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Does graded activity increase activity? A case study of chronic fatigue syndrome

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Abstract

The reliance on self-report outcome measures in clinical trials of graded activity-oriented cognitive-behavior therapy in chronic fatigue syndrome (CFS) makes it difficult to draw definitive conclusions about actual behavioral change. The participant in this case study was a 52-year-old married male with CFS who was working full-time. Outcome measures included a step counter to objectively measure physical activity as well as a daily diary measure of exercise activity and in vivo ratings of perceived energy, fatigue, and affect. The following psychometric instruments were also used: the CFS Symptom Inventory, the SF-36, the Beck Depression Inventory, and the Beck Anxiety Inventory. The 26-session graded activity intervention involved gradual increases in physical activity. From baseline to treatment termination, the patient's self-reported increase in walk time from 0 to 155 min a week contrasted with a surprising 10.6% decrease in mean weekly step counts. The final follow-up assessment revealed a "much improved" global rating, substantial increases in patient-recorded walk time and weight lifting intensity, yet a relatively modest increment in weekly step counts. It appeared that improvement was associated with mood-enhancing, stress-reducing activities that were substituted for stress-exacerbating activities.

Keywords: Graded activity; Chronic fatigue syndrome; Case study

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1. Introduction

1.1. Cognitive-behavioral treatment studies

Chronic fatigue syndrome (CFS), a perplexing illness of uncertain etiology, is defined by at least 6 months of medically unexplained debilitating fatigue plus a minimum of four out of eight secondary symptoms, such as neurocognitive difficulties, flu-like symptoms, and exercise intolerance (Fukuda et al., 1994). Although no effective medical therapy has been established for CFS, randomized clinical trials of cognitive-behavioral treatment (CBT) conducted in England (Deale, Chalder, Marks, & Wessely, 1997; Sharpe et al., 1996) and the Netherlands (Prins et al., 2001) have all reported substantial improvements in physical and role functioning as well as clinically impressive reductions in fatigue symptoms. By comparison, the control conditions in these studies, standard medical care (Sharpe et al., 1996), coping-oriented relaxation (Deale et al., 1997) and guided support or no treatment (Prins et al., 2001), did not show significant behavioral changes. These clinical investigations have used a combination of incremental activity scheduling, i.e., graded activity or operant behavior therapy, to reverse physical deconditioning, and cognitive therapy to overcome purportedly exaggerated fears of activity-related symptom flare-ups.

Three other randomized clinical trials (Fulcher & White, 1997; Powell, Bentall, Nye, & Edwards, 2001; Wearden et al., 1998) that used graded exercise, ostensibly without cognitive intervention, have also reported significant improvements in fatigue, functional capacity, and physical fitness in a majority of their CFS patients. The Powell et al. trial reported findings comparable to the CBT studies, while the remaining graded exercise studies found somewhat less improvement. The Powell et al. treatment regimen may have approximated a CBT protocol because all subjects received educational booklets that described the principles of graded activity with cognitive intervention. In general, both graded activity-oriented CBT and graded exercise studies reported a return to near pre-morbid functioning in many, if not all, of their largely low functioning participants.

1.2. Self-report vs. objective measures

Despite the apparent successes of these clinical trials, the reliance on self-report outcome measures makes it difficult to determine if patient reports (e.g., return to work) reflected illness improvements or simply improvements in coping with the illness (Whiting et al., 2001). One of these behavioral treatment studies (Prins et al., 2001) did attempt to document patient-rated improvements in physical and role functioning with an objective measure of activity. In that study, the patient sample treated with CBT evidenced no significant change in actigraph-measured activity from pre-treatment baseline to treatment termination and follow-up assessments (Gijs Bleijenberg, pers. comm., 1/29/01). Given this unexpected result, it should be useful to both clinicians and researchers to explore why patient-reported improvements may not correspond to objective measures of activity.