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# *Occupational Functioning, Sickness Absence and Medication Utilization Before and After Cognitive–Behaviour Therapy for Generalized Anxiety Disorders*

**Michael Linden,* Doris Zubrägel and Thomas Bär**
*Research Group Psychosomatic Rehabilitation, Charité University Medicine, Berlin and Department of Behavioural Medicine, Rehabilitation Centre Seehof, Teltow/Berlin, Germany*

**Background: Cognitive–behaviour therapy (CBT) is efficacious in reducing symptoms of generalized anxiety disorders (GAD). The question is whether it is also efficient, i.e., whether there are also enduring effects with respect to improving utilization of medication and psychotherapy, or occupational functioning and sick leave after the end of treatment.**
**Method: The study was based on 44 outpatients (age 18–65 years; HAM-A score ≥18; GAD according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition criteria as assessed by standardized interview) who were treated with 25 sessions of CBT (treatment by 12 state-licensed behaviour therapists in office-based practice; no psychotropic treatment for the duration of the therapy). The rate of medication treatment, occupational functioning and sick leave was assessed for 8 months before and after the end of treatment.**
**Results: In the comparison of the pre-treatment and post-treatment periods, 46.5% versus 7.2% of patients used psychotropic medication for at least 4 weeks and had been 3.1 versus 1.1 days on sickness absence per month, respectively. About 70% of patients showed impairment in occupational role performance during the pre-treatment phase compared with 5% to 20%, depending on the dimension, in the follow-up period.**
**Conclusions: The data suggest that CBT is not only efficacious in terms of symptom reduction but also efficient in terms of reducing inappropriate medication intake and improving occupational functioning.** 

**Key Practitioner Message:**

- Effects of any treatment should not only pertain to the present symptomatology but also to illness behaviour and occupational and social participation.

*Correspondence to: Dr Michael Linden, Research Group Psychosomatic Rehabilitation, Lichterfelder Allee 55, 14513 Teltow/Berlin, Germany.
E-mail: michael.linden@charite.de

- When patients with GAD are treated with CBT, a reduction in sickness absence and an improvement of occupational functioning can be observed in the post-treatment period.
- After CBT, a reduction of inappropriate medication can be seen.
- The data suggest that CBT in GAD patients reduces not only illness symptoms but also improves illness behaviour and role adjustment.

**Keywords:** Cognitive–Behaviour Therapy, Generalized Anxiety Disorders, Healthcare Utilization, Sick Leave, Disability, Social Participation

## BACKGROUND

Generalized anxiety disorders (GAD) are frequent mental disorders (Achberger & Linden, 1998; Carter, Wittchen, Pfister, & Kessler, 2001; Kessler, Keller, & Wittchen, 2001; Linden et al., 1996). Many randomized controlled trial studies (e.g., Borkovec & Costello, 1993; Ladouceur et al., 2000; Leichsenring et al., 2009; Linden, Zubrägel, Bär, Franke, & Schlattmann, 2005) and meta-analyses (Butler, Chapman, Forman, & Beck, 2006; Fisher & Durham, 1999; Ruhmland & Margraf, 2001) have shown that cognitive–behaviour therapy (CBT) can lead to significant reductions in symptom scores as measured with the observer rating Hamilton Anxiety Scale (HAM-A; Hamilton, 1959) or the self-rating State Trait Anxiety Scale (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). Still, the question remains as to whether CBT for GAD is not only efficacious but also efficient; i.e., to what degree is there an improvement not only of symptoms but also of functional health, health-seeking behaviour, participation in social and occupational life, or quality of life in general (Mühlan, Bullinger, Power, & Schmidt, 2008; WHO, 2001)? This cannot be answered by observations during the short period of treatment but needs longer observations before and after the immediate therapeutic intervention.

With respect to healthcare utilization, many studies have shown that GAD patients are high users of medical services and that they take medication above the average consumption (Carbone et al., 2000; Greenberg et al., 1999; Katon et al., 1990; Marciniak et al., 2005; Roy-Byrne & Wagner, 2004; Souêtre et al., 1994; Wagner, Silove, Marnane, & Rouen, 2006; Wittchen, 2002). There are indications that CBT can lead to an improvement in healthcare utilization (Marciniak et al., 2005). In a study from Borkovec and Costello (1993), about 61% of patients who had been treated with non-directive therapy underwent further psychotherapy, compared with only 16% of the CBT patients. Durham, Chambers, Macdonald, Power, and Major (2003) found a modest but significant reduction in the number of primary care consultations in the aftermath of CBT, although no difference was found between treatment and controls. With respect to medication utilization, Butler, Fennell, Robson, and Gelder (1991); Barlow, Rapee, and Brown (1992); and Öst and Breitholtz (2000) reported decreases in medication consumption during and after CBT, whereas others did not find changes before and after CBT (Borkovec & Costello, 1993; Durham et al., 2003; Ladouceur et al., 2000).

GAD patients are also associated with considerable disability with respect to participation in social and occupational roles, with high rates of sick leave (i.e., on average 10 days of occupational impairment per month; Wittchen, Carter, & Pfister, 2000). This gives GAD a place in the upper range compared with other mental or somatic illnesses (Erickson & Newman, 2007; Kessler, Dupont, Berglund, & Wittchen, 1999; Kessler, Mickelson, Barber, & Wang, 2001; Lim, Sanderson, & Andrews, 2000; Ormel et al., 1994; Rodriguez, Bruce, Pagano, & Keller, 2005; Wittchen, 2002; Wittchen, Zhao, Kessler, & Eaton, 1994; Wittchen et al., 2000). There are indicators that occupational impairment is reduced after CBT. Lindsay, Gamsu, McLaughlin, Hood, and Espie (1987) and Power, Simpson, Swanson, and Wallace (1990) have shown reductions in the score of the Social Dysfunction Scale between 70% and 83%. There are no studies with data on changes in days of sick leave.

The present study reports *post hoc* analyses of data that come from the Berlin CBT–GAD study (Linden, Zubrägel, et al., 2005). The original goal of this study was to test the efficacy of CBT for GAD. It was shown that CBT resulted in a reduction of



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HAM-A and STAI scores during treatment in comparison with a contact control group. Patients in the contact control group were also treated afterwards, and both patient groups were followed up for about 8 months. Retrospective and follow-up information was available on medication use, occupational adjustment and days on sick leave. The data allow an estimate on treatment effects beyond psychopathology (i.e., social and occupational functioning and illness behaviour).

## METHOD

The Berlin CBT–GAD study was a multicentre, randomized controlled clinical trial in which effects of CBT were compared with a contact control group in 72 outpatients, aged 18–65 years with HAM-A score ≥18 and GAD according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition criteria as assessed by standardized interview. No psychotropic treatment was allowed for the duration of the therapy. CBT treatment followed a manual (Bär, Zubrägel, & Linden, 2007; Zubrägel & Linden, 2000) with reference to Barlow et al. (1992). The focus of treatment was to change and control worrying and catastrophizing. Patients in the contact control group were seen regularly by members of the project team who gave unspecific reassurance. The control patients had, for ethical reasons, to be treated after the end of the control period. Thus, in the end, both groups had received CBT and were merged for the follow-up analyses. Treatment lasted for up to 25 weekly sessions of about 50 minutes each. Treatment was provided by 12 state-licensed behaviour therapists who had been working full time in routine healthcare for 10.8 years (Standard Deviation = 6.7) on average. Details of the study can be found in Linden, Zubrägel et al. (2005) and Linden, Staats et al. (2005). Over the acute period of treatment, CBT resulted in a reduction in the HAM-A score of 6.4% (1.5 points) in the control group, 35.4% (9.5 points) in the CBT treatment group and 47.3% (10.3 points) in the control patients after they also received CBT. In the STAI, a reduction of 2.7% was seen in the control group, 14.6% in CBT treatment group and 11.6% in the control patients after treatment. In the Clinical Global Impression rating, 65.6% of patients were still at least moderately ill at the end in the control group, whereas this rate was 33.4% in the CBT treatment group and 15.7% in the control patient treatment group. All these differences between treatment and control group were statistically highly significant, and the clinical improvement remained stable over the follow-up period of 8 months, the HAM-A score for the follow-up sample of 44 patients being 12.7 (9.3) at the end of CBT and 12.6 (9.4) at follow-up.

In the intake interview, before randomization in the treatment and the contact control group, and in the follow-up interview patients were asked about any form of psychotherapy, formal or not, and about previous psychotropic medication, including self-medication, for a period of 8 months each. Psychotropic medications included neuroleptics, antidepressants, tranquilizers and hypnotics independent of their chemical content and including also St. Johns Wort. Functioning in occupational roles was assessed by counting days on sick leave per month. The interview also covered the subscale on 'occupational role performance' of the Groningen Social Disability Schedule (Wiersma, de Jong, & Ormel, 1990), which asks for adjustment to daily work routines, work performance and contacts to colleagues and superiors.

From the original 72 patients who had been included in the study, 57 completed the CBT or the contact control phase with additional CBT. A total of 44 of the completers (83%) came to the follow-up interview. These 44 patients did not differ from the other study completers in terms of sociodemographic data, psychopathology or healthcare utilization. Depending on the outcome criterion, analyses refer to different numbers of patients, as sick leave can only be studied in patients who are working (patients in work, PIW) but not, for example, in homemakers, or patients who received pensions.

## RESULTS

With regard to all psychotropic medications, including single-dose and short-time medication (all psychotropic medications), 53.5% of the follow-up sample (FU patients) reported some kind of psychotropic medication during the year before CBT and 25.0% during the follow-up period (McNemar $\chi^2 = 12.9$, $p < 0.000$). When looking only at such patients who had not received any further psychotherapy, the rates are 61.5% versus 26.9%. When narrow criteria were applied, that is, only regular psychotropic medications over at least 4 weeks were counted (regular psychotropic medication), 46.5% of the FU patients had taken medication during the year before they started CBT and 7.2% during the follow-up-period (McNemar



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$\chi^2 = 3.7$, $p < 0.000$) or 41.7% versus 8.3% for non-psychotherapy patients. Results are summarized in Figure 1.

From the patients with regular medications in the pre-treatment phase, 2 were taking benzodiazepines, 1 was taking zolpidem, 3 were taking SSRI, 2 were taking tricyclic antidepressants, 1 was taking an atypical neuroleptic, 10 were taking hypericum and 5 were taking other herbal sedatives or anxiolytics. The three patients with a regular medication during follow-up received paroxetine, trimipramine and zolpidem.

Before starting CBT, 34.1% ($n$ = 15) of the follow-up patients had received some sort of psychotherapy (i.e., 3 psychodynamic therapies, 3 autogenic training, 1 gestalt therapy and 1 group therapy; 8 psychotherapy during inpatient stays). The duration ranged from 15 sessions to more than 2 years. After the end of the clinical trial, treatment was prolonged in 15 (34.1%) of the 44 follow-up patients, lasting between 15 and 55 further sessions, as the German healthcare system insurance pays for up to 80 sessions. Three patients (6.8%) received other kinds of psychotherapy during the follow-up period (i.e., 1 behaviour therapy in a group setting, 1 autogenic training and 1 marital therapy). There was no inpatient treatment.

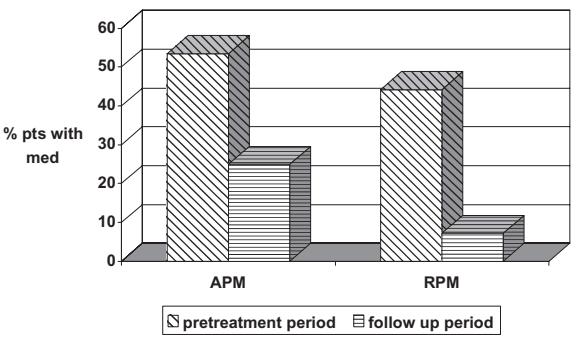


Figure 1. Percent of patients with utilization of psychotropic medication before and after CBT. APM, all psychotropic medications; RPM, regular psychotropic medications

During the pre-treatment period, PIW were, on average, on sick leave for 3.1 days per month (i.e., 1.8 days more than the average of respective patients in the overall health insurance). During CBT, they were, on average, on sick leave for 1.6 days, and during the follow-up period, they were on sick leave for 1.1 days (Figure 2). This is, on average, a reduction of 2 days per month (Wilcoxon $Z = -2.32$, $p = 0.02$) and a rate that is below the average of all patients in health insurance.

About 70% of patients showed some, and about 10% showed severe, impairment in their occupational role performance during the pre-treatment phase. This was reduced to about 5–20% for any impairment in the follow-up period, where nobody was found with severe impairment (Table 1). These changes were statistically significant according to Wilcoxon Tests for adjustment to work routine ($p < 0.001$), work performance ($p = 0.008$), contact to

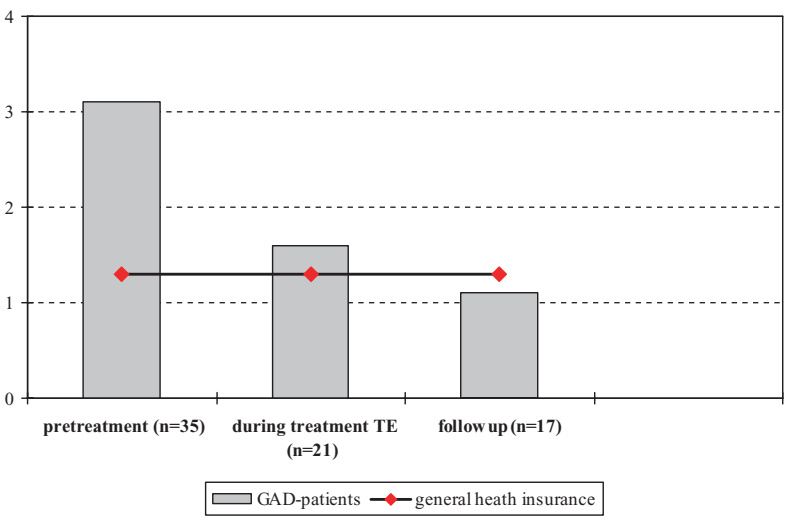


Figure 2. Average number of days on sick leave per month in comparison with the rate of persons in the general health insurance



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Table 1. Impairment in occupational role performance of patients in work before and after CBT (% of patients, Groningen Social Disability Schedule)

| | *n* | Impairment (% of patients) | | | |
|---|---|---|---|---|---|
| | | No | Mild | Moderate | Severe |
| Adjustment to work routine | | | | | |
| Pre-tretment period | 36 | 30.6 | 33.3 | 27.8 | 8.3 |
| Post-treatment period | 21 | 100.0 | 0 | 0 | 0 |
| Work performance | | | | | |
| Pre-tretment period | 36 | 36.1 | 22.2 | 27.8 | 13.9 |
| Post-treatment period | 21 | 95.2 | 4.8 | 0 | 0 |
| Contact to workmates | | | | | |
| Pre-tretment period | 36 | 33.3 | 25.0 | 30.6 | 11.1 |
| Post-treatment period | 21 | 81.0 | 19.0 | 0 | 0 |
| Non-vocational activities | | | | | |
| Pre-tretment period | 36 | 36.1 | 22.2 | 27.8 | 13.9 |
| Post-treatment period | 21 | 95.2 | 4.8 | 0 | 0 |

workmates ($p = 0.012$) and non-vocational activities ($p > 0.001$).

## DISCUSSION

Many studies have shown that CBT is an effective treatment in general as well as in GAD, with respect to the improvement of present illness signs. However, there is a lack of data on the efficiency of psychotherapy, i.e., improvement in secondary variables such as illness behaviour, role adjustment and participation, which can be as important for the definition of health (WHO, 2001). The results of this study are therefore of interest in spite of their methodological limitations. These are that we do not have a control group as we could not leave patients untreated for ethical reasons, so that the contact control group of the initial randomized controlled trial had to get treatment afterwards also. Therefore, only a comparison of the pre-treatment and post-treatment period was possible, so that the data are only observational and not experimental in nature. Also, the raters could not be blinded.

Results of the *post hoc* analyses support the assumption that manually guided CBT can lead to a reduction in the utilization of psychotropic medication, improve occupational role performance and reduce days on sick leave. CBT, therefore, can be considered not only efficacious but also efficient. This includes cost-efficiency, as health utilization and sick leave are associated with high expenditures. Our findings correspond to other reports on patient adjustment after CBT (Barlow et al., 1992; Borkovec & Costello, 1993; Butler et al., 1991; Durham et al., 2003; Heuzenroeder et al., 2004; Öst & Breitholtz, 2000).

There is no doubt that a reduction in days on sick leave and an improvement in occupational participation is a positive effect. However, it must be discussed whether a reduction in medication consumption is also positive, as it could mean stopping a needed and appropriate treatment (Davidson, 2004; Mitte, 2005; Rynn & Brawman-Mintzer 2004; Struzik, Vermani, Coonerty-Femiano, & Katzman, 2004). However, when looking at the type of medications that the patients had taken before treatment, these have been mostly inappropriate medications, such as herbal drugs or long-term benzodiazepines, while the three drugs that have been found in the follow-up period can be considered as appropriate. As the status of patients has been mostly improved after CBT, there is also no indication for an ongoing need for medication in these cases. Whether this is also true for long-term prophylactic treatments cannot be answered by our data.

The data on the utilization of psychotherapy are more difficult to interpret. Both in the period before and after treatment, 34.1% had some type of psychotherapy. An important difference is that there has been a variety of psychotherapy forms before the controlled trial, whereas in the follow-up, there were only prolongations of CBT. Furthermore, one has to take into account health insurance, which allows, after an initial 25 sessions, a prolongation up to 80 sessions of CBT. Therapists were,



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therefore, free to provide more treatment to their patients after the 'short-term treatment' under controlled conditions. Under these circumstances, it is remarkable that two-thirds ended after the study period of 'only' 25 sessions.

An important question is to what degree the observed changes are a treatment effect. Changes in medication rates must be discussed with caution, as the observed reduction may be the result of study inclusion criteria and not necessarily of the psychotherapeutic interventions. In addition, the reduced rate of sickness absence and improved occupational participation could be not a lasting treatment effect but could be due to ongoing post-treatments. This could also be the reason for the stable HAM-A score. Nevertheless, the conclusion is that after CBT, things have changed with not only a reduction in the symptomatology but also with an improvement in social and occupational participation and medication intake.

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