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A pilot study of two-day cognitive-behavioral therapy for panic disorder

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Abstract

The present study investigated the short-term efficacy of brief, intensive cognitive-behavioral therapy (CBT) for panic disorder (PD). The treatment involved 9 h of therapist contact over two consecutive days and was developed for the purpose of delivering CBT for PD to a largely rural patient population that must travel long distances to find a treatment provider. Ten patients who elected to participate in brief, intensive CBT instead of weekly CBT were recruited from routine clinical practice in a hospital-based anxiety disorders clinic. Patients were not excluded based on the presence of agoraphobia, diagnostic comorbidity, concurrent use of PRN benzodiazepine medications, or previous nonresponse to psychotherapy for PD. Assessments conducted at pre-treatment and 1-month follow-up revealed large, clinically significant reductions in PD symptoms, anxiety sensitivity, body vigilance, and anxiety and depressive symptoms. Most patients (60%) were panic-free after treatment and evidenced normative levels of symptomatology at follow-up. The present study suggests that brief, intensive treatment may be an effective means of delivering CBT for PD.

Keywords: Panic disorder; Cognitive-behavioral therapy; Exposure; Brief treatment; Psychotherapy

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Introduction

Cognitive-behavioral therapy (CBT) involving interoceptive exposure is the psychological treatment of choice for panic disorder (PD) (Barlow, 2002). This treatment, when delivered in 12–15 weekly sessions, produces substantial and durable reductions in PD symptoms (Addis et al., 2004; Barlow, Gorman, Shear, & Woods, 2000) and, relative to pharmacotherapy, appears more cost-effective (Heuzenroeder et al., 2004), acceptable and preferable to patients (Deacon & Abramowitz, in press), and less likely to result in attrition (Hofmann et al., 1998). Despite the established efficacy and effectiveness of CBT, many patients with PD are unable to benefit from this treatment; for example, individuals living in underserved rural settings who must commute long distances for weekly appointments. This extra travel time can create a strain on time and financial resources, leading to treatment refusal. In the present study, we examined the effectiveness of a brief (2-day), intensive variant of CBT for PD that might be well suited for patients and treatment providers in settings where the aforementioned barriers to obtaining effective treatment exist.

A growing body of research has examined the efficacy of various methods for abbreviating standard treatment. Studies examining bibliotherapy (e.g., Gould, Clum, & Shapiro, 1993), computer-guided self-exposure (Marks, Kenwright, McDonough, Whittaker, & Mataix-Cols, 2004), internet-based treatment (e.g., Carlbring, Westling, Ljungstrand, Ekselius, & Andersson, 2001), and teletherapy (e.g., Swinson, Fergus, Cox, & Wickwire, 1995) indicate that reduced therapist contact interventions may be viable options for many individuals with PD. These studies highlight the possibility raised by stepped care models (Newman, 2000) that brief CBT might serve as a first-line treatment for patients who are likely to benefit from minimal interventions.

Although reducing therapist contact makes therapy more affordable and minimizes the inconveniences associated with frequent office visits, the duration of these interventions does not differ appreciably from that of standard CBT in most studies (e.g., Cote, Gauthier, Cormier, & Plamondon, 1994). As a result, such interventions might not make treatment more accessible to patients who lack sufficient time or who desire more immediate symptom reduction. Few studies have examined brief CBT approaches that include the essential features of CBT for PD: (a) education, (b) cognitive restructuring, (c) therapist-assisted interoceptive exposure, and (d) therapist-supervised in vivo exposure (e.g., Schmidt, 1999). Fewer still have compared reduced therapist contact interventions to this "gold standard" CBT. Perhaps not surprisingly, the most consistently effective brief treatments for PD are those that emphasize these procedures (e.g., Clark et al., 1999). Notably, several studies indicate that very brief, intensive, exposure-based interventions produce outcomes comparable to standard CBT in a matter of weeks (Westling & Ost, 1999) or even days (Evans, Holt, & Oei, 1991).

In the present study, we describe a novel, 2-day, therapist-directed exposure-based CBT approach for PD that was developed to serve a largely rural patient population. Pilot efficacy data are presented from a sample of PD patients treated in routine clinical practice. Although this study was exploratory in nature, based on previous research we hypothesized that brief CBT would produce clinically significant reductions in PD symptoms from pre-treatment to 1-month follow-up.

Method

Participants

Ten adults (eight women and two men, all of whom were Caucasian; mean age = 38.4 years; SD = 11.5; range = 26–62) meeting *DSM-IV-TR* criteria for PD with agoraphobia ($n = 5$) and PD without agoraphobia ($n = 5$) were recruited from a multidisciplinary anxiety disorders clinic within a large academic medical center. The sample was well-educated: four participants had attended some college and five had earned at least a bachelor's degree. Median annual family income was between $50,000 and $60,000 per year. Seven participants had full-time jobs, one was a full-time college student, and two were retired. Eight participants were married or living with a partner. In order to be included in the present study, patients had to have a principal diagnosis of current PD and express a preference for brief CBT rather than standard (i.e., weekly) CBT. Exclusion criteria included having an untreated substance use disorder, a psychotic disorder diagnosis, current suicidality, concurrent involvement in psychotherapy for PD, or seeking treatment for a problem other than PD (e.g., a different anxiety disorder or depression).

Following their initial clinic assessment, patients who wished to participate in CBT were informed about, and asked to select from, two approaches: a standard, once-weekly meeting schedule and a 2-day, intensive approach (described in Section 2.4). Of the 14 PD patients assessed during the 12-month study period, four selected standard CBT while 10 opted for brief CBT. Primary reasons for choosing brief CBT over standard CBT were desire for rapid improvement ($n = 5$), rural residence and no access to a local CBT provider ($n = 4$), and returning to college in 1 month ($n = 1$).

The mean duration of PD in the sample was 53.9 months (SD = 73.8; range = 1–240). Responses to item 1 of the panic disorder severity scale (PDSS; see below) indicated that in the past month, five patients experienced an average of less than one panic attack per week, one patient averaged two attacks per week, one patient averaged more than two per week, and three patients experienced at least one panic attack each day. Three patients had additional, current diagnoses, including one with generalized anxiety disorder and hypochondriasis, one with hypochondriasis and major depressive disorder, and one with social phobia. Seven patients were currently taking SSRI medications, and four were also taking a benzodiazepine. Two patients had never taken medication for PD, and one had previously taken numerous antidepressant and benzodiazepine medications but was currently medication-free. Four patients had previously participated in psychotherapy for PD (relaxation training or biofeedback in each case), whereas six had never had psychological treatment.

Assessment

All patients had an initial assessment including a 1.5-h semi-structured diagnostic interview with a clinical psychologist using the Mini International Neuropsychiatric Interview (MINI) (Sheehan et al., 1998), which is easily integrated into clinical practice, has good reliability and validity, and a high concordance rate with the SCID diagnosis of PD (kappa = .76) (Sheehan et al., 1998). The assessor also conducted a functional analysis of the patient's panic symptoms and administered PDSS (Shear et al., 1997), which assesses the overall severity

of PD and agoraphobic avoidance in the past month. At the end of the assessment, each patient was provided with feedback about their diagnosis and treatment options. This feedback included discussion of the cognitive-behavioral conceptualization of PD and description of CBT.

Several well-studied self-report instruments, with good psychometric properties, that assess the symptoms of PD, agoraphobia, depression, general anxiety, and panic-related cognitive phenomena, were also administered during the pre-treatment assessment. These included the panic and agoraphobia scale (PAS) (Bandelow, 1999), anxiety sensitivity index–revised (ASI-R) (Taylor & Cox, 1998), body vigilance scale (BVS) (Schmidt, Lerew, & Trakowski, 1997), Beck depression inventory (BDI) (Beck, Ward, Mendelsohn, Mock, & Erlbaugh, 1961), and Beck anxiety inventory (BAI) (Beck, Epstein, Brown, & Steer, 1988).

The PDSS, PAS, ASI-R, BVS, BDI, and BAI were also administered at 1-month follow-up. The follow-up PDSS interview was conducted over the telephone.

Procedure

All patients provided informed consent to participate in the study. Each received a copy of the *Mastery of Your Anxiety and Panic—3rd Edition* client workbook (MAP-3) (Barlow & Craske, 2000) following the initial assessment and was instructed to read selected chapters covering education, cognitive restructuring, and exposure therapy. While they were encouraged to learn the material to facilitate treatment, they were not instructed to do anything beyond simply reading the chapters. The date of the first treatment session was scheduled approximately 2 weeks after the initial assessment for each patient.

One month after completing treatment, patients were contacted via telephone by the first author who again administered the PDSS. Patients also completed and mailed the study questionnaires at this time. All 10 patients who started the treatment completed it and were assessed at 1-month follow-up.

Treatment

Brief, intensive CBT was modeled after the 12-session protocol developed by Telch and Schmidt (1990), except that it was delivered over two consecutive days in the present study. The first treatment session included 6 h of face-to-face therapist time and began with a review of the cognitive-behavioral conceptual model of PD. Patients learned about the role of catastrophic beliefs about the dangerousness of anxiety-related body sensations in causing panic attacks. Safety-seeking and avoidance behaviors were described as maintenance factors that prevented patients from learning that their catastrophic panic-related beliefs were inaccurate. The primary goal of CBT was described as helping patients acquire more accurate beliefs about the actual dangerousness (or lack thereof) of their panic-related body sensations.

Next, the therapist and patient reviewed the cognitive, behavioral, and physiological features of the fight-or-flight response, with an emphasis on the unpleasant but harmless nature of the patient's feared panic-related body sensations. To facilitate cognitive restructuring, patients were taught a step-by-step method for identifying "threat forecasts" (i.e., catastrophic appraisals of panic symptoms) and evaluating the evidence for their likelihood and severity. The therapist and

patient subsequently reviewed in detail each of the patient's panic-related threat forecasts (e.g., heart attack, passing out, suffocation). For each threat forecast, the actual likelihood and severity was estimated by drawing on evidence from educational material and the patient's past experiences. Together, education and cognitive restructuring lasted approximately 2 h and was primarily designed to facilitate exposure by generating doubt about the veracity of the patient's primary threat forecasts.

The remainder of the first session was devoted to therapist-assisted exposure. Following a discussion of the rationale and procedures of exposure, patients briefly participated in nine different interoceptive exposure exercises (e.g., hyperventilation, spinning in a swivel chair, running in place) and subsequently provided verbal SUDS ratings. The purpose of this assessment was to create a fear hierarchy consisting of the patient's most feared interoceptive stimuli. Following an hour-long lunch break, the next several hours were spent conducting exposures to the patient's two or three most feared exercises. Each interoceptive exposure continued until the patient's verbal SUDS were reduced by at least 50% and until the patient reported being convinced that the exercise was not dangerous. The therapist framed the exposures as behavioral experiments and helped patients identify their threat forecast(s) prior to each exercise and reflect on their accuracy after completing the exposure. Patients were also instructed not to use safety behaviors during the exercises, and the therapist identified and discouraged such behaviors (e.g., drinking water) when they were apparent.

Lastly, the therapist and patient collaboratively developed a fear hierarchy consisting of feared and/or avoided agoraphobic situations. The degree of agoraphobic avoidance differed substantially among the study patients and ranged from moderately severe to nonexistent. When agoraphobic avoidance was present, patients participated in exposures that could be simulated in the hospital and surrounding environment. Examples included riding elevators, eating lunch in a busy mall food court, riding the patient shuttle bus, taking a brisk walk outdoors on a hot day, and vigorously climbing stairs in a cramped stairwell. Whenever possible, elements of interoceptive exposure were combined with in vivo exposures (e.g., hyperventilating prior to riding an elevator). In vivo exposures were conducted in the same manner as the interoceptive exposures described above. At the end of the first day, the therapist assigned several interoceptive and/or in vivo exposures to the patient as homework for the night.

The second treatment session included 3 h of face-to-face therapist time. After reviewing the previous night's homework, the patient completed any remaining interoceptive and/or in vivo exposures. Each patient successfully completed the highest item on both fear hierarchies prior to the end of the second session. Relapse prevention was an important focus of the second session. The therapist discussed myths about recovery (e.g., "I should never have another panic attack"), factors that might contribute to a relapse (e.g., failure to eliminate safety behaviors), and what to do in the event of a panic attack (e.g., identify and dispute threat forecasts). An individualized relapse prevention plan was generated for each patient. This plan detailed continued exposure practices (both interoceptive and in vivo), avoidance behaviors to eliminate in everyday life, and safety behaviors to eliminate. Patients were encouraged to view brief, intensive CBT as the beginning of a recovery process that needed to be continued after treatment. At this point, the 1-month follow-up was scheduled and therapy was terminated.

Therapist

One therapist (BJD) provided CBT for each patient in the study. The therapist was a postdoctoral fellow working under the supervision of the second author. Prior to the start of the study, the therapist had 6 years of experience in providing CBT for patients with PD in three separate anxiety disorder clinics.

Results

Changes from pre-treatment to 1-month follow-up

Table 1 presents means, standard deviations, paired samples *t*-test results, and effect sizes (Cohen's *d*) for each outcome measure at pre-treatment and 1-month follow-up. Statistically significant reductions and large within-group effect sizes (Cohen, 1988) were observed for each variable. Patients experienced substantial reductions following brief, intensive CBT in each dimension of PD symptoms assessed by the PDSS. Four patients experienced a single panic attack and six patients were panic-free during the month immediately following treatment. Reductions in self-reported PD symptoms assessed via the PAS were similar to those observed with the clinician-rated PDSS.

Clinically significant change

The clinical significance of treatment effects was examined using the procedures outlined by Jacobson and Truax (1991) and normative data reported in the published literature on ASI-R,

Table 1
Comparisons of outcome measures at pre-treatment and 1-month follow-up

Measure	Pre-treatment *M* (*SD*)	Follow-up *M* (*SD*)	*t* (*df* = 9)	Effect size (*d*)
Panic disorder severity scale				
Total score	1.83 (0.94)	0.20 (0.27)	5.91***	1.73
Panic frequency	2.20 (1.40)	0.40 (0.52)	4.07**	1.29
Panic distress	2.60 (0.70)	0.30 (0.48)	8.84***	3.29
Anticipatory anxiety	1.80 (0.92)	0.40 (0.52)	4.12**	1.52
Agoraphobia	1.30 (1.06)	0.10 (0.32)	4.13**	1.13
Interoceptive fear	1.60 (0.84)	0.10 (0.32)	6.71***	1.79
Work interference	2.00 (1.33)	0.00 (0.00)	4.74**	1.50
Social interference	1.30 (1.25)	0.10 (0.32)	3.34**	0.96
Panic and agoraphobia scale	23.90 (13.17)	5.10 (7.94)	4.99***	1.43
Anxiety sensitivity index—revised	68.30 (20.55)	13.00 (12.49)	6.89***	2.69
Body vigilance scale	28.16 (5.66)	14.09 (8.19)	5.33***	2.34
Beck anxiety inventory	26.10 (15.51)	9.90 (10.43)	4.37**	1.04
Beck depression inventory	17.40 (12.23)	7.70 (9.06)	7.56***	0.79

Note: *$p<.05$, **$p<.01$, ***$p<.001$. Effect size (Cohen's *d*) was calculated as the difference between the mean pre-treatment and post-treatment score divided by the pre-treatment standard deviation. Effect sizes of 0.20, 0.50, and 0.80 represent small, medium, and large effects, respectively.

BVS, BAI, and BAI. Table 2 presents the number of patients who achieved reliable change, clinically significant improvement, and "recovered" status (i.e., both reliable and clinically significant change) on each outcome variable. On the ASI-R and BVS, eight patients experienced reliable change, all 10 were within the normal range at post-treatment, and eight were considered recovered. Nine patients scored in the normative range at follow-up on the BAI and BDI, and recovered status on these measures was met by six and four patients, respectively. The less robust findings for the BAI and BDI were influenced by the fact that some patients had pre-treatment scores in the normative range on these measures ($n = 3$ for the BAI; $n = 5$ for the BDI).

Because published nonpatient norms are not available for the PDSS and PAS, we were unable to calculate the percentage of patients with scores in the normative range in the manner previously described. Consequently, following recommendations by Jacobson and Truax (1991), we determined clinically significant change on these measures by examining whether each patient's post-treatment score was at least two standard deviations below the mean according to PD norms. Using this criterion, nine patients scored in the normative range on the PDSS (< 0.51) and seven did so on the PAS (< 5.1). Seven patients were classified as recovered on the PAS and six were classified as recovered on the PDSS. Across all measures, an average of 6.5 patients achieved recovered status.

Benchmarking to results from controlled studies of PD treatment as usual

We employed the benchmarking strategy described by Wade, Treat, and Stuart (1998) to compare our results to those obtained in two randomized controlled trials of CBT for PD (Addis et al., 2004; Barlow et al., 2000). These studies were chosen because the authors also used the PDSS to assess PD severity. In the Barlow et al. (2000) trial, 312 PD patients were randomly assigned to receive CBT alone (CBT involved 3 months of weekly treatment sessions), imipramine alone, CBT + imipramine, CBT + placebo, or placebo alone. Addis et al. (2004) randomly assigned 80 PD patients presenting in a community mental health center to receive CBT (delivered flexibly using the 12–15 session manual by Craske, Meadows, & Barlow, 1994) or treatment as usual (determined by therapist discretion). Pre-treatment and post-treatment results on the PDSS (total score) for the completer samples from Barlow et al. (2000) and Addis et al. (2004) appear in Table 3. A comparison between our sample (Table 1) and the benchmark samples reveals similar

Table 2
Percentage of patients demonstrating reliable and clinically significant change at 1-month follow-up

	Index of change		
Measure	Reliable change *n* (%)	Within normative range *n* (%)	Recovered *n* (%)
Panic disorder severity scale	8 (80)	N/A	N/A
Panic and agoraphobia scale	8 (80)	N/A	N/A
Anxiety sensitivity index—revised	8 (80)	10 (100)	8 (80)
Body vigilance scale	8 (80)	10 (100)	8 (80)
Beck anxiety inventory	6 (60)	9 (90)	6 (60)
Beck depression inventory	4 (40)	9 (90)	4 (40)

Table 3
Pre-treatment and post-treatment results on the panic disorder severity scale from benchmarking studies by Barlow et al. (2000) and Addis et al. (2004)

J	Pre-treatment *M* (*SD*)	Post-treatment *M* (*SD*)	Effect size (*d*)
Barlow et al. (2000)			
CBT	1.82 (0.55)	0.95 (0.65)	1.58
Imipramine	1.88 (0.56)	0.75 (0.65)	2.02
CBT + imipramine	1.86 (0.57)	0.60 (0.61)	2.21
CBT + placebo	1.74 (0.51)	0.72 (0.62)	2.00
Placebo	1.86 (0.52)	1.15 (0.86)	1.37
Addis et al. (2004)			
CBT	1.84 (0.71)	1.00 (0.83)	1.18
Treatment as usual	1.71 (0.81)	1.56 (0.93)	0.19

pre-treatment severity. In addition, CBT in the present study was associated with at least as large pre-post effect sizes as the CBT conditions in Addis et al. (2004) and Barlow et al. (2000). The larger effects in our sample might be due to the relatively short follow-up period in the present study and the fact that many patients in our sample continued to use serotonergic medications after receiving intensive CBT.

Discussion

The present pilot study was conducted to examine the efficacy of brief, intensive CBT for PD. This treatment involves 9 h of therapist contact over two consecutive days and was developed to facilitate the delivery of effective psychological treatment to a largely rural patient population that cannot conveniently attend weekly therapy sessions. Brief, intensive CBT includes the essential procedures of standard-length CBT and emphasizes therapist-assisted exposure to interoceptive and external stimuli. At 1-month follow-up, 10 consecutive PD patients who participated in this treatment showed statistically and clinically significant reductions in PD symptoms, anxiety sensitivity, body vigilance, anxiety, and depression.

We observed rapid, clinically significant reductions in both clinician-rated and self-reported PD symptoms. Despite high levels of pre-treatment panic symptomatology, 60% of the sample was panic-free and 40% experienced only one panic attack during the month immediately following treatment. A particularly strong treatment effect was evident on panic-related distress, suggesting that the residual panic symptoms some patients experienced were no longer a significant source of concern. Consistent with its primary goal of altering catastrophic misinterpretations of panic-related body sensations, brief CBT led to reductions in anxiety sensitivity. Body vigilance, conceptualized by Schmidt et al. (1997) as a natural consequence of anxiety sensitivity, was also reduced to normative levels following brief CBT. Statistically significant but somewhat smaller treatment effects were observed with anxiety and depression symptoms.

It is notable that these treatment effects were observed in a sample of patients recruited from routine clinical practice. Patients were not excluded for potentially complicating factors such as the presence of agoraphobia, diagnostic comorbidity, concurrent use of PRN benzodiazepine medications, or previous nonresponse to psychotherapy for PD. This is consistent with previous studies demonstrating the effectiveness of CBT for PD in nonresearch samples (e.g., Wade et al., 1998). However, our sample was somewhat more functional than the PD population at large (as evidenced by the relatively high education level and large percentage of patients employed full-time). This, along with the fact that many patients continued to use medications for PD following CBT, might have contributed to the positive results we found.

All study patients elected to participate in brief, intensive CBT rather than standard, weekly CBT. Thus, it is possible that these individuals possessed characteristics (e.g., strong motivation, willingness to tolerate high anxiety) that made them particularly likely to respond to this treatment. It is noteworthy, however, that 10 out of 14 PD patients assessed in our anxiety disorders clinic preferred brief CBT to standard CBT despite being forewarned about the work-intensive and potentially distressing nature of this approach. For five patients, geographical or time constraints precluded participation in standard CBT. The other five patients opted for brief CBT based on their desire for immediate symptom relief. While these preliminary findings are encouraging, brief, intensive exposure-based treatment may not be suitable for all individuals. Indeed, factors such as childcare and time off from work need to be considered. Similarly, from the clinician's perspective, offering intensive treatment may place a strain on scheduling and organizational aspects of the clinical setting. In addition, third-party payers may be hesitant to reimburse 9 h of treatment over 2 days, though in the present study we were able to obtain reimbursement for each patient by providing the payer with a detailed description and justification of brief CBT for PD.

The main methodological limitation of the current study was that there was no control group. As a result, we cannot gauge the extent to which the effects of brief CBT were due to factors such as maturation, regression to the mean, test sensitization, and nonspecific psychological factors (e.g., positive expectancies). However, the mean PD duration of 4.5 years and frequency of nonresponse to previous treatment argues against recovery solely due to these factors. All study assessments were also performed by the same clinician under nonblinded conditions. While rater bias was therefore possible on clinician-rated PD symptoms assessed with the PDSS, it should be noted that similar treatment effects were observed with self-reported PD symptoms assessed via the PAS. The small sample size, brief follow-up interval, and the fact that all treatments were provided by the same therapist are additional limitations attributable to the present study's pilot character.

The availability of brief and effective interventions might facilitate efforts to *disseminate* empirically supported psychological treatments to practitioners who have not used them previously. For example, because of its brevity and effectiveness, practitioners in rural settings might be interested in learning to use a 2-day CBT program for PD even if they do not have a cognitive-behavioral orientation. Therefore, future research should investigate further the efficacy and acceptability of this treatment among patients and providers, including clinicians with no previous CBT experience. It would also be important to conduct longer-term follow-up assessments to determine if the effects of brief CBT are as durable as those of standard treatment. If larger-scale outcome studies replicate our findings, brief, intensive CBT might be considered as a useful intervention in a stepped care algorithm for those PD patients willing to undertake it.

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