow-up year for the 33 patients who participated in the final assessment. Cost savings were mainly due to marked reductions in inpatient treatment costs, while indirect costs barely decreased. In conclusion, our findings provide evidence that the treatment of BPD patients with an outpatient DBT program is associated with substantial overall cost savings. Already during the DBT treatment year, these savings clearly exceed the additional treatment costs of DBT and are further extended during the follow-up year. Correspondingly, outpatient DBT has the potential to be a cost-effective treatment for BPD patients. Efforts promoting its implementation in routine care should be undertaken.

Introduction

Borderline personality disorder (BPD) is a severe mental disorder that is characterized by high instability in affect regulation, impulse control, interpersonal relationships and self-image (Lieb, Zanarini, Schmahl, Linehan, & Bohus, 2004) and occurs in up to 2.7% of the general adult population (Trull, Jahng, Tomko, Wood, & Sher, 2010). There are many indications that BPD is associated with high cost-of-illness. From a societal perspective, cost-of-illness include all costs regardless of the payer and consist of direct costs related to medical and non-medical resource consumption and indirect costs due to loss of productivity. BPD patients use mental health services to a greater extent than patients with major depression (Bender et al., 2001, 2006) and patients with other personality disorders (Bender et al., 2001; Hörz, Zanarini, Frankenburg, Reich, & Fitzmaurice, 2010). Thereby, on average, BPD patients are first hospitalized for psychiatric reasons at the age of 21 and first seek many other psychiatric and psychotherapeutic treatments between the age of 18 and 25 (Zanarini, Frankenburg, Khera, & Bleichmar, 2001), a critical period for professional development. Accordingly, there seems to be a strong relationship between BPD and poor occupational functioning. Skodol et al. (2002) found that in comparison to patients with major depression, a significantly higher proportion of BPD patients were disabled and

* Corresponding author. Department of Psychiatry and Psychotherapy, University of Lübeck, Ratzeburger Allee 160, 23538 Lübeck, Germany. Tel.: +49 451 5002861.
** Corresponding author. Tel.: +49 30 84458796.
E-mail addresses: till.wagner@uksh.de (T. Wagner), stefan.roepke@charite.de (S. Roepke).

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significantly fewer were employed. Jackson and Burgess (2004) showed that among all personality disorders, BPD had the strongest association with lost days of role functioning. Furthermore, compared to remitted BPD patients, non-remitted BPD patients were more likely to have quitted or lost their jobs due to their impaired state of health (Frankenburg & Zanarini, 2004).

Despite these indications, BPD-related costs have rarely been investigated comprehensively. According to the only state-of-the-art cost-of-illness study assessing direct and indirect costs including 88 BPD patients seeking an outpatient psychotherapeutic treatment, BPD-related societal cost-of-illness in the Netherlands were substantial, amounting to €21120 (€16852)[1] per BPD patient per year (Van Asselt, Dirksen, Arntz, & Severens, 2007). It is important to note that slightly more than 50% of total costs were indirect costs, mostly due to work disability, underlining the importance of completing comprehensive cost investigations. Additionally, several studies investigated BPD-related direct costs during the year preceding inpatient or outpatient psychotherapy. On average, these were €15088 in Germany (DM 24000; Jerschke, Meixner, Richter, & Bohus, 1998), €38771 (treatment group: US $44487, treatment-as-usual (TAU) group: US $52562; Bateman & Fonagy, 2003) and €16779 in Great Britain (treatment group: £7860, TAU group: £5240, each reported for a six-month period; Palmer et al., 2006) and €19978 in Australia (AUS $25526; Hall, Caleo, Stevenson, & Meares, 2001). A direct comparison between these results is impeded by a wide range of cost components included in the cost calculations in these investigations.

At the same time that BPD is associated with high costs and BPD patients are heavy users of mental health treatments that are seldom specifically designed for their disorder (Jobst, Hörz, Birkhofer, Martius, & Rentrop, 2010), there are several disorder-specific and clinically effective psychological treatments for BPD patients. Of these, Dialectical Behavior Therapy (DBT; Linehan, 1993a, 1993b) has been studied most intensely in numerous randomized controlled trials (RCTs) and has the greatest empirical evidence concerning clinical efficacy (Stoffers et al., 2012). In particular, DBT was observed to be effective in reducing self-injurious and suicidal behavior, as well as in reducing psychiatric hospital days and emergency room visits (e.g. Koons et al., 2001; Linehan, Armstrong, Suarez, Allmon, & Heard, 1991; McMain et al., 2009). Moreover, evidence indicates that these improvements can be maintained over a two-year follow-up period (McMain, Guimond, Streiner, Cardish, & Links, 2012).

Based on these results related to the clinical efficacy of DBT, one can reasonably assume that DBT also has great economic potential. Accordingly, Heard (2000) found that the total mean annual direct costs of BPD patients were €9210 (US $9889) lower when patients participated in outpatient DBT (€9178 respectively US $9856) compared to TAU (€18388 respectively US $19745) in the US. While treatment costs for outpatient psychotherapy were higher in the DBT group, these were offset by lower psychiatric inpatient and emergency room costs. Similarly, in an Australian trial by Pasieczny and Connor (2011), total direct costs per patient during a six month time interval were €8301 (AUS $12196) in the DBT group and €12335 (AUS $18123) in the TAU condition, resulting in cost savings of €4034 (AUS $ 5927) that again were primarily due to significantly lower inpatient costs. In contrast to these findings, in a sample of self-harming patients with any personality disorder diagnosis, total mean annual direct costs in the DBT group (€6310 respectively £5685) exceeded those in the TAU group (€4167 respectively £3754) by €2143 (£1931; Priebe, Bhatti, & Barn, 2012). Further, Brazier et al. (2006) undertook economic evaluations of four RCTs that had investigated the efficacy of DBT. Total direct costs from the governmental perspective were estimated on the basis of data from the RCTs and a cost regression model. Whereas the estimated total mean annual direct costs of patients treated with DBT and TAU were on a comparable scale in two studies (DBT: €19941 respectively £15691, TAU: €21475 respectively £16898, Linehan et al., 1991; DBT: €22151 respectively £17430, TAU: €21231 respectively £16706, Van den Bosch, Verheul, Schippers, & Van den Brink, 2002), the direct costs in the DBT group were considerably higher than in the TAU group in one study (DBT: €29787 respectively £23439, TAU: €18828 respectively £14815, Koons et al., 2001) and lower in another study (DBT: €20007 respectively £15743, TAU: €24026 respectively £20985, Turner, 2000).

In the present study, we assessed from the societal perspective the BPD-related cost-of-illness in a German sample of BPD patients in the 12 months prior to inclusion in a one-year outpatient DBT program. We further investigated BPD-related societal cost-of-illness during that specific year of outpatient DBT administered in the regular health-care system in the city of Berlin and during the following year. Following the results of Heard (2000) and Pasieczny and Connor (2011), we hypothesized that mostly due to the reduction of BPD-related inpatient treatment, the overall societal cost-of-illness during the DBT treatment year are lower than those in the year preceding DBT treatment. Also, in accordance with the findings of McMain et al. (2012), we expected that the presumed cost reduction is maintained during the follow-up year.

Materials and methods

The present investigation was conducted as part of a Berlin-wide treatment study ("Berliner Borderline Versorgungsstudie"; abbr.: BBV) evaluating the effectiveness of DBT in a naturalistic setting on the basis of a pre-post design with follow-up assessments. BBV was conducted at Charité-Universitätsmedizin Berlin and approved by the Charité's ethics committee. The methodology of this trial has been described in detail elsewhere (Stiglmayr et al., in revision).

Participants

Patients were referred by hospital services, outpatient psychotherapists and psychiatrists, as well as by social services collaborating in a local professional BPD treatment network ("Borderline Netzwerk Berlin"). In addition, participants were informed about the study through the network's homepage[2] and contacted BBV directly. After an initial telephone screening, all patients were assessed using the Structured Clinical Interview for DSM-IV (SCID-I/P; First, Spitzer, Gibbon, & Williams, 2002; SCID-II; First, Gibbon, Spitzer, Williams, & Benjamin, 1997). All interviews were conducted by board certified psychotherapists or clinical psychologists who were currently in psychotherapy training and participated in a 22-h SCID-I and II training with co-author T.F. and ongoing supervision from co-author B.R. Patients were included in the trial if they met at least five BPD criteria according to DSM-IV-TR (American

[1] In the following sections, to improve comparability among studies, all presented costs are adjusted for the 2010 price level using country-specific inflation rates (Eurostat, 2013; The Federal Statistical Office, 2011b; Rateinflation, 2013), converted into Euros (on January 4th, 2010 one Euro was worth 0.89 British Pounds, 1.44 US-Dollar and 1.59 Australian Dollar; on January 1st, 1999 one Euro was worth 1.96 Deutsche Mark) and annualized. Where costs were calculated for a treatment and control condition separately, we calculated average costs for the whole sample. In addition, original cost data are reported in parentheses or named after the adjusted costs.

[2] www.borderline-netzwerk-berlin.de.