

Chronic fatigue in general practice: economic evaluation of counselling versus cognitive behaviour therapy

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SUMMARY

Background: There is a paucity of evidence relating to the cost-effectiveness of alternative treatment responses to chronic fatigue.

Aim: To compare the relative costs and outcomes of counselling versus cognitive behaviour therapy (CBT) provided in primary care settings for the treatment of fatigue.

Design of study: A randomised controlled trial incorporating a cost-consequences analysis.

Setting: One hundred and twenty-nine patients from 10 general practices across London and the South Thames region who had experienced symptoms of fatigue for at least three months.

Method: An economic analysis was performed to measure costs of therapy, other use of health services, informal care-giving, and lost employment. The principal outcome measure was the Fatigue Questionnaire; secondary measures were the Hospital Anxiety and Depression Scale and a social adjustment scale.

Results: Although the mean cost of treatment was higher for the CBT group (£164, standard deviation = 67) than the counselling group (£109, SD = 49; 95% confidence interval = 35 to 76, $P < 0.001$), a comparison of change scores between baseline and six-month assessment revealed no statistically significant differences between the two groups in terms of aggregate health care costs, patient and family costs or incremental cost-effectiveness (cost per unit of improvement on the fatigue score).

Conclusions: Counselling and CBT both led to improvements in fatigue and related symptoms, while slightly reducing informal care and lost productivity costs. Counselling represents a less costly (and more widely available) intervention but no overall cost-effectiveness advantage was found for either form of therapy.

Keywords: Chronic fatigue; counselling; cognitive behaviour therapy; randomised controlled trial; cost-consequences analysis.

Introduction

THE poorly understood nature, chronic course, and disabling consequences of chronic fatigue indicate a condition with potentially high health care costs, both in terms of health-seeking behaviours by patients and a wide range of treatment responses by health care providers. There are further economic consequences imposed by lost or impaired ability to work and by the opportunity costs associated with the provision of informal care-giving. For example, one study in the United States of America that surveyed employment status and service use among chronically fatigued patients revealed considerably increased rates of self-reported work disability (compared with the general population) and a high level of consultation with a range of allopathic and homeopathic health care providers.¹ In Australia, the overall economic impact of chronic fatigue syndrome — a more closely defined and persistent form of fatigue — has been estimated at Aus\$59 million (1990 prices), at an average cost of Aus\$9429 per case, resulting primarily from an estimated 50% reduction in the employment rate following the onset of illness.²

There is a paucity of evidence relating to the cost-effectiveness of alternative treatment responses to chronic fatigue. In previous evaluative studies of chronic fatigue syndrome, burden has typically been measured in terms of disability and functional impairment rather than by levels of resource consumption or lost productivity.³⁻⁵ While the economic implications of counselling in primary care more generally has been addressed,⁶ the question of what treatment(s) offer a cost-effective use of resources in the treatment of chronic fatigue remains unanswered. In this paper, we consider the relative costs and outcomes of counselling versus cognitive behaviour therapy (CBT) provided in primary care settings for the treatment of fatigue.

Method

Study design and outcome measurement

The design of the study, together with a description of the process of randomisation and patient recruitment, are described in the companion paper.⁷ Briefly, patients aged between 16 and 75 years of age who had experienced symptoms of fatigue for at least three months (and for which no specialist treatment had been sought) were recruited across 10 general practices in London and the South Thames region. Patients were randomly allocated to receive cognitive behaviour therapy or counselling and assessed on entry to the trial, at completion of therapy, and again at six months after baseline. The principal measure of outcome used in the study was the Fatigue Questionnaire.⁸

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Service utilisation and cost measures

Service utilisation, informal care-giving, and socioeconomic data were collected at baseline and six-month follow-up assessment using a variant of the Client Service Receipt Inventory,⁹ which covered: (a) a range of health and other care services that potentially constitute an individual's 'package' of care; (b) a set of household activities for which sampled individuals may have obtained help and support from friends or family; and (c) questions relating to the patient's living and employment circumstances.

The cost of treatment was calculated by multiplying the number of sessions, on average 50 minutes duration, by the unit cost per hour of face-to-face contact time with a counsellor (£28) and a CBT therapist (£40). Hourly unit costs for both types of professional were derived with the help of the NHS Ready Reckoner software package¹⁰ and included training costs and time spent on non-patient activities (estimated at 33%). The cost associated with each person's care package was similarly derived by attaching unit costs to their particular use of services and aggregating these components to give a total cost estimate. Unit cost figures included salary on-costs and overheads (including a London multiplier where appropriate) and were drawn from national estimates.¹¹

The appropriate method for costing informal caregiver support by family members or friends and lost days of work by patients is contended.¹² In this study, we attempted to estimate the opportunity cost of informal care by attaching a unit cost of £6.89 per hour, which is the value of a paid home care worker.¹¹ For lost employment cost estimates, days off sick owing to fatigue were converted into hours and weighted by the average gross wage per hour for manual and non-manual professions of both sexes.¹³

Statistical analyses

An intention to treat analysis was performed for all patients for whom a six-month follow-up assessment was performed. Analysis of differences in incremental cost and cost-effectiveness was performed using a non-parametric bootstrap to account for this positively skewed distribution observed for cost variables (95% confidence intervals that exclude zero indicate a significant difference at the 5% level).^{14,15}

Results

Baseline socioeconomic and service history characteristics

Key sociodemographic characteristics are given in the companion paper.⁷ The majority of the sampled populations of both the counselling and CBT groups considered themselves to belong to a managerial or professional occupation (81.6–82.9%) and described their usual work status as full- or part-time employed (56.3–58.5%). Of the counselling group, 3.1% described themselves as 'off sick', as did 10.9% of the CBT group. Close to half of patients in both treatment groups reported that they had a history of depression or anxiety and that they had taken medication for an emotional disorder. Specific rates of prior consultation with a psychiatrist (as an inpatient or outpatient), a counsellor or an alternative practitioner were modest in both groups except for a

significantly higher rate of contact with a counsellor for the CBT group (28.1% compared with 10.8%, $\chi^2 = 6.2$, $P = 0.013$).

Costs of therapy and health care

Cost of therapy and health care for the six-month periods preceding baseline and follow-up assessment are reported in Table 1. The cost of treatment itself was £109 (SD = 49) for patients receiving counselling and £164 (SD = 67) for CBT, a significant difference of £55 per patient (95% CI = 35–76; $P < 0.001$). A notable difference in the uptake of services relates to the use of community-based services, the costs of which are close to zero over the course of the study for the group receiving counselling but which for the CBT group are £57 (SD = 229) at baseline and £49 (SD = 187) at follow-up assessment. The largest contributor to cost at baseline, and the most appreciable reduction in cost over time, is consultation with primary care doctors, which accounted for 39–56% of cost at baseline but only 20% of non-therapy service costs at follow-up. (The proportion of patients who had contacted their GP fell from 92% prior to baseline in both groups to 28% in the counselling group ($\chi^2 = 39.0$, $P < 0.01$) and to 41% in the CBT group ($\chi^2 = 27.7$, $P < 0.01$). Total (non-therapy) health care costs were higher for the CBT group, both for the six months preceding baseline (£256, SD = 380 compared with £215, SD = 246) and at follow-up assessment (£220, SD = 457 compared with £172, SD = 333), but the difference in change scores between these two time points was very small (£7, 95% CI = -144–124). The between-group difference for changes in the combined cost of treatment and health care was £63 (95% CI = -258–42).

Costs of lost employment and informal care

By attaching monetary estimates to hours of lost work and informal care, the indirect cost consequences of chronic fatigue on patients and households also become apparent (Table 2). The costs associated with lost work opportunities are calculated to be £350 (SD = 1532) for the counselling group versus £829 (SD = 2595) for the CBT group at baseline, and £335 (SD = 1397) versus £884 (SD = 2914) at follow-up. The large baseline difference and high standard deviations are owing to a small number of sampled individuals with a prolonged period of work disability. A similar situation is apparent for informal care-giving. Patients in the counselling group received an average of 3.5 hours (SD = 10.0) informal care-giving per week at baseline, compared with 6.8 hours (SD = 18.4) in the CBT group. Levels of support decreased marginally over the period of study to 2.1 hours (SD = 10.0) in the counselling group and to 5.9 hours (SD = 15.2) in the CBT group. Converting these rates, plus any out-of-pocket expenses, into six-month monetary values gives cost estimates of £663 (SD = 1805) versus £1278 (SD = 3574) at baseline and £444 (SD = 1829) versus £1099 (SD = 2792) for the counselling and CBT groups respectively. However, in terms of changes in the cost of lost work days and informal care over the period of the study, there is only a modest and statistically insignificant inter-group difference of £116 (95% CI = -1086–976).

Table 1. Health care, patient and family costs of chronic fatigue.

Cost (£) per previous six-month period (1998)	Counselling group (n = 65)						CBT group (n = 64)						Difference between change scores						
	Baseline			Follow-up			Baseline			Follow-up			Change		Difference	95% CI ¹			
	Mean	SD	95% CI ^a	Mean	SD	95% CI ^a	Mean	SD	95% CI ^a	Mean	SD	95% CI ^a	Mean	SD					
A. Treatment (counselling or CBT) ^b	-	-	+109	49	109	96-119	-	-	+164	67	150-181	-	-	+164	67	150-181	-55 ^c	-76--35	
B. Health care	215	246	-43	333	172	-114-36	256	380	-36	457	-145-81	13	105	0	0	0	-7	-144-124	
Inpatient care	6	52	-	116	19	-	13	105	-	0	-	71	156	88	219	88	219	-	-
Outpatient care	52	155	-	134	69	-	71	156	-	134	-	100	94	44	86	44	86	-	-
Primary care (GP contacts)	120	87	-	78	39	-	57	229	-	78	-	57	229	49	187	49	187	-	-
Community care	6	30	-	48	8	-	14	40	-	48	-	14	40	40	223	40	223	-	-
Alternative therapies	31	114	-	138	37	-	14	40	-	138	-	14	40	40	223	40	223	-	-
C. Treatment and health care (A+B)	215	246	+65	347	280	-6-146	256	380	+129 ^e	473	23-242	256	380	384	473	384	473	-63	-258-42
D. Patient and family	1014	2601	-241	2757	772	-860-43	2107	4646	-125	4250	-1048-645	829	2595	884	2914	884	2914	-116	-1086-976
Days off work ^c	350	1532	-	1397	335	-	829	2595	-	1397	-	829	2595	884	2914	884	2914	-	-
Informal care-giving ^d	663	1805	-	1815	437	-	1278	3574	-	1815	-	1278	3574	1099	2792	1099	2792	-	-
E. Total costs (C+D)	1229	2664	-176	2789	1052	-793-410	2363	4769	+4	4883	-928-822	2363	4769	2366	4483	2366	4483	-180	-1103-968

^aConfidence limits obtained via non-parametric bootstrapping (1000 repetitions); ^bnumber of 50-minute sessions multiplied by £28 per hour (counselling) and £40 per hour (CBT) (see text for details); ^cdays off sick owing to fatigue, converted into hours and weighted by average gross wage (males: manual, £7.10; non-manual, £12.94; females: manual, £5.10; non-manual, £8.90); ^dhours of informal care multiplied by unit cost of £6.89 per hour (home care worker; Netten and Dennett, 1998), plus out-of-pocket expenses; ^esignificant at P<0.05.

Changes in costs and outcomes (cost-effectiveness ratios)

The relative cost-effectiveness of the two interventions was assessed by relating a series of cost measures to the primary outcome measure of the trial, the Chalder fatigue score (a reduction of 8.25 in the counselling group, and 7.34 in the CBT group). The resulting incremental cost-effectiveness ratios are reported in Table 2. A one-point improvement on the fatigue score was associated with an increase in treatment and health care costs of £8 in the counselling group and £18 in the CBT group, and a decrease in patient and family costs of £29 in the counselling group and £17 in the CBT group. However, comparison of cost-effectiveness ratios for health care and treatment, patient and family burden, and the combination of these two domains revealed no statistically significant difference between the two intervention groups.

A one-way sensitivity analysis that explored the impact of plausible changes to key cost drivers only served to reduce already insignificant differences between the intervention groups. For example, a reduction of the unit cost per hour of therapy to the average financial fee of £25 paid per hour to trial therapists reduced the inter-group difference in health care and treatment cost by £50, while changes to the opportunity cost of lost work (a revised hourly wage rate of £9.19 for all employees) and informal care (a revised hourly rate of £10) together reduced the inter-group difference in patient and family costs by £38.

Discussion

To date, evaluative studies of alternative interventions for the treatment of chronic fatigue have not included an economic perspective. This economic evaluation represents an initial step towards filling the gap in cost-effectiveness evidence relating to the condition, specifically with reference to counselling and CBT. For a more comprehensive picture to emerge, other treatments that have achieved favourable outcomes for patients — including use of antidepressants, graded exercise, or a combination strategy — likewise need to be subjected to an investigation of their relative costs and consequences (ideally including comparison with a usual care group).

The absence of a usual care arm in this trial removes our ability to ascertain the 'added value' associated with the implementation of counselling or CBT, restricting us instead to a consideration of the relative merits of the two treatments. In undertaking this comparison, we have only assessed the impact of treatment over a six-month period, meaning that we are unable to comment on any longer-term effects. A further limitation, typical of many economic analyses in mental health care,¹⁸ is that the lack of prior or pilot study service use data for this client group together with the skewed distribution of observed economic data in the trial has resulted in an underpowered analysis. A post hoc power calculation indicates that at least double the number of participants would have been required in the trial to show a significant difference (at a 5% level of significance and 80% power) in the observed costs of health care or patient and family burden. The striking differences in days off work and

Table 2. Cost-effectiveness ratios.

	Counselling (n = 65)		CBT (n = 64)		Difference (Counselling minus CBT)	
	Mean change	95% CI ^a	Mean change	95% CI ^a	Mean	95% CI ^a
Effectiveness measure						
Fatigue score (Chalder)	-8.25	6.5–10.0	-7.34	5.5–9.1	0.90	-1.80–3.60
Incremental cost-effectiveness ratio (cost per unit change in fatigue score)						
Service and treatment (cost C)	7.9	-2.5–18.2	17.5	4.2–41	-9.6	-33–8.5
Patient and family (cost D)	-29.3	-101–46	-16.9	-157–90	-12.3	-122–174
Total (cost E)	-21.4	-98–48	0.6	-134–117	-22.0	-157–151

^aConfidence intervals obtained via non-parametric bootstrapping (bias corrected; 1000 repetitions).

hours of informal care-giving between the groups prior to the provision of therapy, which can only be due to chance, serves to highlight these related problems of outliers, skewness, and power.

The evidence from this study indicates that while counselling and CBT both led to some reduction in lost employment and informal care costs, and to modest improvements in fatigue and related symptoms, there was no statistically significant cost-effectiveness advantage associated with either form of treatment. A contributing factor to this finding is that service uptake was moderate in both groups and did not change appreciably following treatment. Rates and costs of contact with general practitioners did fall markedly (by more than half), but this did not compensate (over the short-term at any rate) for the additional cost of treatment (£109 for counselling and £164 for CBT). The lower unit cost of counsellor's time, together with their greater availability and similar effectiveness, may represent decisive factors for primary care groups or practices when faced with the choice of which treatment strategy to pursue.

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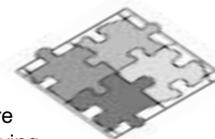
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HOW THIS FITS IN

What do we know?

Chronic fatigue imposes an economic burden on society in terms of health care costs, work disability, and family care-giving.



What does this paper add?

Counselling and CBT were both associated with some reduction in lost employment and informal care costs, and with a reduction in fatigue and related symptoms.

Counselling represents a less costly treatment, but there is no statistically significant cost-effectiveness advantage associated with either form of treatment.

The choice of therapy should depend on the availability of therapists and the relative cost of the time.