



Cognitive behaviour therapy for chronic fatigue syndrome: Differences in treatment outcome between a tertiary treatment centre in the United Kingdom and the Netherlands



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ABSTRACT

Objective: Cognitive behaviour therapy (CBT) reduces fatigue and disability in chronic fatigue syndrome (CFS). However, outcomes vary between studies, possibly because of differences in patient characteristics, treatment protocols, diagnostic criteria and outcome measures. The objective was to compare outcomes after CBT in tertiary treatment centres in the Netherlands (NL) and the United Kingdom (UK), using different treatment protocols but identical outcome measures, while controlling for differences in patient characteristics and diagnostic criteria.

Methods: Consecutively referred CFS patients who received CBT were included (NL: $n = 293$, UK: $n = 163$). Uncontrolled effect sizes for improvement in fatigue (Chalder Fatigue Questionnaire), physical functioning (SF-36 physical functioning subscale) and social functioning (Work and Social Adjustment Scale) were compared. Multiple regression analysis was used to examine whether patient differences explained outcome differences between centres.

Results: Effect sizes differed between centres for fatigue (Cohen's D NL = 1.74, 95% CI = 1.52–1.95; UK = 0.99, CI = 0.73–1.25), physical functioning (NL = 0.99, CI = 0.81–1.18; UK = 0.33, CI = 0.08–0.58) and social functioning (NL = 1.47, CI = 1.26–1.69; UK = 0.61, CI = 0.35–0.86). Patients in the UK had worse physical functioning at baseline and there were minor demographic differences. These could not explain differences in centre outcome.

Conclusion: Effectiveness of CBT differed between treatment centres. Differences in treatment protocols may explain this and should be investigated to help further improve outcomes.

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1. Introduction

Chronic fatigue syndrome (CFS) is characterized by severe and chronic fatigue that cannot be explained by a medical disease or psychiatric disorder. Other symptoms such as pain, post-exertional malaise, and unrefreshing sleep are present [1,2]. CFS patients report substantial disabilities in daily functioning. The prognosis is poor if untreated; the median spontaneous recovery rate is 5% [3]. To operationalize CFS, the US Centres for Disease Control (CDC) criteria [1,2] and the Oxford criteria [4] are most widely used. Both state that fatigue should be severe and ongoing, but there are differences in the symptoms required to diagnose CFS.

Research has shown that fatigue related behaviour and beliefs play a crucial role in the persistence of CFS [5–7]. Cognitive behaviour therapy (CBT) for CFS aims at changing behaviour and beliefs that maintain fatigue and disability and has proven effective [8–10]. It leads to a significant reduction of fatigue and functional impairment, which seems to be mediated by changes in behaviours and cognitions [11–14]. A subgroup of patients fully recovers [15–18].

Treatment effect on fatigue severity varies between studies. In one meta-analysis, effect sizes ranged from -0.06 to 1.67 (overall effect size: 0.48 ; [19]), with significant heterogeneity. Another meta-analysis also found heterogeneity, before outliers were winsorized [10]. Fewer therapy sessions were associated with lower effect sizes in this meta-analysis. It is not known which other factors may be responsible for this heterogeneity. Possible explanations are the use of different diagnostic criteria for CFS, variations in the interventions applied, patient characteristics and the use of different outcome measures. Using different diagnostic criteria for CFS may lead to the selection of different

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patient groups that do not benefit equally from CBT. Additionally, as CBT is a complex intervention, different versions of CBT for CFS may lead to different outcomes. Furthermore, different fatigue questionnaires could measure different aspects of fatigue, which are affected differently by the interventions [20].

This study investigated variation in outcome in two leading centres internationally, that use different approaches of CBT for CFS. Both centres developed treatment protocols for CFS which were tested in several RCT's [8,18,21–26]. In all these studies CBT led to a significant reduction of fatigue and impairment. The use of different outcome measures makes a direct comparison difficult. In this study, we used the same outcome measures in both centres and corrected for possible patient differences. Gaining more insight into contributors to treatment outcome variability could help improve treatment effect.

The treatment protocols for both versions of CBT have been published [23,27]. They are based on cognitive behavioural models of CFS, which differ in emphasis. The model on which the Dutch protocol was based [6] assumes that a low self-efficacy with respect to fatigue, a reduced level of physical activity and a tendency to focus on symptoms play a central role in the perpetuation of fatigue and disability. The model on which the UK protocol was based [6,28] assumes that fear of engaging in activity, symptom focusing and avoidance of activity perpetuate CFS. Both protocols include an initial adoption of a consistent approach to activity, a gradual increase in activity, sleep management, and cognitive restructuring. Both require 12–15 treatment sessions over a period of six months and are delivered by trained cognitive behavioural therapists. Although the treatment elements overlap, the protocols emphasize different treatment elements. Table 1 shows an overview of the protocol differences.

First, in the Dutch protocol treatment recovery is set as a therapy goal more explicitly. Although recovery rates are similar [16,17,29], stating recovery as the treatment goal may boost treatment effect, as

outcome expectation of patients, especially the idea that recovery is possible, is known to contribute to treatment outcome [13].

Both interventions underline the importance of graded activity. The Dutch protocol distinguishes between patients with a low physical activity level and patients with a fluctuating activity pattern. The former increase their activity level early in therapy, the latter first balance their activities more evenly [29]. The UK approach to activity is not protocol driven but individualized. When appropriate, patients learn to adopt a consistent approach to activity.

The Dutch protocol includes a specific physical activity program, in which the patient learns to increase physical activity regardless of symptoms and to modify cognitions that reflect low self-efficacy with respect to being active. These same principles are applied during the gradual increase of social and mental activity. This graded activity program is prescriptive. Patients increase walking or cycling by a minute per day, from an achievable level. The increase is time contingent, irrespective of the symptom level. The UK approach is formulation based and individualized. Increases in activities of daily life, like household chores, socialising and taking on responsibilities are negotiated with the patient. The patients learn that they can manage increases in activity, and although symptoms may get worse before they get better, over time the level of fatigue usually reduces. The activity increase is to some extent dependent on the percentage of activities accomplished earlier. If a patient is unable to attain the negotiated goals then harder goals will not be negotiated. This approach is therefore not fully time contingent.

In both protocols, unhelpful cognitions are identified and modified. Different cognitions are aimed at. In the Dutch protocol the physical activity program is aimed at increasing self-efficacy regarding fatigue and activity. Furthermore, specific interventions are applied to teach patients to redirect attention from symptoms towards other stimuli. First, the effect of attention on the perception of bodily symptoms is illustrated during therapy and its role in the perpetuation of fatigue is discussed. Then patients are invited to no longer talk about fatigue and to ask significant others not to inquire about fatigue. Finally, patients practice with redirecting the focus of their attention away from the fatigue to an activity or their environment, e.g. during social interactions or the graded activity program. In the UK protocol, patients learn that they can manage an increase in activities, knowing that symptoms may get worse before they get better. The UK protocol advocates a shift in the focus of attention from fatigue, but no specific intervention targets this.

In the comparison of treatment outcome in the two centres, we corrected for the fact that both centres used different operational criteria for CFS. The Dutch centre used CDC criteria for CFS, while the UK centre used Oxford criteria. The groups were compared with respect to demographics, symptom levels and duration. Where differences were found in treatment effects between the Dutch and the UK treatment centres, it was explored to what extent differences in patient characteristics and diagnostic criteria for CFS could explain this.

2. Methods

2.1. Participants

Consecutively referred patients with CFS who commenced CBT, defined by attendance at both assessment sessions and at least one treatment session, were included. In the Dutch centre, the Expert Centre for Chronic Fatigue of the Radboud University Medical Center in Nijmegen, the inclusion period was September 2010–January 2012. In the UK centre, the Chronic Fatigue Research and Treatment Unit at the South London and Maudsley NHS Trust and King's College London, the inclusion period was September 2009–December 2011. Patients that received CBT for CFS previously or started other treatment for fatigue during the CBT were excluded. In the Netherlands all patients met the CDC criteria for CFS [1,2]. In the UK patients met Oxford criteria for CFS [4]. Both case definitions define CFS as a syndrome characterized by fatigue

Table 1
Differences between the treatment protocol used in the UK and the Netherlands.

Therapy aspect	Protocol of Knoop & Bleijenberg [27]	Protocol of Burgess & Chalder [22,23]
Goal of the therapy	Recovery of CFS is explicitly aimed at.	Improved functioning and reduction of fatigue. Learn how to manage setbacks to be able to maintain and build on progress.
Activity program	<ul style="list-style-type: none"> - Highly structured and partly prescribed. - The patient starts with walking or cycling, before working towards his own goals. - Activity is increased by one minute per day, irrespective of symptom level. Therefore fully time contingent. 	<ul style="list-style-type: none"> - Negotiated with the patient. - Targets are the goals of the patient. - Activity increase is negotiated with the patient and takes into account how much was accomplished earlier. Goals are not fully time contingent.
Cognitions	<p>"I can increase my activity level, following specific principles and irrespective of symptoms." "I think I can influence my fatigue." Increasing self-efficacy with respect to fatigue. Aimed at reducing the focus on fatigue.</p>	<p>"I can increase my activity level and will be able to cope with an increase in symptoms." This focuses on reducing fear avoidance of symptoms.</p>
Symptom focusing	<ul style="list-style-type: none"> - Effect of symptom focusing is discussed and beliefs with respect to the need to pay attention to the fatigue are restructured. - Patients no longer talk about fatigue. - Elements of attentional training are applied to train patients to focus less on fatigue. 	Advocates a shift in the focus of attention from fatigue, but no specific intervention targets this.

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