

Cognitive behavioral therapy for chronic fatigue syndrome in a general hospital—feasible and effective

Hiroko Akagi^a, Ivana Klimes^b, Christopher Bass^{c,*}

^aLeeds General Infirmary, Leeds, UK

^bDepartment of Psychological Medicine, John Radcliffe Hospital, Oxford, UK

^cDepartment of Psychological Medicine, John Radcliffe Hospital, Oxford, UK

Abstract

Cognitive behavior therapy (CBT) has been shown to be effective in recent randomized controlled trials for chronic fatigue syndrome (CFS). We examined the effectiveness of CBT in a general hospital setting in a retrospective questionnaire follow-up study of 94 patients offered CBT by liaison psychiatry services. The questionnaire response rate was 61%. Eighteen percent had returned to normal functioning at follow-up. For the group as a whole, there was a significant improvement in the functional and social impairment and the number of frequently experienced symptoms. Those in work or study at follow-up was 53% (29% pretreatment), and 65% of patients mentioned occupational stress as a contributory factor in their illness. There was a significant reduction in the frequency of attendance at primary care in the year after the end of CBT. We conclude that cognitive behavioral therapy is an acceptable treatment for most patients and can be used in a general hospital outpatient setting by a variety of trained therapists. However, a proportion of patients do not benefit and remain significantly disabled by the condition. © 2001 Elsevier Science Inc. All rights reserved.

Keywords: Cognitive behavior therapy; Chronic fatigue syndrome; Liaison psychiatry

1. Introduction

Chronic fatigue is a common symptom in both the community and primary care [1,2]. Although only a small proportion of patients with chronic fatigue will fulfill one of the operational criteria for Chronic Fatigue Syndrome or CFS [3,4], the point prevalence of this syndrome is estimated to be 2.6% in primary care using the operational criteria [5]. The prognosis for CFS without appropriate treatment varies according to the case definition, source of referral and length of followup of the study, but complete recovery from the syndrome defined by operational criteria is relatively rare [6–8].

There has been considerable debate about both the cause and management of the condition. However, it is recognized that the cause is multifactorial and, for management to be effective, attention needs to be paid to factors maintaining the symptoms and disability [9]. Cognitive behavior therapy (CBT) has been shown to be effective either as a sole mode of therapy or in conjunction with pharmacological treatment

of comorbid psychiatric disorder [10,11]. Recent randomized controlled trials [12,13] carried out in secondary and tertiary care suggests that this form of treatment is effective for patients with CFS.

The Department of Psychological Medicine in Oxford, UK has been using the cognitive behavioral approach to the management of patients with CFS since 1991. The present study sought to review the effectiveness of CBT for outpatients with chronic fatigue syndrome who attended a general hospital psychiatric out-patient clinic using a questionnaire employed in a previous naturalistic outcome study [14]. We also sought to determine whether the treatment had any effect on the use of primary care services by comparing the consultation rates in primary care before and after the course of treatment.

2. Method

2.1. Patients

Patients selected for follow-up were: all patients referred to the Department of Psychological Medicine (DPM) between 1991 and 1997, aged between 16 and 65 at presen-

* Corresponding author. Tel.: +44-1865-220379; fax: +44-1865-220373

E-mail address: Christopher.bass@oxmhc_tr.anglox.nhs.uk (C. Bass).

tation, satisfied diagnostic criteria for CFS [3]/neurasthenia (F48.0, [15]) and offered CBT. When indicated, additional treatment for coexisting psychiatric disorders was also provided. The patients were identified from the departmental database and Fatigue clinic diaries.

The treatment involved the development of a shared understanding of the problem, graded exercise, cognitive challenge and problem solving [16,17]. Most patients were given additional reading material explaining the rationale for the treatment as well as the treatment plan [18]. All patients offered CBT were included in the follow-up whether or not they accepted treatment, and all patients had been discharged at least 3 months before they were contacted for the study. Each patient's primary care physician was contacted prior to sending out the questionnaire. The study was approved by the local ethics committee.

2.2. *Clinical details*

Case notes of all patients were reviewed to obtain demographic information, referral source, details of the assessment, and treatment. We gauged whether the patient was engaged by the fourth session of treatment from: 1) the regularity of attendance; and 2) comments on whether he/she complied with the homework. The therapist rating of end of treatment outcome was obtained from their comments in the discharge summary and/or the entry in the notes of the last session. These were graded from -1 (worse), 0 (unchanged), +1 (mild improvement), +2 (moderate improvement) and +3 (recovery).

2.3. *Follow-up questionnaire*

The postal questionnaire used had been previously piloted and used in a naturalistic outcome study [14] of patients who reported chronic fatigue and had presented to the Infectious Diseases clinic in the same hospital before CBT became available. Patients were asked to rate (on a 4-point scale) their symptoms, functional impairment and effects on social life on two occasions: 1) over the previous month if they were not yet recovered; and 2) when their CFS was at its worst. The questionnaire included the Hospital Anxiety and Depression scale (HAD) [19], and questions on the effect on their occupation, treatments received (including alternative medicines), coping methods, beliefs about the illness and financial burden of the illness.

There were additional questions on the acceptability and helpfulness or otherwise of the treatment received at DPM, and each patient was asked to rate the improvement in his/her condition from the end of therapy on a 7-point scale from very much improved to very much worse.

2.4. *Consulting behavior*

If the patient replied to the mailed questionnaire, his/her primary care physician was subsequently contacted for in-

formation on the number of consultations excluding repeat prescriptions during two discrete periods: 1) the 12 months before the initial assessment at DPM; and 2) 12 months after discharge (shorter if followed up within 12 months of discharge). Questions were asked about each patient's current medication and whether there had been any further referrals to psychiatric services since discharge. We extrapolated the primary care attendance rates to 12 months where patients were followed up for less than 12 months after discharge.

2.5. *Analysis*

The questionnaire responses were dichotomized in the same way as in the naturalistic outcome study [14]. That is to say, symptoms were rated as present if they were reported as occurring "frequently" or "most of the time" over the month in question. Specific areas of activity were rated as impaired if affected at least "moderately". The question on the respondent's belief in the cause(s) of their symptoms was rated positive for the item if it was reported as "possible" or "definite" causation. Functional impairment was defined as "being impaired in at least one area questioned" (housework, sport, walking, going out socially, hobbies and occupation/studies) over the previous month. Similarly, social impairment indicated impairment in at least one area of relationships with wife/husband/partner, other family members or friends. In addition, the number of areas affected was counted for both functional and social impairments in this study to compare the effect of the illness at its worst and the present.

For outcome measures, the therapist rating of end of treatment outcome was dichotomized into "improved" for rating of 2 or 3, "not improved" for rating of -1 to 1. The patient's rating of their current state were rated as "improved" if moderately or very much improved and "not improved" if they reported minor improvement, no change or deterioration of any degree.

Data were analyzed using the SPSS statistics package. As the data were not normally distributed, χ^2 test was used to analyze differences between groups of categorical variables, and Wilcoxon Rank sum test for comparisons of continuous variables.

3. **Results**

3.1. *Treatment carried out at DPM*

Of the 97 patients identified as satisfying the criteria for the follow-up study, the notes of two patients were lost and the primary care physician advised against contacting one further patient, leaving 94 patients for the study. At the initial assessment 77 of the 94 patients were given a handout explaining CBT based on a book by Chalder [18]. Fourteen (15%) of the 94 patients did not return after the initial assessment. Twenty-two patients (27.5% of 80) dropped out

Table 1
Questionnaire results

		Treatment group (n = 51) No (%)
Back to normal		9 (18%)
% with fatigue at follow up		41 (81%)
Functionally impaired		38 (75%)
Changed job due to CFS		39 (77%)
Emotional disorder HAD score >11		32 (63%)
Belief in causation	Virus	48 (94%)
	Infection	50 (98%)
	Stress	40 (79%)
Received antidepressants		18 (35%)

before the completion of treatment. Those who completed treatment (n=58) attended for a median 6 sessions (range 1–39) over a median 6-month period (range 1–41). Those dropping out attended median 3 sessions (range 1–27) over median 2 months (range 1–13).

Sixty three (79%) of the 80 patients received treatment from a liaison psychiatrist (consultant or psychiatric registrar), 5 from a clinical psychologist and 12 from a clinical nurse specialist. All had been trained in the techniques of CBT in CFS [10,16]. Some patients received additional treatment, which included medication (n=39) and physiotherapy (n=3).

At the end of treatment, 46% (37 out of 80) patients were considered moderately improved or recovered at the last session by the therapist. Among those who completed treatment, the proportion was 55% (32 out of 58), whereas among those who dropped out, 23% (5 out of 22) were considered to have improved by their last session (Pearson $\chi^2=0.009$).

3.2. Follow-up questionnaire

Of the 94 questionnaires sent out, two questionnaires were returned undelivered, and 56 replies were received (response rate 61%). A reminder letter was sent 4 weeks after the first questionnaire where necessary. The respondents did not differ significantly from the nonrespondents in demographic or clinical variables including age, sex, marital status, referral source, symptom duration, follow-up inter-

val, use of medication, past psychiatric history, associated symptoms of irritable bowel or chronic pain and illness beliefs. Not surprisingly, however, the patients who replied were more likely to have returned for treatment after the assessment (91% vs. 76%, $P < .05$), had more treatment sessions (median 5.5 vs. 2.0, $P < .05$), and to have engaged in treatment by the fourth session (57% vs. 34%, $P < .01$) than those who did not reply.

The 56 respondents included 2 patients who met the criteria for ICD-10 [15], but not Oxford Criteria [3] as their fatigue duration was between 3 and 6 months. Five of the 56 had attended the initial assessment only and did not return for further CBT sessions. Of the remaining 51 patients who commenced treatment (treatment group, TG), 11 did not complete it. Dropouts were included in TG for the purpose of the analysis (intention to treat) unless specified. The age at follow-up was median 39 years (range 18–66), 63% female and 57% married. These were similar to the previous naturalistic outcome study (NOS) [14]. However, compared to the NOS population, our study population had higher proportion of patients whose fatigue duration at presentation was greater than 6 months (96% vs. 66%), and our follow-up period was longer, 20 months (range 3–66) vs. 12 months (range 1.5–48). Twenty-three patients (45%) had been referred by their primary care physicians and 22 (43%) were sick at the time of referral. Twenty patients (39%) had received previous outpatient treatment for psychiatric illness.

Among those who responded to the follow-up questionnaire, 32 (71% of the 45 patients who answered) stated that the treatment was acceptable, and 28 (58% of 48 who answered) found the treatment helpful.

3.3. Outcome

The main results of the questionnaire responses are summarized in Table 1. Nine (18%) in the TG group reported that they were “back to normal.” All nine patients had completed treatment. This represented 23% of 40 respondents who completed treatment. None of the patients who dropped out of treatment or defaulted after the initial assessment had recovered completely. This compares favorably with 13% in the NOS group, though not reaching statistical significance.

Table 2
Outcome at discharge and at follow up

Therapist's assessment at discharge	Patient's reported state at follow up		Total
	Improved (moderately improved, recovered)	Not improved (minor improvement, no change or deterioration)	
Moderate improvement or recovery	16	7	23
Minor improvement, no change or worse	10	18	28

Pearson chi square coefficient = 0.016

Table 3
Treatment group—results by follow up period

	Follow up period (number in group)	Scores when illness at its worst Median (range)	Scores over the previous month at follow up Median (range)	Statistical significance
Number of frequently experienced symptoms	6–12 months (N = 12)	14 (8–20)	7 (0–14)	P<0.01
	1–2 yrs (N = 16)	12 (3–20)	3.5 (0–16)	P<0.01
	2–4 yrs (N = 16)	14 (5–21)	6 (0–14)	P<0.01
Functional impairment score	6–12 months (N = 12)	6 (2–6)	5 (0–6)	P<0.02
	1–2 yrs (N = 16)	6 (1–6)	3 (0–6)	P<0.01
	2–4 yrs (N = 16)	5.5 (1–6)	3 (0–6)	P = 0.01
Social impairment score	6–12 months (N = 12)	3 (1–3)	2 (0–3)	P<0.04
	1–2 yrs (N = 16)	2 (0–3)	0.5 (0–3)	P<0.01
	2–4 yrs (N = 16)	2 (0–3)	1 (0–3)	P<0.01

Overall, 26/51 (51%) stated that they were “very much or moderately improved” since the end of treatment. Only 5/51 (10%) said that they were worse, and 11/51 (22%) that they were “unchanged.”

The therapist rating of discharge state was compared with the patient’s reported outcome at follow-up in Table 2. Seventy percent (16 out of 23) who were moderately improved or had recovered at the end of treatment reported improvement. Among those who had shown little or no improvement at the end of treatment sessions, 36% (10 out of 28) had also reported improvement.

3.4. Within patient change

The effect of the treatment was also examined comparing problems reported in each patient when the illness was at its worst with those in the month before the follow-up assessment analyzed by follow-up period (Table 3). There were 4 patients who were followed up for 6 months or less and 3 patients who were followed up more than 48 months. The numbers in these groups were too small for statistical analysis. The number of frequently experienced symptoms (frequently or most of the time), functional impairment score and social impairment score were all lower at the time of follow-up at a statistically highly significant level.

The reduction in functional and social impairment scores was significantly greater in the group that completed treatment compared to those who dropped out ($P < .05$ and $P < .02$ respectively). No such differences were observed between those who presented within 18 months of onset and those with longer illness, nor between those who were followed up within 36 months of onset and those who had the illness for longer. There were no significant effects of treatment completion or length of illness on the change in the number of frequently experienced symptoms.

3.5. Illness beliefs

Examination of the patients’ beliefs about the cause of their illness at follow-up revealed that 94% (48/51) indi-

cated that a viral infection “might be/definitely be” a factor in the causation of their symptoms (Table 1). However, only 21 believed there might have been current viral infection. It is worth noting however that 40 patients also considered stress as a contributing factor in their illness, of which 33 (65%) mentioned occupational stress. This was the second most common cause cited after “previous viral infections.”

3.6. Occupation

Eighty-eight percent (45/51) in the treatment group had changed occupation or course of studies, and 77% (39/51) attributed this change to the illness (Table 1). This is significantly different from the 38% in the NOS group ($P < .01$). Nineteen (37%) were not working due to fatigue or had retired on ill health grounds. Ten (63%) of 16 who were temporarily sick at the time of assessment were in work at follow-up, but 3 (20%) of 15 in employment or study at assessment were retired or not working due to fatigue at follow-up. Overall, those in work/study increased from 15 (29%) to 27 (53%) at follow-up, including those who were initially unemployed. Of the 5 patients who did not receive CBT none were working, and four of these cited the illness as the main reason (Table 4).

Table 4
Change in occupation between assessment and follow up

Occupation at assessment	Occupation at follow up				Total
	In work	Retired on ill health	Not working due to fatigue	Other	
In work/study	10	2	1	2	15
Temporarily sick	10	2	2	2	16
Permanently sick	0	3	2	1	6
Unemployed	5	1	1	0	7
Retired	0	2	0	0	2
Other	2	0	3	0	5
Total	27	10	9	5	51

Table 5
Primary care attendance 12 months before and 12 months after CBT

	Median attendance (range) 12 months pre-treatment	Median attendance (range) 12 months post-treatment	Statistical significance
All patients in TG (N = 46)	10.5 (1–35)	7 (0–25)	P<0.001
Those followed up for full 12 months (N = 39)	11 (1–35)	7 (1–25)	P=0.001
Primary care attendance before treatment			
10 or less per annum (N = 23)	7 (1–10)	5 (1–20)	NS
11 or more per annum (N = 23)	17 (11–35)	8 (0–25)	P<0.001
Primary care attendance by patient's reported outcome			
Improved (N = 23)	11 (1–24)	5 (0–20)	P<0.005
Not improved (N = 23)	10 (1–35)	7.2 (2–25)	P<0.01

3.7. Health care use data from primary care questionnaires

Two patients who returned the questionnaire did not give consent for us to contact their primary care physician, one did not have a current primary care physician and another who declined to answer the questionnaire gave us permission to contact the primary care physician. Fifty-four questionnaires were sent and 52 replies received (response rate 96%). Forty-seven of these were from patients who received treatment, but one reply had incomplete primary care attendance data. Seven of these patients were followed up for less than 12 months (4 to 8 months) and their post-treatment primary care attendance figure was calculated per annum in proportion to the follow-up period.

Among those who received treatment, primary care attendance in the 12 months before CBT was median 10.5 visits (range 1 to 35). In the twelve months after CBT ended however, it had reduced to a median of 7 visits per annum (range 0 to 25) ($P < .001$) (Table 5). Exclusion of those who were not followed up for the full 12 months did not affect this finding. Further analysis revealed that this fall was more pronounced in those who had higher attendance rates before treatment. When the figures were analyzed for those who reported improvement (moderately/very much improved or back to normal) and those who did not, as expected the change was greater in those who had recovered. However, it is notable that there remained a significant reduction in the primary care attendance rate among those who reported minimal improvement or worsening of their condition.

There was no difference between the number of patients prescribed antidepressants at the time of followup; 18 (38% of 47), and those on the medication at the initial assessment; 17 (33% of 51). Twelve of these patients had been on antidepressants at presentation and were on antidepressants at the time of follow-up. Prescribed analgesic use had halved from 22% (11/51) to 11% (5/47) during the course of the follow-up.

Eight patients (17%) were referred for further psychiatric treatment after the end of CBT. None of these reported having returned to normal, but their subjective reporting of current condition ranged from moderately worse to moderately improved. When those who had further psychiatric

referral were compared with those who had not, they had longer duration of illness (87.5 months vs. 60 months), greater number of current symptoms (9.5 vs. 6), greater functional and social impairment scores (5 vs. 3 and 2.5 vs. 1, respectively), and greater HAD total score (22.5 vs. 13). However, only the difference in social impairment score reached statistical significance ($P = .041$). There were no statistical differences in the primary care attendance figures between the two groups, either pre- or post-treatment.

4. Discussion

This study has a number of limitations that need to be addressed. First, it was not a randomized controlled investigation of a specific psychological treatment (CBT). Previous randomized studies of patients with CFS have demonstrated the efficacy of CBT, although the treatment was delivered in a research setting [12,13]. Our primary aim was to establish whether CBT for CFS carried out in a general hospital setting was effective. It was possible to make comparisons between those who completed the course of treatment and those who dropped out. A subsidiary aim was to use a previous naturalistic outcome study (NOS) of Sharpe et al. [14] as a historical control. Although the demographic characteristics of the two groups were similar, a third of NOS patients had not met the accepted criteria of 6 months symptoms duration for CFS, suggesting that they may have had less severe fatigue. Furthermore, our followup time-scale was significantly different. Any comparison between the data of the natural outcome study with followup data of our patients who received CBT should be viewed with these caveats in mind.

The questionnaire response rate was 61% which was lower than 81% for the NOS [14]. The demographic and clinical characteristics of nonresponders were not different from the responders, but differed in the treatment take up rate, number of treatment sessions attended and the proportion who became engaged in treatment, suggesting that the nonrespondents may have had a less favorable experience of treatment.

The other limitation of this study is the use of self-report questionnaires, which rely on subjective reporting of symp-

toms and disability and also raise the issue of validity of the questionnaire. However, assessment of the degree of fatigue is by its nature subjective. The questionnaire used was identical to the one used for the naturalistic outcome study which had been piloted previously [14], except for additional questions on the patient's comments on treatment received and the current state.

The patients followed up in the present study included all those who were referred to the department and received treatment in the routine service setting. Therefore, it is more representative of a clinical service setting in which the potential benefits of CBT can be assessed. Furthermore, the demographic characteristics of our treated group (age, sex, marital status) were comparable to the patients who received CBT in the randomized controlled trials of Sharpe [12] and Deale [13], except that there were fewer married patients in Deale's study.

The treatment take up rate was 85%. We found that the treatment offered in the out-patient clinic was acceptable to more than two thirds of the patients and that three quarters of the patients who accepted the treatment completed it. It is, therefore, a feasible treatment to offer in the psychiatric outpatient clinic of a general hospital.

Fifty-five percent of patients who completed the treatment had improved significantly by the end of treatment as assessed by the therapist. At follow-up, 18% of patients were "back to normal," and this proportion rose to 23% in those who completed treatment. This is greater, though not statistically significantly so, compared with the NOS group. Bearing in mind that the NOS group was less severely affected however, it does suggest that the treatment improved outcome. Systematic review of studies on the prognosis of chronic fatigue syndrome [6] report that less than 10% of adults with operationally defined chronic fatigue syndrome return to premorbid levels of functioning, and that the majority remain significantly impaired. Furthermore, among patients receiving CBT in a randomized controlled trial, few reported complete resolution of symptoms even when the overall treatment effect was substantial [12].

It is difficult to compare our outcome with the randomized controlled trials (RCT) of CBT in CFS [12,13], as the outcome measures used were different and the followup period was 6 to 12 months in the RCT's. They achieved an "overall satisfactory outcome" in 73% [12], or "good outcome" in 70% [13]. A significant subjective improvement rate of 60% in CBT group [12] is comparable to the 51% who reported improvement in our study. Similar rates were reported for subjective deterioration in the CBT group: 13% in Sharpe's [12] compared to 10% in the present study.

A significant proportion of patients reported functional impairment at follow-up. However, functional impairment was defined as impairment in one or more of the six areas covered in the questionnaire. It is likely that the broad definition was not sensitive enough to detect change.

Comparing symptoms and function between the illness at its worst and at follow-up, there was a clear reduction in the

number of physical symptoms, as well as functional and social impairment scores. Improvements in functional and social scores were more marked in those who completed treatment and such improvements were not related to length of illness, suggesting that the changes seen were not merely a function of acuteness of presentation nor natural remission. However, no such relationships were established in the change in physical symptoms. The latter may simply be a lack of power in detecting treatment effect; on the other hand, CBT may be more effective in promoting coping with than relieving symptoms of the condition. Comparison of these scores reveals that the improvement was most marked in the group who were followed up between 1 and 2 years. Total HAD scores and the proportion with emotional disorders were also lowest in this group. Both Deale [13] and Sharpe [12] found that the improvements continued beyond the completion of CBT up to 6 or 12 months respectively. The results of this study suggest that such an improvement continues into the second year. It is also of interest that among those who appeared not to have made significant progress at the end of CBT, 36% had reported they had moderately or very much improved at follow-up.

In comparing the treatment effect between those with different lengths of follow-up, it needs to be borne in mind that those receiving treatment more recently may have been treated with therapists with longer experience, influencing the outcome for the better. Therefore the higher number of reported symptoms and emotional disorder with follow-up longer than two years may be attributed to the effectiveness of the original treatment or relapse of symptoms over time. It is notable, however, that there is little evidence of a deterioration in functional or social impairment in this group.

A high proportion of TG patients continued to attribute the illness to a viral cause. This finding is in keeping with that of Deale [20] from their randomized controlled trial of CBT for CFS, that physical illness attribution did not change in the treatment group. There was no significant association between causal attribution and improvement at 6 months. Important cognitive factors affecting outcome were the patients' beliefs about the effect of exercise and activity levels on their illness. Similarly, in a study of illness cognitions in CFS, attribution of the illness to a physical cause was not directly related to avoidant coping behavior, the most important factor predicting adaptive outcome [21].

One of the most striking differences between the TG and NOS was in the number of patients who changed occupations during the course of the illness. This may be a reflection of the greater severity of CFS in the treatment group. However, there was an overall increase in those in gainful employment in the TG at follow-up, whereas among those who did not return for CBT none had resumed work. It is worth noting that 65% of patients mentioned occupational stress as a contributing factor to their illness in our study. CFS is a chronic debilitating condition and occupational issues are often germane during the course of the illness.

Moreover, if patients believe that occupational factors make a contribution to the cause and maintenance of CFS, then these would have been directly addressed during the course of CBT. It is also worth noting that poor occupational functioning before the onset of illness appears to predict poor outcome in CFS [22].

To gain some objective measure of outcome, we sought to examine any change in consultation rates in primary care following CBT. As the number of consultations were not broken down by the reason for attendance, change cannot be solely attributed to CBT or CFS. The reduction was most marked in those who had high rate of attendance prior to the treatment. This reduction was greater in those who reported subjective improvement but was also observed in those who did not.

The fall in the use of prescribed analgesics is also consistent with the above finding i.e., that there was a significant reduction in the number of symptoms experienced by the patients at follow-up. On the other hand, the continuing prescription of antidepressants is consistent with the finding that, with the exception of those followed up at 1–2 years, emotional disorder continued to be prevalent. Those patients who were referred back to the psychiatric services appeared to have longer duration of illness with worse symptoms, though the numbers were too small to detect significant statistical significance.

In summary, we have demonstrated that CBT is an acceptable and useful treatment which can be used in a general hospital outpatient setting by trained therapists. There was an improvement in function in those who accepted and engaged in treatment, and there was also evidence of a reduction in the use of primary care resources after treatment. Three quarters of the patients attributed occupational change to the illness, although it is not clear whether this was a cause or a consequence of CFS. However, our data suggests that occupational factors may be pathogenic in a proportion of patients with CFS. Despite these positive findings, a significant proportion of patients (38%) decline/refuse/drop out, and alternative strategies need to be developed to help these patients overcome their symptoms and disabilities.

We thank Dr Michael Sharpe for the use of the questionnaire and helpful comments on the manuscript. This study was supported by the Wellcome Trust (049343).

References

- [1] Lewis G, Wessely S. The epidemiology of fatigue: more questions than answers. *J Epidemiol Community Health* 1992;46:92–7.
- [2] Pawlikowska T, Chalder T, Hirsch SR, et al. Population based study of fatigue and psychological distress. *BMJ* 1994;308:763–66.
- [3] Sharpe MC, Archard LC, Banatvala JE, et al. A report—chronic fatigue syndrome: guidelines for research. *J R Soc Med* 1991;84:118–21.
- [4] Fukuda K, Straus SE, Hickie I, et al. The Chronic Fatigue Syndrome: a comprehensive approach to its definition and study. *Ann Intern Med* 1994;121:953–59.
- [5] Wessely S, Chalder T, Hirsch S, Wallace P, Wright D. The prevalence, and morbidity of chronic fatigue, and chronic fatigue syndrome: a prospective primary care study. *Am J Public Health* 1997;87:1449–55.
- [6] Joyce J, Hotopf M, Wessely S. The prognosis of chronic fatigue, and chronic fatigue syndrome: a systematic review. *QJM* 1997;90:223–33.
- [7] Bombardier CH, Buchwald D. Outcome, and prognosis of patients with chronic fatigue vs chronic fatigue syndrome. *Arch Intern Med* 1995;155:2105–10.
- [8] Wilson A, Hickie I, Lloyd A, et al. Longitudinal study of outcome of chronic fatigue syndrome. *BMJ* 1994;308:765–69.
- [9] Joint working group of the Royal Colleges of Physicians Psychiatrists, and General Practitioners: *Chronic Fatigue Syndrome*, 1996.
- [10] Butler S, Chalder T, Ron M, Wessely S. Cognitive behaviour therapy in chronic fatigue syndrome. *J Neurol Neurosurg Psychiatry* 1991;54:153–58.
- [11] Bonner D, Ron M, Chalder T, Butler S, Wessely S. Chronic fatigue syndrome: a followup study. *J Neurol Neurosurg Psychiatry* 1994;57:617–21.
- [12] Sharpe M, Hawton K, Simkin S, et al. Cognitive behaviour therapy for the chronic fatigue syndrome: a randomized controlled trial. *BMJ* 1996;312:22–6.
- [13] Deale A, Chalder T, Marks I, Wessely S. Cognitive behaviour therapy for chronic fatigue syndrome: a randomized controlled trial. *Am J Psychiatry* 1997;154:408–14.
- [14] Sharpe M, Hawton K, Seagroatt V, Pasvol G. Followup of patients presenting with fatigue to an infectious diseases clinic. *BMJ* 1992;305:147–52.
- [15] ICD-10. The ICD-10 classification of mental, and behavioral disorders. Geneva, World Health Organization, 1992.
- [16] Surawy C, Hackmann A, Hawton K, Sharpe M. Chronic fatigue syndrome: a cognitive approach. *Behav Res Ther* 1995;33:535–44.
- [17] Wessely S, Sharpe M. Chronic fatigue, chronic fatigue syndrome, and fibromyalgia. In Mayou R, Bass C, Sharpe M (editors), *Treatment of Functional Somatic Symptoms*. Oxford, Oxford University Press, 1995:285–312.
- [18] Chalder T. *Coping with Chronic Fatigue*. London, Sheldon Press, 1995.
- [19] Zigmond AS, Snaith RP. The Hospital Anxiety, and Depression Scale. *Acta Psychiatr Scand* 1983;67:361–70.
- [20] Deale A, Chalder T, Wessely S. Illness beliefs, and treatment outcome in chronic fatigue syndrome. *J Psychosom Res* 1998;45:77–83.
- [21] Heijmans M. Coping, and adaptive outcome in chronic fatigue syndrome: Importance of illness cognitions. *J Psychosom Res* 1998;45:39–51.
- [22] Mountstephen A, Sharpe M. Chronic fatigue syndrome, and occupational health. *Occup Med* 1997;47:217–27.