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 (£110, 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.
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, 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 package 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 for lost employment cost estimates, days off work and 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) informal care-giving per week at baseline, compared with 6.8 hours (SD = 18.4) in the CBT group. 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 (£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 £83 (95% CI = -258–42).

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 (£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 £83 (95% CI = -258–42).

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).

Results

Baseline socioeconomic and service history characteristics

Key sociodemographic characteristics are given in the companion paper. 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%,  = 6.2, P = 0.013).

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 £1728 (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).
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, 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...
of which treatment strategy to pursue. The choice of counsellor’s time, together with their greater availability (£109 for counselling and £164 for CBT). The lower unit cost (short-term at any rate) for the additional cost of treatment (by more than half), but this did not compensate (over the costs of contact with general practitioners did fall markedly 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.

References

Table 2. Cost-effectiveness ratios.

<table>
<thead>
<tr>
<th>Effectiveness measure</th>
<th>Counselling (n = 65)</th>
<th>CBT (n = 64)</th>
<th>Difference (Counselling minus CBT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean change</td>
<td>95% CI*</td>
<td>Mean change</td>
<td>95% CI*</td>
</tr>
<tr>
<td>Fatigue score (Chalder)</td>
<td>-8.25</td>
<td>6.5–10.0</td>
<td>-7.34</td>
</tr>
<tr>
<td>Incremental cost-effectiveness ratio (cost per unit change in fatigue score)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service and treatment (cost C)</td>
<td>7.9</td>
<td>-2.5–18.2</td>
<td>17.5</td>
</tr>
<tr>
<td>Patient and family (cost D)</td>
<td>-29.3</td>
<td>-101–46</td>
<td>-16.9</td>
</tr>
<tr>
<td>Total (cost E)</td>
<td>-21.4</td>
<td>-98–48</td>
<td>0.6</td>
</tr>
</tbody>
</table>

*Confidence intervals obtained via non-parametric bootstrapping (bias corrected; 1000 repetitions).