Health service use costs by personality disorder following specialist and nonspecialist treatment: a comparative study

Chiesa M, Fonagy P, Holmes J, Drahorad C, Harrison-Hall A

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
The use of specialist psychosocial treatments for patients with personality disorder. In particular, a specialist psychosocial inpatient programme (IPP) and a specialist psychosocial "step-down" program (SDP) were compared with standard psychiatric care in a general psychiatric programme (GPP). IPP involves patients residing in the specialist unit for one year with no further treatment planned after discharge. SDP involves patients residing in the specialist unit for 6 months followed by 18 months outpatient psychosocial therapy. In the latter stage, therapy is continued twice weekly, and patients have access to outreach nursing aids. GPP consists of supportive outpatient contact with a community key worker, usually at 2 to 4 week intervals, with hospital admission as required.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population consisted of patients with personality disorders.

Setting
The setting was tertiary care. Inpatient care was provided in a tertiary referral facility, Cassel Hospital in Richmond, UK. Outpatient care was provided in the community, in the North Devon NHS Health Care Trust, UK.

Dates to which data relate
The effectiveness data were collected for patients beginning inpatient care between April 1994 and July 1997. It is not clear whether data collection for patients receiving standard care began at the same time. Resource use was measured over the same period as the effectiveness data. The prices for service use were for the financial year 1998 to 1999. Medication prices were estimated for 2001.

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 patient sample as that used in the effectiveness analysis.

Study sample
The authors did not state whether power calculations were carried out to ensure that their findings were not the result of chance alone. Of the 143 patients selected and invited to participate in the trial, 94 were consecutive admissions to the inpatient facility during the trial period. The remaining 49 were receiving GPP and were selected from the caseload of several consultant psychiatrists in the North Devon NHS Health Care Trust. It was unclear how these patients were selected, for instance, whether they were consecutive patients over the trial period. The authors refer to patients meeting "operational criteria" for personality disorder, but did not specify these criteria.

The inpatients were divided between IPP and SDP according to where they lived. Patients residing in the Greater London area received SDP, whilst those living outside the Greater London area received IPP. A total of 43 patients either refused to participate, or were excluded due to not contributing data after the intake interview. Overall, 34 patients received GPP and 33 patients received both SDP and IPP. The initial sample was appropriate as it included patients who were being treated for personality disorder.

**Study design**

The analysis used a prospective cohort study in which the groups were defined by the patients' exposure to a particular treatment. However, within the specialist treatment groups the authors defined the geographical areas that divided the patients between IPP and SDP. The centres involved were the inpatient facility, the outpatient care following the inpatient care (in the case of SDP), and community care in Devon.

The follow-up was different for each of the patient groups and was dependent on the treatment received. IPP patients were followed for 24 months, SDP patients were followed for 30 months, and GPP patients were followed for 24 months. The loss to follow-up was not reported.

**Analysis of effectiveness**

The authors excluded patients who did not contribute data after the intake interview. Therefore, the analysis was not based entirely on intention to treat. The primary health outcome was the change in symptom distress between General Severity Index (GSI) scores at intake and follow-up. The authors reported that the patient groups appeared to be "evenly matched on most demographic, diagnostic and clinical variables". A significant difference was noted on the marital status where the proportion of single persons was 75.8% in the SDP group, 63.6% in the IPP group and 29.4% in the GPP group (chi-squared 16.05, d.f.=4, p<0.04). A significant difference was also noted in the level of education where the proportion with a college education was 75.8% in the SDP group, 75.8% in the IPP group and 23.5% in the GPP group (chi-squared 25.13, d.f.=2, p<0.001). The authors did not seem to make appropriate adjustments for these potentially confounding factors. There were also potential further confounding factors that the authors did not acknowledge. For instance, the groups received follow-up interviews at different times, and the authors excluded patients who did not contribute data after the intake interview. The authors did, however, acknowledge the difference in localities.

**Effectiveness results**

The average change in symptom distress between GSI scores at intake and follow-up was 0.67 (standard deviation, SD=0.88) for SDP, 0.48 (SD=0.79) for IPP and -0.06 (SD=0.63) for GPP.

The authors did not discuss the clinical significance of these results.

**Clinical conclusions**

The authors did not draw clinical conclusions independently from the cost conclusions.

**Measure of benefits used in the economic analysis**

The authors used the estimated GSI scores in their economic analysis. There was no summary measure of benefit. Therefore, the study was categorised as a cost-consequences analysis.
Direct costs
A perspective for the costing analysis was not stated, but it appears to have been that of the National Health Service. The quantities and the costs were not reported separately. The unit costs were estimated for several elements of service use. These were general practitioner, accident and emergency, inpatient psychiatry, outpatient psychiatry, community psychiatric nurse and social worker, psychotherapy, and inpatient medical and surgical costs. These costs were based on estimates of average health care unit costs for England and Wales for the financial year 1998 to 1999. The medication costs were also estimated on the basis of unit costs taken from the July 2001 Monthly Index of Medical Specialities (MIMS).

A price year for the analysis was not stated. The authors converted the unit costs into estimates of the cost of services used by the patients. This was achieved using Service Use Structured Interview (SUSI) data obtained from the patients at intake and follow-up of the effectiveness study. The total costs were estimated by summing the 10 components of the SUSI index. Both the costs and the quantities were, therefore, derived from actual data. The authors compared costs in the year prior to intake (it was unclear how these were estimated) with the year following expected discharge for each of the groups. This comprised 24 months for IPP, 30 months for SDP and 24 months for GPP. As the time period extended to 2 years or more it was appropriate for discounting to be carried out, yet the authors did not report that the future costs were discounted.

Statistical analysis of costs
A crosstab procedure was used to analyse categorical variables, while a one-way analysis of variance was used to analyse the means of continuous variables. A log transformation was applied to SUSI scores so that a general linear model could be used to explore group differences. The authors tested the size of the difference in costs on time, group, education and marital status. A univariate analysis was used to assess the differences in outcomes, using GSI follow-up scores as the dependent variables and GSI intake scores, education, and marital status as covariates. A non-parametric correlation test was used to assess the strength of association between the costs and the symptoms at intake and follow-up for each of the three patient groups.

Indirect Costs
The authors did not report that the indirect costs were estimated. However, as some patients were treated on an inpatient basis, some indirect costs may have been incurred. For instance, the patients may not have been able to work during their treatment and, therefore, would not have been economically productive. If the indirect costs were estimated via productivity there may have been positive indirect costs that were not estimated.

Currency
UK pounds sterling (()), which were converted to Euros (Euro). No conversion rate was provided.

Sensitivity analysis
The authors did not report that a sensitivity analysis was carried out.

Estimated benefits used in the economic analysis
Consistent with a cost-consequences analysis, the authors did not estimate a summary measure of benefit. See the 'Effectiveness Results' section. However, the authors did estimate the association between the costs and clinical outcomes using non-parametric correlation.

Cost results
The total cost of SDP was Euro 8,267.80 (SD=9,015.60) at intake and Euro 1,189.50 (SD=1,483.00) at follow-up.

The total cost of IPP was Euro 9,897.20 (SD=10,641.30) at intake and Euro 5,451.10 (SD=6,667.00) at follow-up.
The total cost of SDP was Euro 9,934.60 (SD=11,254.90) at intake and Euro 5,178.20 (SD=9,260.50) at follow-up.

The authors discovered a significant interaction between total service use costs and the variables of time (Wilks' lambda 0.947, F=5.27, d.f.=1.95, p<0.03) and group by time (Wilks' lambda 0.859, F=7.81, d.f.=2.95, p<0.02).

Significant decreases in the total costs between intake and follow-up were found for SDP (F=45.91, d.f.=2.95, p<0.001) and for IPP (F=5.62, d.f.=1.95, p<0.03), but not for GPP (F=1.73, d.f.=1.95, non significant).

SDP was found to reduced the total costs by significantly more than IPP (p>0.005).

**Synthesis of costs and benefits**
The costs and the benefits were not combined since the study was a cost-consequences analysis. However, the authors did report the association between costs and clinical outcomes. The authors showed a significant association between symptomatic improvement and reduction in costs at follow-up for SDP (r=0.59, p<0.001) and for IPP (r=0.36, p=0.05), but not for GPP (r=-0.2, non significant).

**Authors' conclusions**
The study showed that individuals with personality disorder are high users of health care resources, especially psychiatric services, ambulance services and emergency departments. The authors argued that the significant reductions in total costs, and the significant associations between cost reductions and clinical outcome, indicated that the two specialist programmes were more effective in reducing health care costs and were more cost-effective than a general psychiatric programme (GPP). The specialist psychiatric “step-down” programme (SDP) was presented as being the more cost-effective of the two specialist programmes.

**CRD COMMENTARY - Selection of comparators**
The authors compared two forms of specialist treatment with standard psychiatric care for the treatment of patients with personality disorder. They justified the alternatives chosen by reference to the fact that specialist psychotherapeutic interventions had received little evaluation in terms of service use. You should decide whether they represent valid comparators in your own setting.

**Validity of estimate of measure of effectiveness**
The analysis used a prospective cohort study, which was appropriate for the study question. However, the authors selected the geographical criteria that defined each of the patient groups. Geographical location could have influenced clinical outcomes and should have been analysed as a potentially confounding variable. The authors did acknowledge the potential influence of locality on their findings. The authors appropriately compared the patient groups at baseline, but found further differences in terms of marital status and education between the groups. In addition, the groups were followed for different lengths of time. These differences may have greatly biased the results. A randomised trial with GPP as a control treatment, and with equal duration of follow-up would have helped to reduce such systematic differences between groups. The study sample was representative of the study population, as it comprised patients who were diagnosed with personality disorder and who were receiving treatment.

Appropriate statistical analyses were carried out to assess correlation between the clinical outcomes and costs, although further analyses could have explored the impact, if any, of confounding factors. The study would have been greatly improved by increasing the length of follow-up. The patients were followed for either 24 or 30 months. However, given the nature of the ailment, and the potential for positive behavioural changes arising from treatment to reverse over time, a study with greater duration would have provided more robust results.

**Validity of estimate of measure of benefit**
The authors did not estimate a summary measure of benefit since the study was a cost-consequences analysis.
Validity of estimate of costs
No perspective was stated for the cost analysis. However, the costs appear to have been estimated from the perspective of the National Health Service. The authors estimated psychiatric, medical and social services use costs at intake and follow-up, and reported the cost-savings from treatment. It was not clear whether the authors estimated the total cost of treatment, as they did not include some important cost aspects. For instance, capital overhead costs and daily running costs (such as portering services and catering facilities) associated with inpatient stay were not reported as having been estimated. If these costs were omitted, then the total costs reported may significantly underestimate the true costs of an inpatient stay. Therefore, it is not possible for the reader to assess whether the programmes were costly or cost-saving overall. The costs and the quantities were not reported separately.

Other issues
The authors made appropriate comparison of their findings with published work, suggesting that their results were "in line" with other studies. The authors also discussed the wider interpretation of their results for social rehabilitation of patients with personality disorder. The issue of generalisability of the results to other settings was not addressed. However, the authors briefly discussed the generalisability of the instrument used to elicit levels of health care use. The results were not presented selectively, although further discussion of the numerical results may have facilitated better understanding and interpretation. The authors’ conclusions reflected the scope of the study and were a true reflection of the findings presented. The authors mentioned some limitations of the study. These included the differing localities of the three groups and the low sample sizes.

Implications of the study
The authors do not make any explicit recommendations for policy or practice, although they appear to favour the specialist treatment involving an inpatient stay. They do not suggest any specific areas for further work.

Source of funding
Funded by the Welton Foundation and the Mountbatten Memorial Trust.

Bibliographic details

PubMedID
12004492

Other publications of related interest

Indexing Status
Subject indexing assigned by NLM

MeSH
Adult; Analysis of Variance; Cost-Benefit Analysis; England; Female; Health Care Costs; Humans; Male; Mental Health Services /economics /utilization; Multivariate Analysis; Patient Acceptance of Health Care /statistics & numerical data; Personality Disorders /economics /therapy; Prospective Studies; Psychiatric Nursing /economics; Social Work, Psychiatric /economics; Treatment Outcome

AccessionNumber
22002009333