

# Cognitive Behaviour Group Therapy for Chronic Fatigue Syndrome: A Non-Randomised Waiting List Controlled Study

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## Key Words

Cognitive behaviour group therapy · Chronic fatigue syndrome

## Abstract

**Background:** It has been demonstrated that individual cognitive behaviour therapy is an effective treatment for chronic fatigue syndrome (CFS). The aim of the present study was to investigate the effectiveness of cognitive behaviour group therapy (CBGT) in an unselected group of CFS patients. Additionally, pretreatment characteristics of CFS patients who improve after CBGT were explored. **Methods:** In a non-randomised waiting list controlled design, 31 patients were allocated to CBGT and 36 to the waiting list condition. CBGT consisted of 12 two-hour sessions during 6 months. Main outcome measures were fatigue (Checklist Individual Strength) and functional impairment (Sickness Impact Profile). **Results:** A moderate effect on fatigue in favour of CBGT was found. For functional impairment, the effect was opposite to what was expected. Patients who improved after CBGT had less complaints at baseline compared to patients who did not improve. **Conclusions:** An explanation for the moderate effect might be that during CBGT, rest and relaxation were too much emphasised. Further-

more, an unselected group of CFS patients and therapists inexperienced in CB(G)T for CFS participated. Suggestions to improve CBGT for future research are given.

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## Introduction

Chronic fatigue syndrome (CFS) is characterised by severe fatigue lasting for at least 6 months, for which no somatic explanation can be found and which leads to severe disability in daily life [1]. Although the cause of CFS is still unknown, several perpetuating factors have been identified. A model of perpetuating factors in CFS showed that a strong focus on bodily symptoms, low levels of physical activity and a poor sense of control contribute to an increase in the severity of fatigue and functional impairment [2]. Strong somatic attributions lead to lower levels of physical activity. Several protocols for cognitive behaviour therapy (CBT) for CFS have been developed [3–6]. In several studies, individual CBT for CFS has proven to be effective, even at follow-up [7–12]. Three recent reviews conclude that CBT and graded exercise are the only interventions in CFS with proven effectiveness [13–15]. Further research on CBT in patients with milder forms of CFS or CFS in-patients as well as research on

the effectiveness of cognitive behaviour group therapy (CBGT) were recommended [13].

Some first reports on the feasibility and effectiveness of forms of CBT for CFS other than ambulatory individual therapy show positive results. These uncontrolled studies concern CBT in an in-patient setting, CBT as a part of a multidisciplinary intervention, CBT in a general hospital setting and CBT for adolescents with CFS [16–20]. There is no literature on the effect of CBGT for CFS. Only one study evaluated the effect of focused group therapy for CFS, in a controlled design [21]. This non-CBT group intervention had no effect on fatigue and impairment. In another study, it was shown that support groups for CFS patients had no effect on fatigue and impairment either [9].

The aim of the present controlled study was to investigate the effectiveness of CBGT for CFS. Additionally, pretreatment characteristics of CFS patients who improved after CBGT were explored.

## Method

### *Design*

CBGT was compared with a waiting list condition. CBGT, lasting 6 months, was offered in two centres, the Department of Psychotherapy of the Maastricht Mental Health Institute and the Department of Medical Psychology of the University Medical Centre Nijmegen. For ethical reasons, patients in the waiting list condition were offered CBGT after the waiting period of 6 months. Only data of the controlled part of the study were used to test the effectiveness of CBGT.

### *Participants*

CFS patients were diagnosed and referred by the out-patient clinic of the Departments of General Internal Medicine of the University Medical Centre of Nijmegen or Maastricht. All patients fulfilled the Fukuda criteria for CFS or idiopathic chronic fatigue [1]. Consecutive patients with the diagnosis of CFS or idiopathic chronic fatigue were asked to participate in the current study. Patients were included if they had a fatigue score of 35 or more on the Checklist Individual Strength (CIS) questionnaire and a score of 700 or more on 8 scales of the Sickness Impact Profile (SIP-8; see baseline measures). Furthermore, they had to be willing to stop other treatments for CFS during CBGT. Pivotal to CBT for CFS is that the patient becomes aware that the progress made can be attributed to the changes in his or her cognitions and behaviours. When the patient is undergoing two treatments simultaneously, it is difficult to say which of the two interventions accounts for the improvements. To prevent withdrawal after inclusion, we added this prerequisite for CBGT before inclusion. If both of the inclusion criteria were fulfilled, informed consent was obtained. Patients were allocated to CBGT until the first group was full. The next groups consisted partly of patients from the waiting list condition and partly of recently referred patients. Baseline assessment took place in the 2 weeks prior

to the start of CBGT, for the waiting list condition 6 months prior to the start of the next CBGT. Ultimately, eight groups of 7–10 patients were completed.

### *Cognitive Behaviour Group Therapy*

In CBGT, cognitions and behaviour known to perpetuate fatigue in CFS were the focus of change [2]. Cognitions concerning a negative self-efficacy and somatic attributions were challenged. Further, CFS patients were taught to behave according to their own limits and to have adequate periods of rest and relaxation. Thereafter, a graded activity program took place. Homework assignments and a course book were used. CBGT consisted of 12 two-hour sessions during 6 months. CBGT was presented as a course in 'coping with fatigue'. There were two therapists for each group. Six therapists in four different couples participated. All therapists were inexperienced in group therapy and inexperienced in CBT for CFS. They were weekly supervised by a therapist experienced in working with groups and CBT for CFS.

### *Waiting List Condition*

Patients in the waiting list condition had no restrictions. They were free to undertake everything they would usually do.

### *Measurements*

#### *Primary Outcome Measures*

The subscale fatigue of the CIS was used to measure fatigue [22]. This subscale has 8 items scored on a 7-point Likert scale (range 8–56). High scores reflect high levels of fatigue.

Eight subscales of the SIP were used to measure functional impairment [22, 23]. The 8 subscales used are home management, mobility, alertness behaviour, sleep/rest, ambulation, social interactions, work and recreation and pastimes. A total score was calculated by addition of the weights of items (range 0–5,799). High scores reflect high levels of functional impairment. Comparison data were available [22].

#### *Secondary Outcome Measures*

Fatigue was also assessed using a 12-day self-observation list [24]. Scores were obtained four times a day (9 a.m., noon, 6 p.m., 10 p.m.) on a scale from 0 (not fatigued) to 4 (very severely fatigued). Daily observed fatigue is represented as the mean of the total daily observed fatigue scores over 12 days. So, the range for daily observed fatigue is 0–16. In the same way as for fatigue, daily observed pain was measured.

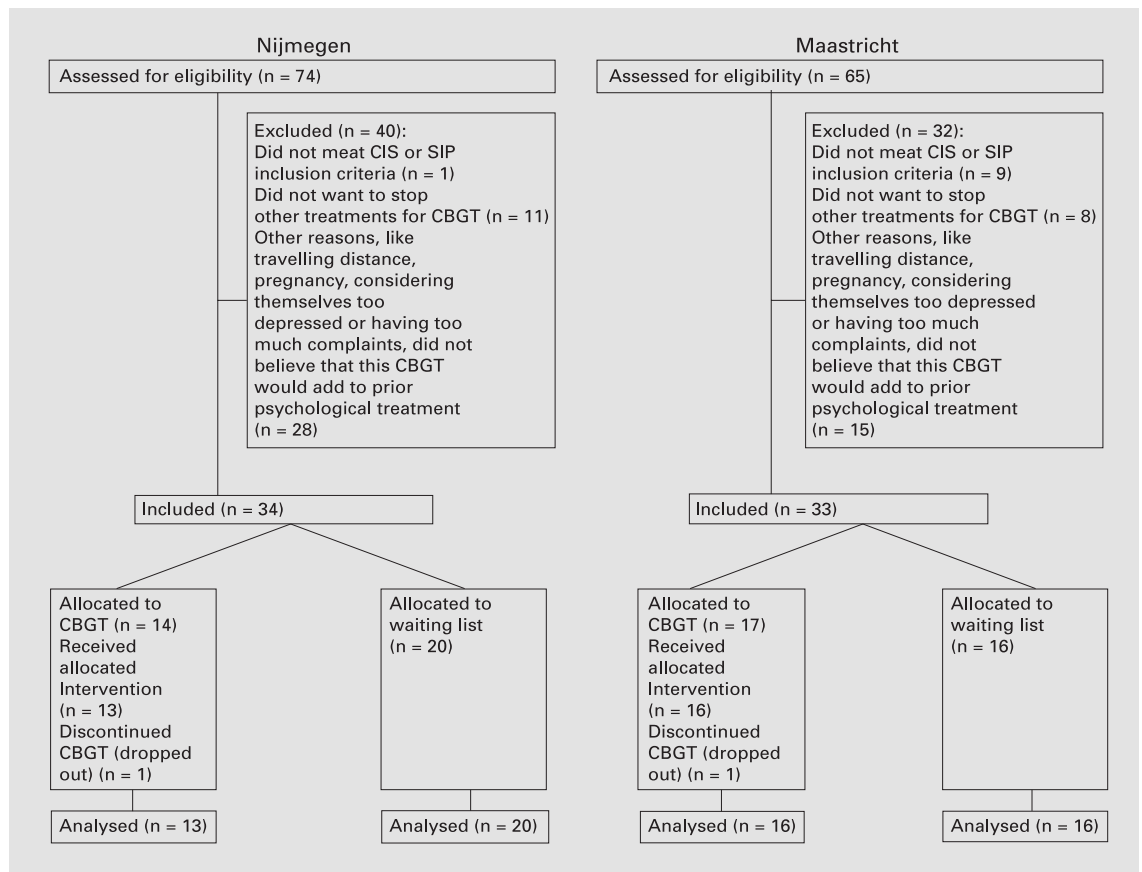
In a general questionnaire, also an item concerning the hours that the patient had been working in a job the last week was added.

Psychological distress was measured with the Symptom Checklist 90 (SCL-90) [25]. This scale consists of 90 items scored on a 5-point Likert scale (range 90–450). High scores reflect high psychological distress. Depression was measured with the Beck Depression Inventory (BDI) [26]. High scores reflect high levels of depression (range 0–63).

Self-rated improvement was only asked for after CBGT. Answers were given on a 4-point scale: 'completely recovered', 'better or much better', 'the same', or 'worse' [27, 28]. This variable is dichotomised in 'better or recovered' and 'the same or worse'.

#### *Perpetuating Factors*

Physical attributions were measured with 4 items concerning the conviction that CFS is a consequence of 'something physical', 'a



**Fig. 1.** Patient flow.

virus', 'the immune system', or 'some physical disease' [28]. Items are answered on a Likert scale from 1 (not convinced at all) to 4 (completely convinced). Scores range from 4 (no physical attributions) to 16 (strong physical attributions).

Self-efficacy was measured with 5 items concerning whether the patient thinks he can influence his complaints [9, 28]. Four questions were answered on a 5-point Likert scale, 1 question on a 4-point Likert scale. Scores range from 5 (low self-efficacy) to 24 (high self-efficacy).

Avoidance of activity was measured with 5 items scored on a 4-point Likert scale [22]. Questions were asked with respect to avoidance of physical activity as a way of coping with complaints. Scores range from 5 (no avoidance of activity) to 20 (strong avoidance of activity).

Focusing on bodily symptoms was measured by the subscale somatisation of the SCL-90 [25, 27]. The subscale consists of 12 items scored on a 5-point Likert scale. Scores range from 0 to 60.

#### Statistical Analyses

Two (group) by two (time) interaction effects of repeated-measures ANOVAs were used to analyse treatment effect.

Predictors of treatment outcome were explored comparing baseline characteristics of CFS patients improved and non-improved

after CBGT, according to self-rated improvement. Because of small sample sizes, pretreatment differences between improved and non-improved patients were analysed with the Mann-Whitney U test for continuous variables. For discrete variables, Pearson  $\chi^2$  was used.

The significance level was set at 0.05. Effects with a p value between 0.05 and 0.10 were accepted as a trend. All analyses were performed using SPSS version 10.0.

## Results

Patient flow is displayed in figure 1. Of the total 67 eligible patients, 31 CFS patients were allocated to CBGT and 36 CFS patients were allocated to the waiting list condition. Two patients dropped out during treatment. No post-test data are available from these patients. So, 29 CFS patients in the CBGT condition and 36 CFS patients in the waiting list control condition entered into post-test.

### Patient Characteristics at Baseline

Demographic data are displayed in table 1. No apparent differences between CBGT and the waiting list condition emerged. Two patients only fulfilled the Fukuda criteria for idiopathic fatigue, the others fulfilled the Fukuda criteria for CFS. Mean duration of complaints was 6.2 years (SD 5.2) and 5.3 years (SD 4.5) in the CBGT and waiting list condition, respectively. All baseline data (table 2) were as expected for CFS [22, 27, 28].

**Table 1.** Demographic characteristics of patients in the CBGT and the waiting list condition (WL)

	CBGT (n = 31)	WL (n = 36)
Age, years	37.4 ± 8.6	35.8 ± 9.0
Educational attainment (1 = low, 7 = high)	4.3 ± 1.7	4.7 ± 1.6
Female, %	67.7 (n = 21)	77.8 (n = 28)

**Table 2.** Interaction effects of repeated-measures ANOVAs, between baseline and 6 months, CBGT compared to the waiting list condition (WL)

	CBGT		WL		Interaction effect	
	mean (SD)	95% CI	mean (SD)	95% CI	F value (d.f.)	p value
<i>Primary outcome measures</i>						
Fatigue (CIS fatigue)						
Baseline	51.0 (5.0)	49.0–53.1	50.8 (5.6)	49.0–52.6	2.807 (1, 61)	0.099
6 months	45.6 (9.6)	42.6–48.7	48.4 (6.2)	45.7–51.1		
Functional impairment (SIP-8)						
Baseline	1,707 (713)	1,474–1,940	1,710 (528)	1,502–1,919	9.117 (1, 61)	0.004
6 months	1,736 (714)	1,516–1,955	1,417 (444)	1,221–1,613		
<i>Secondary outcome measures</i>						
Daily observed fatigue						
Baseline	8.6 (2.7)	7.6–9.6	9.4 (2.4)	8.6–10.3	0.005 (1, 58)	0.943
6 months	8.2 (3.4)	6.9–9.4	9.0 (3.0)	7.9–10.1		
Daily observed pain						
Baseline	6.0 (3.8)	4.7–7.4	6.9 (3.2)	5.7–8.1	0.460 (1, 57)	0.500
6 months	6.2 (4.3)	4.7–7.8	6.7 (3.7)	5.3–8.1		
Hours working (mean/week)						
Baseline	5.5 (9.9)	1.8–9.2	5.6 (9.6)	2.3–9.0	0.003 (1, 60)	0.958
6 months	6.4 (11.7)	2.3–10.6	6.7 (10.5)	2.9–10.5		
Psychological distress (SCL-90)						
Baseline	165.4 (39.1)	150.6–180.2	162.7 (37.8)	149.3–176.0	0.580 (1, 58)	0.449
6 months	162.1 (48.0)	145.6–178.6	154.2 (38.1)	139.3–169.1		
Depression (BDI)						
Baseline	15.2 (8.3)	12.5–17.8	13.7 (6.0)	11.2–16.1	0.643 (1, 63)	0.426
6 months	11.9 (6.8)	9.7–14.2	11.4 (5.3)	9.3–13.5		
<i>Perpetuating factors</i>						
Physical attributions						
Baseline	11.2 (2.0)	10.4–11.9	11.8 (1.8)	11.1–12.6	5.502 (1, 51)	0.023
6 months	10.6 (2.4)	9.7–11.4	12.2 (1.9)	11.4–13.0		
Self-efficacy						
Baseline	15.9 (3.2)	14.5–17.3	14.9 (3.8)	13.7–16.1	0.453 (1, 58)	0.504
6 months	18.5 (3.3)	17.1–19.8	16.9 (3.6)	15.7–18.1		
Avoidance of activity						
Baseline	7.6 (2.6)	6.4–8.7	8.0 (3.3)	6.9–9.1	12.743 (1, 54)	0.001
6 months	9.1 (2.4)	8.2–10.0	7.4 (2.2)	6.6–8.3		
Focussing on bodily symptoms						
Baseline	28.8 (8.2)	25.9–31.8	31.5 (7.1)	28.9–34.2	0.714 (1, 58)	0.402
6 months	27.9 (9.0)	24.7–31.1	29.2 (7.6)	26.3–32.1		

**Table 3.** Pretreatment differences of CFS patients improved and non-improved after CBGT

Baseline measures	Self-rated improvement after CBGT, %		Statistics		
	better or much better (n = 10)	same or worse (n = 17)	$\chi^2$	p value	
CBGT in Nijmegen	50	41	0.199	NS	
Female	80	65	0.706	NS	
	mean	mean	Mann-Whitney U	Z	p value
Age, years	38.0 (7.2)	36.2 (8.9)	76.0	-0.453	NS
Educational attainment	4.7 (1.6)	4.2 (1.7)	70.5	-0.741	NS
Duration of complaints, years	4.9 (4.5)	6.8 (5.6)	66.0	-0.961	NS
Fatigue (CIS fatigue)	50.7 (4.2)	52.1 (4.2)	63.0	-1.113	NS
Functional impairment (SIP-8)	1,330 (417)	1,985 (730)	42.0	-2.159	0.031
Daily observed fatigue	7.4 (2.6)	9.7 (2.3)	34.0	-2.277	0.023
Daily observed pain	4.5 (2.6)	7.8 (3.5)	35.0	-2.220	0.026
Hours working (mean/week)	10.9 (12.8)	2.6 (6.6)	55.0	-1.867	0.062
Psychological distress (SCL-90)	151.8 (51.1)	168.8 (36.1)	60.5	-1.231	NS
Depression (BDI)	12.1 (6.7)	17.4 (9.0)	53.5	-1.590	NS
Physical attributions	10.9 (1.8)	11.5 (2.2)	64.5	-0.656	NS
Self-efficacy	16.7 (3.3)	15.4 (3.2)	57.5	-1.195	NS
Avoidance of activity	7.6 (2.8)	7.0 (2.5)	68.5	-0.835	NS
Focussing on bodily symptoms	10.9 (1.8)	11.5 (2.2)	68.0	-0.855	NS

p < 0.10. Figures in parentheses indicate SD.

#### *CBGT Compared to the Waiting List Control Group*

Interaction effects of the repeated-measures ANOVAs are displayed in table 2.

**Primary Outcome Measures.** On the subscale fatigue of the CIS, an interaction effect with a p value of 0.099 was found, in favour of CBGT. Functional impairment showed a significant interaction effect (p = 0.004) in favour of the waiting list condition. Functional impairment did not change after CBGT, but declined in the waiting list condition.

**Secondary Outcome Measures.** For daily observed fatigue, daily observed pain, hours working, psychological well-being and depression, no significant interaction effects were found. Self-rated improvement scores were available from 27 of 29 patients after CBGT. Ten (37%) of these CFS patients rated themselves as improved.

**Perpetuating Factors.** Concerning perpetuating factors, a significant interaction effect was found for physical attributions (p = 0.023) and avoidance of activity (p = 0.001). Physical attributions decreased after CBGT and increased in the waiting list condition. Avoidance of

activity increased after CBGT and decreased in the waiting list condition. On self-efficacy and focusing on bodily symptoms, no interaction effects were found.

#### *Pretreatment Differences of CFS Patients Improved and Non-Improved after CBGT*

Comparing the CFS patients who rated themselves as improved after CBGT with those who did not, it was found that improved patients reported significantly less functional impairment, less daily observed fatigue and less daily observed pain at baseline (table 3). For the pretreatment variable 'mean hours working a week', a trend was found with improved patients working more hours at baseline compared to non-improved patients.

#### **Discussion**

A trend was found that CBGT has a positive effect on fatigue in CFS. The changes in functional impairment were opposite to what was expected. On secondary out-

come measures, no significant improvement was found. After CBGT, 37% considered themselves improved. Although it was not the focus of this study, post hoc analyses showed no significant differences in the effectiveness of CBGT between the two participating centres.

Treatment effect in our study is low compared to most studies on individual CBT for CFS [7–10]. Whereas in these studies self-rated improvement ranged from 57 up to 70%, ours was 37%. In the control conditions of these other studies, self-rated improvement ranged from 23 up to 31%. Unfortunately, in our study, self-rated improvement was not assessed after the waiting list period.

Contrary to our findings, most studies on individual CBT for CFS find an effect on functional impairment in favour of the treatment condition. In the study of Prins et al. [9], functional impairment also declined in the support groups as well as in the natural course condition, but after CBT functional impairment declined more. It seems that in our CBGT, improvement on functional impairment was interfered. This might be related to the finding that avoidance of activity increased after CBGT and not after the waiting list period. Asking the therapists afterwards, it seems that during CBGT, too much time was spent on rest and relaxation, whereas starting the graded activity program was postponed for too long. It seemed to have been too difficult to get a group of patients starting and sustaining the activity program. Furthermore, CBGT was presented as a course in ‘coping with fatigue’. Once avoidance of activity had led to less fatigue, patients might have been satisfied. At this point, patients may have reinforced each other’s maladaptive behaviours.

One might dispute the effectiveness and suitability of CBGT for CFS. The main advantage of group therapy lies in the fact that several patients can be treated simultaneously. Modelling processes by seeing other members of the group might facilitate behaviour change. However, group therapy for CFS also has disadvantages. In group therapy, CFS patients may reinforce dysfunctional behaviour and resistance against psychological treatment. Furthermore, in group therapy, it is much harder to individualise CBT treatment to individual needs.

Yet, based on our current study and some recent studies on individual CBT for CFS, recommendations to improve the effectiveness and suitability of CBGT for CFS can be made. In trials on individual CBT for CFS, it was found that engagement in a claim for a disability-related benefit during CBT predicted less improvement after individual CBT for CFS [12, 29]. Our CBGT started before completion of these studies. In the present study, it was found that CFS patients with less severe complaints

did profit most of CBGT. In future research on the effectiveness of CBGT for CFS, these findings will have to be taken into account.

Another explanation for the moderate effect of CBGT might be that the therapists had no prior experience in CB(G)T for CFS. Only Prins et al. [9] performed a multi-centre trial also using therapists inexperienced in CBT for CFS. In that study, 83% of the therapists stated that they agreed that ‘CFS patients are more difficult to treat than patients with psychological complaints’, and 64% agreed that ‘CFS patients are more difficult to treat than other patients with somatic complaints’ [30]. For our study, this might count even more, since the therapists were inexperienced both in group therapy and in CBT for CFS.

Finally, based on this and former studies, the treatment protocol CB(G)T for CFS has been improved. Rest and relaxation are less emphasised and for passive CFS patients, the treatment protocol has been adapted [9]. Recently, lack of social support has been identified as an important determinant of CFS and a new perpetuating factor [31, 32]. Dealing with a lack of social support may also be a more prominent aspect of CBT for CFS.

For future research on CBGT in CFS, it is recommended to select CFS patients not engaged in a claim for a disability-related benefit during CBT and with less severe complaints. Furthermore, therapists should be experienced in group therapy as well as CBT for CFS.

In the current study, we found a moderate effect of CBGT on fatigue in an unselected group of CFS patients and with newly trained therapists. Future research is necessary to further investigate the suitability of CBGT for (subgroups of) CFS patients.

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