Cost-effectiveness of brief cognitive behaviour therapy versus treatment as usual in recurrent deliberate self-harm: a decision-making approach


Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
Patients with a history of recurrent deliberate self-harm were given a manual and offered up to 7 treatment sessions of cognitive-behaviour therapy with a trained therapist over 3 months. This was described as manual-assisted cognitive behaviour therapy (MACT). The comparator was treatment as usual (TAU). This consisted of a meeting with another designated therapist and the offer of standard treatment. Standard treatment varied depending on geographical area. It included problem-solving, psychotherapy, general practitioner or voluntary group referral, and short-term counselling. For numerous clinical details, the authors referred to one of their other papers (Tyrer et al., see Other Publications of Related Interest).

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis; cost-utility analysis.

Study population
Patients were included if they presented with an episode of deliberate self-harm which had had a precedent. Other criteria for inclusion were age between 16 and 65 years old and no requirement for inpatient psychiatric treatment. In addition, the patients could not have a psychotic or bipolar disorder, or have been diagnosed with drug or alcohol dependence.

Setting
The setting was secondary care and primary care. The economic study was carried out in the UK.

Dates to which data relate

Source of effectiveness data
The effectiveness data were derived from a single study.

Link between effectiveness and cost data
The costing was carried out prospectively on the same patients who provided the effectiveness data.

Study sample
There were no details on the use of power calculations, as the authors referred to another of their publications (Tyrer et al., see Other Publications of Related Interest). Of the 480 patients initially randomised to the two kinds of treatment, complete resource data were available for only 397 patients (200 in TAU and 197 in MACT). There were 493 patients who were eligible, but not randomised, because they presented at the accident and emergency department when a research worker was not available. Of the 197 patients who were randomised to MACT, 5 had no record of receiving the MACT booklet and 90 of the patients who did receive the booklet did not attend any treatment sessions.

Study design
This was a randomised controlled trial that was conducted in multiple centres. Randomisation was stratified by centre and by baseline parasuicide risk score. The follow-up was at 6 and 12 months.

Analysis of effectiveness
It was unclear whether all of those entered into the study were included in the analysis. The primary health outcome used was the proportion of patients who experienced an episode of self-harm during the 12-month follow-up. The authors also calculated the health-related quality of life (EQ-5D EuroQuol group; 1990). The original effectiveness study recorded the number of suicides (Tyrer et al., see Other Publications of Related Interest). It also provided the baseline characteristics of the two patient groups. The two groups appear to have been similar, although no statistical measures were given.

Effectiveness results
The following were taken from the reference paper (Tyrer et al.).

The effectiveness results for self-harm episodes were given for all 480 patients:

the proportion repeating self-harm during the 12 months of follow-up was 39% in the MACT group and 46% in the TAU group (odds ratio 0.78, 95% confidence interval, CI: 0.53 - 1.14; p=0.20).

The original effectiveness study reported 5 suicides in the TAU group and 2 in the MACT group.

The EQ-5D results were not given in detail, but there was a difference of 0.0118 quality-adjusted life-years (QALYs) between the two groups in favour of TAU.

Clinical conclusions
Although the improvement in outcomes in the MACT group (measured by percentage of episodes of self-harm) was not statistically significant, there was a high probability that MACT is a better treatment for self-harm than TAU.

Modelling
When the costs were compared between the groups, ordinary least-squares regression was used for adjusted analyses. The validity of the results was confirmed using bootstrapping. Logistic proportional hazards or normal errors regression were used to adjust for baseline characteristics. Randomisation-based methods were used to obtain an unbiased estimate of the benefit of attending at least one treatment session.

Measure of benefits used in the economic analysis
The measures of benefits used were the percentage change in the proportion of patients repeating self-harm and the QALYs.

Direct costs
Discounting was not carried out since the costs were incurred during less than 2 years. The quantities and the costs were
analysed separately and were derived from actual data. The costs included were for hospital services, community health services, social services, voluntary sector services, community accommodation and the criminal justice system. The costs also covered accommodation and living expenses. Information on resource use was taken from a modified version of the Client Service Receipt Inventory in Beecham and Knapp (see Other Publications of Related Interest) and from a self-reported patient questionnaire. The hospital costs were taken from Trust financial returns (NHS in Scotland 2000, Chartered Institute of Public Finance and Accountancy 2001). Other health costs were taken from the British Medical Association and the Royal Pharmaceutical Society of Great Britain (2000). The sources for other costs were provided. The price year was 1999 to 2000. When necessary, the costs were reflated to 1999 to 2000 prices using the Hospital and Community Health Services Pay and Prices index (Office for National Statistics, 2000).

**Statistical analysis of costs**
Statistical analyses were conducted to compare the mean costs in the two groups. The standard t-test with ordinary least-squares regression was used for adjusted analyses. The validity of the results was confirmed using bootstrapping.

**Indirect Costs**
Discounting was not carried out since the costs were incurred during less than 2 years. The costs were estimated from actual data. The quantities and the costs were not analysed separately. The value of output lost due to days off work by the patients was included. It was calculated by multiplying the days off work by the wage rate. The price year was 1999 to 2000.

**Currency**
UK pounds sterling (£).

**Sensitivity analysis**
One-way sensitivity analyses were carried out as follows: results was confirmed using bootstrapping.

- all local costs were changed to national unit costs; results was confirmed using bootstrapping.
- the calculation of productivity losses was adjusted to account for the fact that the normal measure can overestimate output losses; results was confirmed using bootstrapping.
- domestic accommodation and living expenses were excluded so that the calculation focused on service providers and not families; results was confirmed using bootstrapping.
- an average cost for the cost of court appearances was included (reference given), as in the original cost calculations this had not happened because of inadequate data

**Estimated benefits used in the economic analysis**
The percentage of patients with a self-harm episode was 7% lower in the MACT group.

The QALYs were 0.0118 lower in the MACT group.

The benefits were calculated for 12 months.

**Cost results**
The total costs per patient during 12 months, including productivity costs, were 13,454 (standard deviation, SD=5,313) in the MACT group and 14,288 (SD=7,669) in the TAU group. The mean difference was 838 (95% CI: 466 - 2,142; p=0.09). When the p-value was adjusted for baseline characteristics it was 0.09. The knock-on costs were considered.
Synthesis of costs and benefits

The cost of a 1% reduction in the percentage of patients with a repeat self-harm episode was -120 using MACT. Thus, MACT was the dominant strategy (i.e. more effective and cheaper).

The cost per QALY gained was 66,000 using TAU.

None of the sensitivity analyses revealed any parameters to which the relative costs of the treatments were sensitive.

When the authors analysed the patients who had dropped out of the study, and who therefore could not be included in the cost-effectiveness analyses, it was found that they were younger than average and had imposed a smaller than average burden on resources.

The cost-effectiveness acceptability curves showed a greater than 90% probability that MACT was more cost-effective than TAU (using the proportion self-harming). In addition, as long as the cost per QALY was less than 66,000, MACT had a higher probability of being cost-effective than TAU.

Authors’ conclusions

Although the difference in costs over 12 months was not statistically significant, the use of cost-effectiveness acceptability curves showed that the use of resources for manual-assisted cognitive-behaviour therapy (MACT) was more likely to result in a better outcome than treatment as usual (TAU).

CRD COMMENTARY - Selection of comparators

The choice of the comparator (TAU) was justified on the grounds that it was the standard treatment in the UK health system. However, the authors pointed out that TAU varies enormously within the NHS.

Validity of estimate of measure of effectiveness

The effectiveness data were derived from a randomised controlled trial. Few details of the study design were reported since the authors referred to their prior clinical study (Tyrer et al., see Other Publications of Related Interest). Consequently, it is hard to judge the internal validity from this paper. The authors did not discuss why the two measures of effectiveness gave different results for the relative merits of TAU and MACT. They also did not discuss the difference in suicide rates in the two groups, which, even though not statistically significant, would still have supported MACT over TAU. It is unclear whether the QALY measure accounted for the suicides.

Validity of estimate of measure of benefit

The estimation of benefits used one of the effectiveness measures (the percentage having a self-harm episode) and also QALYs. Thus, the drawbacks mentioned already would apply to the benefit measures.

Validity of estimate of costs

From the study perspective adopted, all the categories of cost were included, apart from those incurred by friends and families. This is surprising because these costs can be considerable for this patient category. The costs and the quantities were reported separately for all the cost categories included. The resource use quantities were taken from a single study. No statistical analysis of the quantities was performed. A sensitivity analysis of the quantities was conducted, using ranges that appear to have been appropriate. The prices were taken from published sources. No statistical analysis of the prices was performed. A sensitivity analysis of some prices was conducted. The price date was reported.

Other issues

The authors made appropriate comparisons of their results with the findings from other studies. The issue of the generalisability to other settings was addressed in that the authors commented that the results varied between the different study centres, and that this may be due to differences in TAU. This is clearly very important when drawing
any conclusions from the current study. The authors did not provide detailed data for the derivation of the QALY results. It would be of interest to know why the QALYs were slightly higher with TAU than MACT. The omission of suicide data was not explained, which was surprising as it would have supported the authors' view that MACT is probably superior to TAU. The authors reported that their study had a tendency to omit data relating to younger patients who had a less expensive history at baseline of using societal resources. This limits the applicability of the study.

**Implications of the study**
The authors argued that, despite the fact that the differences in effectiveness outcomes in favour of MACT were not statistically significant, when considering the cost evidence, there is a high probability that MACT is more cost-effective than TAU.

**Source of funding**
Supported by the Medical Research Council (Strategic Project Grant 40223).

**Bibliographic details**

**PubMedID**
12946082

**Other publications of related interest**


**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Adult; Cognitive Therapy /economics /methods; Cost-Benefit Analysis; Decision Making; Female; Hospitalization /economics; Humans; Male; Recurrence; Self-Injurious Behavior /economics /rehabilitation /therapy

**AccessionNumber**
22003001175

**Date bibliographic record published**
31/10/2004

**Date abstract record published**
31/10/2004