A comparison of effectiveness and cost between two models of care for individuals with schizophrenia living in Taiwan

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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 implementation of a hospital-based home care (HBHC) model to care for schizophrenic patients. The home care model was based on three elements:

- physical care (including physical assessment, illness and medication education, administering medication through injection, assessment of psychotic symptoms and drug side effects, and crisis intervention);
- psychological care (consisting of stress management, patient and family counselling); and
- social care (including training for daily activity, dealing with interpersonal conflicts in the family, empowering the social support system and resource referral).

The hospital psychiatric nurse provided these services.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised patients with schizophrenia.

Setting
The settings appear to have been hospital and community. The economic study was performed in Taipei, Taiwan.

Dates to which data relate
The authors did not report the dates to which effectiveness and cost data related, although it was implied that they had been collected at some point during or shortly after 1999. The price year was not given.

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

Link between effectiveness and cost data
Costing does not appear to have been undertaken on the same patient population as that used for the effectiveness analysis.
Study sample
Power calculations do not appear to have been used to determine the sample size. The method of sample selection was not stated. The sample consisted of 60 patients with schizophrenia: 30 in the HBHC group and 30 in the TCC group. The authors provided no evidence to show whether the study sample was representative of the study population.

Study design
A non-randomised controlled trial was performed. It was not clearly stated whether the study was single or multi-centred. The duration of follow-up was not specified, but was no longer than 1 year. The authors did not report any loss to follow-up. The patients were not reported as having been randomly allocated.

Analysis of effectiveness
The basis for the effectiveness analysis was intention to treat. The primary health outcomes assessed in the effectiveness analysis were the mean (and standard deviation) of the scores for: disease maintenance behaviours, psychotic symptoms, social functioning and service satisfaction. These scales varied from 0 to 100, with 100 representing the best possible situation. The Community Psychiatric Rating Scale and Social Functioning Rating Scale were used for the assessment of these scores, which were reported to be widely in use in Taiwan. The authors also assessed the reliability of these scores in terms of their internal consistency, using the Cronbach's Alpha. The groups were shown to be comparable in terms of sex, age, marital status, employment and number of years with illness.

Effectiveness results
The effectiveness results were as follows:

The means (and standard deviations) for the disease maintenance score were: 95.8 (SD 7.8) for HBHC, and 78.9 (SD 19.7) for TCC, (p=0.001).

The means (and standard deviations) for the psychotic symptoms score were: 74.7 (SD 14.6) for HBHC, and 47.8 (SD 18.5) for TCC, (p=0.001).

The means (and standard deviations) for the social function score were: 71.5 (SD 9.3) for HBHC, and 56.2 (SD 7.0) for TCC, (p=0.001).

The means (and standard deviations) for the service satisfaction score were: 85.4 (SD 10.6) for HBHC, and 54.9 (SD 13.1) for TCC, (p=0.001).

The Cronbach's Alpha varied between 0.82 and 0.94.

Clinical conclusions
Patients under the HBHC model presented more favourable clinical performance, in terms of the scores of the different indicators used at analysis, when compared to those patients treated under a TCC model of care.

Measure of benefits used in the economic analysis
The authors calculated the summary measure of benefit used in the economic analysis by summing the single effectiveness scores for each patient, thus calculating the overall effectiveness achieved by the psychiatric care model.

Direct costs
Aggregate resource quantities were reported separately from the unitary costs. The direct costs considered in the analysis were those of the health care provider, and included: outpatient department follow-up costs, emergency costs, hospitalisation costs, and home care costs. As reported by the authors, the source of the cost data was the accounting department at the research site. Therefore, the estimation of costs was based on actual data. Discounting was not
performed but, as the authors stated, it was not required, as the duration of the study did not exceed 1 year. The study reported average costs per patient. The price year was not given.

**Statistical analysis of costs**
No statistical analysis of costs was reported.

**Indirect Costs**
No indirect costs were reported.

**Currency**
US dollars ($), using a currency conversion of New Taiwan dollar (NT$) 31 = $1.

**Sensitivity analysis**
The authors performed sensitivity analyses in order to assess the stability of the results when costs and effectiveness estimators were changed. One-way sensitivity analyses were performed. The area of uncertainty investigated was variability in data.

Cost variations considered were: a 2 times increase of the home care cost; and a twofold increase in the outpatient department (OPD) cost; a half decrease of the hospitalisation time; a 3 times decrease in the hospitalisation time. Effectiveness scores were changed through multiplying the scores of psychotic symptoms and service satisfaction by -0.5 and 0.2.

The authors did not justify the changes in the parameters considered in the sensitivity analysis.

**Estimated benefits used in the economic analysis**
The average effectiveness score was 327.4 in the HBHC group, and 237.8 in the TCC group. The period of time considered in calculating this summary measure of benefit was not reported (since the time to follow-up patients was not reported in the study).

**Cost results**
The total cost for the HBHC group was $44,307.80, and the total cost per patient was $1,476.90.

The total cost for the TCC group was $87,543.10, and the total cost per patient was $2,918.10.

**Synthesis of costs and benefits**
The authors calculated cost-effectiveness ratios (CERs), which considered the average cost divided by the average effectiveness score for both groups. The CER for the HBHC group was $4.5 per score point, and $12.3 per score point for the TCC group. An incremental analysis was not performed, nor necessary, since the HBHC model dominated the TCC model (i.e. had higher effectiveness score at lower cost).

The results of the sensitivity analyses showed that, for all the changes of the parameters considered by the authors, the CERs for the HBHC group were still smaller when compared to those for the TCC group.

**Authors' conclusions**
The authors concluded that HBHC was more cost effective than TCC, presenting higher clinical effectiveness at a lower cost.
CRD COMMENTARY - Selection of comparators
The authors appear to have chosen the comparator used at analysis because it was the current practice in their setting for the treatment of schizophrenic patients, although they did not state the characteristics of the care given by this model. You, as a user of this database, should consider whether this is a widely used health technology in your own setting, or whether there is another model to care for schizophrenic patients.

Validity of estimate of measure of effectiveness
The analysis was based on a non-randomised controlled study. The authors did not show whether the study sample was representative of the study population, and as they acknowledged, the patients were exclusively from urban areas. Patients were not allocated randomly to each of the groups, which may have biased the results if there were some specific characteristics not considered at analysis that made the groups not comparable. Moreover, as the baseline scores for the effectiveness indicators were not reported, we cannot be sure whether the better effectiveness results that were found for patients under the HBHC group were due to the model of care or to other specific characteristics of the patients not considered at analysis (although the groups were shown to be comparable at analysis, there may have been other risk factors influencing the results). The range of the Cronbach's Alpha showed that at least one of the scores assessed in the effectiveness analysis did not have very strong reliability in terms of its internal consistency (because for the score with the lowest value the Cronbach's Alpha was equal to 0.82).

Validity of estimate of measure of benefit
The estimate of benefits was obtained directly from the effectiveness analysis. The underlying assumption used to estimate the summary measure of benefit was that all the scores of the effectiveness indicators were valued equally (all of them had the same weights in the summary score). The authors did not justify this assumption, and as they stated, it may or may not be an accurate assumption. Sensitivity analyses showed that there were no changes in the CERs when different weights were given to the single effectiveness indicators.

Validity of estimate of costs
Aggregate resource quantities were reported separately from the unitary costs, although the authors did not report how they calculated the use of the aggregate resources considered in the costing. All the categories of cost relevant to the perspective adopted appear to have been included in the study, although it was not entirely clear whether costs such as capital costs and administrative costs were included in the cost analysis. Sensitivity analyses of some of the resource quantities were performed. The price year was not given, which hinders reflation exercises to other settings. As the authors reported, discounting was not performed or necessary due to the study period being less than 1 year.

Other issues
An incremental CER was not reported since HBHC had higher effectiveness scores with a lower cost in comparison with TCC (i.e. HBHC dominated). Comparisons of the study findings with those from other studies were reported, showing similar results regarding the higher cost-effectiveness of HBHC when compared to TCC. The authors stated that this study might not be generalisable to countries other than Taiwan. Furthermore, the effectiveness indicators used at analysis were based on questionnaires completed by the patients. It should be considered that the questionnaire was developed and validated in Taiwan, to assess health outcomes for Taiwanese people. Therefore, it may not be possible to apply this questionnaire or the effectiveness results derived from it to other settings.

As reported by the authors, the health care provider perspective adopted did not consider concerns from family and society. However, the adoption of this perspective did not seem to be consistent with one of the objectives of the study, which was to evaluate whether HBHC also met the needs of the patients' families.

Implications of the study
Although the authors recommend the use of a HBHC model to care for schizophrenic patients, the limitations reported above should be considered before extrapolating the results of this study to other settings.
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Other publications of related interest


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