Treatment costs and clinical outcome for first episode schizophrenia patients: a 3-year follow-up of the Swedish 'Parachute Project' and two comparison groups

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 study examined the "Parachute Project", a "need-specific treatment" programme for the management of first episode schizophrenia syndrome. The programme was delivered by a first episode psychotic (FEP) patient team within 24 hours after the first contact with the psychiatric clinic (in the hospital or patient’s home). The intervention attempted to involve the family, or those closest to the patient, in the future delivery of health care. According to the project, antipsychotic medication should not be considered as the first choice of treatment during the initial weeks of treatment, but benzodiazepines and similar medications could be offered to treat insomnia and anxiety. The intervention relied on special crisis or residential homes, such as small-scale, non-institutional and home-like milieu, with few staff members.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised patients with schizophrenia syndrome. The inclusion criteria were every non-organic FEP patient aged between 18 and 45 years, with no dominating substance abuse, and with a diagnosis on intake of schizophreniform disorder, schizophrenia or schizoaffective disorder.

Setting
The setting was mainly outpatient. The economic study was carried out in Sweden.

Dates to which data relate
The patients were recruited between 1996 and 1997. Therefore, clinical and economic data were gathered from 1996/97 for 3 years (the length of follow-up). The price year was not explicitly reported.

Source of effectiveness data
The effectiveness evidence was derived from a single study.

Link between effectiveness and cost data
The costing was carried out on the same sample of patients as that used in the effectiveness analysis.

Study sample
Power calculations were not reported and were probably not performed. Of the 71 patients (mean age at admission 27.7
years; 62% men) with a diagnosis of schizophrenia syndrome included in the Parachute Project, 61 had complete follow-up data and were included in the effectiveness study. Patients in the historical group comprised all first episode schizophrenia syndrome patients from three of those Stockholm areas participating in the Parachute Project 5 years later. Of the 29 patients (mean age at admission 28.1 years; 52% men) that were initially included, data were available for 25 patients. Finally, patients in the prospective comparison group came from the Uppsala University Psychiatric Clinic. Of the 43 patients (mean age at admission 29.3 years; 49% men) eligible patients, 41 had data available.

**Study design**

This was both a prospective and retrospective cohort study that was carried out at several centres in Sweden. The groups were not studied concurrently. The length of follow-up relevant for the current economic evaluation was 3 years. Only patients with complete data were included. Blinding was clearly not performed.

**Analysis of effectiveness**

The analysis of the clinical study was restricted to those patients with complete follow-up data. The health outcomes used in the analysis were:

- functional status (assessed using the Global Assessment of Function, GAF);
- symptom severity (recorded with the Brief Psychiatric Rating Scale);
- working capacity;
- disability allowance;
- the rate of suicides; and
- subjective satisfaction with care in patients and relatives (Parachute Project group only; assessed with two specially constructed 13-item 5-point scales).

At baseline, the study groups were comparable in terms of their age, gender and civil status. However, there were no schizoaffective syndrome patients in the prospective group and more schizophrenia patients in the historical group than in the Parachute Project group.

**Effectiveness results**

GAF scores improved after 3 years in all groups, from 31.8 (+/- 7.3) to 58.2 (+/- 15.9) in the Parachute Project group, from 31.2 (+/- 9.7) to 57.6 (+/- 13.4) in the prospective group, and from 29.5 (+/- 10.0) to 47.6 (+/- 13.3) in the historical group. The differences between the Parachute Project group and the prospective group did not reach statistical significance. The Parachute Project group performed significantly better than the historical group after 12 and 36 months, (p<0.01 and p=0.001, respectively).

Symptoms and working capacity were comparable across the three groups.

The proportion of patients on disability allowance in the third year was 38% in the Parachute Project group, 36% in the prospective group, and 59% in the historical group. Both the Parachute Project group and the prospective group did significantly better than the historical group, (p<0.05).

One of the 71 patients in the Parachute Project group committed suicide, compared with 2 of the 49 patients in the historical group and none of the 29 patients in the prospective group.

On a scale ranging from 1 (low satisfaction) to 5 (very high satisfaction), mean subjective satisfaction with care was 4.1 (+/- 0.8) (median 4.2) for patients and 3.7 (+/- 0.9) (median 3.9) for relatives in the Parachute Project group.
Clinical conclusions
The effectiveness analysis showed that the Parachute Project was as effective as health care delivered by a high-quality social and biological psychiatry centre (prospective group), but significantly more effective than treatment-as-usual (historical group).

Measure of benefits used in the economic analysis
The health outcomes were left disaggregated and no summary benefit measure was used in the economic analysis. In effect, a cost-consequences analysis was carried out.

Direct costs
The authors did not explicitly state the perspective chosen for the analysis. The analysis included the costs of inpatient stay and salaries for the outpatient contacts. Costs associated with time spent for conferences, waiting time, travel time, documentation and other administrative costs were not included. The unit costs were not presented separately from the resource quantities used. Resource use was estimated using data derived from the three treatment groups. Resource consumption was evaluated retrospectively in the historical group and prospectively in the Parachute Project and prospective groups. The sources of the costs were not explicitly stated. The cost of a night spent in the special crisis/residential homes at the Parachute Project centres could not be established uniformly and was valued at the cost of an ordinary inpatient stay. The price year was not explicitly stated, but the cost of an inpatient stay was estimated in 1996.

Statistical analysis of costs
Statistical analyses (Mann-Whitney tests) were carried out to test the statistical significance of cost-differences between the Parachute Project group and the prospective group. The costs were presented as mean and median values, owing to the skewed data.

Indirect Costs
The indirect costs were not considered in the economic analysis.

Currency
US dollars ($).

Sensitivity analysis
Sensitivity analyses were not performed.

Estimated benefits used in the economic analysis
See the 'Effectiveness Results' section.

Cost results
In the first year, the total median costs per patient were $11,614 (mean 23,192) in the Parachute Project group and $23,192 (mean 32,896) in the prospective group, (p<0.05).

In the second year, the total median costs per patient were $533 (mean 9,076) in the Parachute Project group and $474 (mean 19,992) in the prospective group, (p not significant).

In the third year, the total median costs per patient were $385 (mean 7,720) in the Parachute Project group and $1,126 (mean 18,632) in the prospective group, (p not significant).
Synthesis of costs and benefits
A synthesis of the costs and benefits was not relevant as a cost-consequences analysis was undertaken.

Authors’ conclusions
The "Parachute Project" was a feasible, effective, and economically affordable treatment for first episode psychotic (FEP) patients with schizophrenia in Sweden. Cost-savings associated with the new intervention mainly arose from fewer inpatient days in comparison with more conventional treatments, during the first year of treatment.

CRD COMMENTARY - Selection of comparators
The rationale for the choice of the comparators was clear. The authors provided a brief description of all the treatments. You should decide whether they are valid comparators in your own setting.

Validity of estimate of measure of effectiveness
The effectiveness data were estimated through a comparison of two prospective groups and a historical control group. Such a design was necessary because the different treatments were implemented in different time periods. Since the groups of patients were not evaluated concurrently, factors other than the study interventions might have affected the results of the analysis. In effect, time-dependent confounding variables such as variations in medical practice, evolution of subjects, or variability in the severity of illness could not be controlled because of the design of the study; this may represent an important limitation of the analysis. The study groups were balanced at baseline in terms of the demographics but some differences in the disease profile, which could have affected the robustness of the comparison, were observed. However, statistical analyses were not performed to take the impact of potential confounding factors arising from baseline differences into account.

The authors noted that most of the clinical tools used to evaluate the effectiveness of the intervention were validated measures. The evidence came from several institutions, which enhances the representativeness of the patient sample considered in the study. Statistical analyses were carried out but, owing to the small sample size, it was unclear whether the study had sufficient power to detect statistically significant differences between the groups. The length of follow-up was appropriate, but the analysis of some clinical outcomes was restricted to those patients with complete follow-up data. These issues might limit the internal validity of the study.

Validity of estimate of measure of benefit
No summary benefit measure was used in the analysis because a cost-consequences analysis was conducted. Please refer to the comments in the 'Validity of estimate of measure of effectiveness' field (above).

Validity of estimate of costs
The perspective of the analysis was unclear. A detailed breakdown of the cost items was not provided, and only the costs of overnight stay and personnel for outpatient costs were included in the analysis. Limited information on the unit costs and resource quantities was provided, which will limit the possibility of replicating the analysis in other settings. The cost estimates were specific to the study setting and the impact of using alternative cost estimates was not investigated. Statistical tests were carried out, not only to assess the significance of the cost comparison but also to deal with the typical skewed distribution of costs due to the fact that a small number of patients consumed a large amount of resources. The price year was not reported, which will make reflation exercises in other time periods difficult. The authors made a conservative assumption in the estimation of accommodation costs in order to bias the results of the analysis in favour of conventional modalities of care.

Other issues
The authors stated that although few randomised studies had been published, most of the studies generated results similar to those observed in the current study. The issue of the generalisability of the study results to other settings was not addressed and sensitivity analyses were not carried out, which could limit the external validity of the analysis. The
study referred to the sub-group of patients with schizophrenia and this was reflected in the authors’ conclusions.

**Implications of the study**
The study results would appear to support the Parachute Project, which consisted of a need-adapted treatment model for FEP patients with schizophrenia.

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