Efficacy and effectiveness of an exercise program as community support for schizophrenic patients

Torres-Carbajo A, Olivares J M, Merino H, Vazquez H, Diaz A, Cruz E

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 compared two outpatient treatment strategies for patients suffering from schizophrenia. These were "standard care" and "exercise programme". "Standard care" comprised outpatient visits to a mental health clinic once a month, with an average meeting duration of 15 minutes during which psychotherapeutic counselling and appraisal of drug treatment were provided to the patients. The "exercise program" was provided once a week for an hour and comprised a 30-minute combined exercise and a 30-minute soccer game. The exercise programme took place at municipal sports facilities. All patients were receiving antipsychotic treatment.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised patients who met the Diagnostic and Statistical Manual-IV (DSM-IV) criteria for the diagnosis of schizophrenia and who received antipsychotic treatment. No further inclusion or exclusion criteria were reported.

Setting
The setting was primary care (outpatient mental health centre) and the community. The economic study was carried out in Spain.

Dates to which data relate
The dates to which the effectiveness evidence, resources used and cost data referred were not reported. The price year was also not reported.

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

Link between effectiveness and cost data
Although not explicitly stated, it seems that the costing has been carried out prospectively on the same sample of patients as that used in the effectiveness study.

Study sample
The study sample was not determined in the planning phase. In addition, power calculations were not conducted retrospectively. The sample selection method was not described. No patients were reported to have refused to participate in the study, and nor were any patients excluded from the initial sample. Overall, 40 patients were enrolled to the study, 20 to each group. Patients allocated to the "exercise group" (EG) had a mean age of 31.95 (+/- 7.47) years and 85% were male. Patients allocated to the "standard care" group (control group, CG) had a mean age of 31.50 (+/- 7.06) years and 60% were male.

Study design
The analysis was based on a single-centre non-randomised controlled trial. The patients were followed up for up to 10 years. The method of blinding and any losses to follow-up were not reported in the current study.

Analysis of effectiveness
It was not reported whether the analysis was conducted on an intention to treat basis or on treatment completers only. The primary health outcome used was the frequency of hospitalisations before and after treatment in each group. The number of relapses was also reported. It was reported that the two patient groups were comparable in terms of their baseline characteristics. There were no statistical differences between the two groups in the antipsychotic treatments they received.

Effectiveness results
Before treatment, the mean number of hospitalisations was 2.45 (standard deviation, SD=2.26; range: 1 to 6) in the EG and 1.35 (SD=1.14; range: 0 to 3) in the CG.

After treatment, the mean number of hospitalisations was 0.05 (SD=0.22) in the EG and 0.80 (SD=1.47) in the CG.

There were 16 relapses in the CG and 1 relapse in the EG.

The results were analysed statistically using a 2x2 mixed factorial design with an inter factor (EG versus CG) and an intra factor (before versus after treatment). The analysis demonstrated an interaction effect between before-after and patient group, (F=6.854; p=0.013).

Clinical conclusions
The authors concluded that the exercise programme was significantly more effective in reducing the number of hospitalisations.

Measure of benefits used in the economic analysis
No measure of benefit was used in the economic analysis. The study was, in effect, a cost-consequences analysis.

Direct costs
The direct costs used in the analysis were for hospitalisation (bed per day cost), professional care and hourly session (including two professionals), and annual clinical follow-up conducted by the psychiatrist every 6 months. Drug costs were not included in the analysis as they were assumed to be equivalent in the two groups. Although not explicitly stated, it seems that the cost data were derived from actual data in the authors' setting and resources used were derived from the effectiveness study. Discounting was not carried out even though the costs were incurred during more than 2 years. The price year was not reported.

Statistical analysis of costs
The costs were treated deterministically.
Indirect Costs
The indirect costs were not included in the analysis.

Currency
Euros (EUR). It was reported that EUR 1 = US$1.3.

Sensitivity analysis
No sensitivity analysis was conducted.

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

Cost results
Excluding the cost of hospitalisation, the cost for 20 patients was EUR 1,146 per year in the CG and EUR 1,308 per year in the EG.

The cost of hospitalisation was EUR 115,200 in the CG and EUR 7,200 in the EG.

Synthesis of costs and benefits
The costs and benefits were not combined.

Authors' conclusions
Compared with the "standard care" treatment option for patients with schizophrenia, an exercise programme is more effective and reduces the cost of care.

CRD COMMENTARY - Selection of comparators
The choice of the comparators was explicitly justified. Standard care would seem to represent the standard method of treatment in the authors' setting, whereas exercise was not broadly recognised as a method of treatment for patients with schizophrenia in the authors' setting. You should decide if this represents a widely used technology in your own setting.

Validity of estimate of measure of effectiveness
The analysis was based on a non-randomised controlled trial. This is associated with some limitations (e.g. selection bias), given the study question. The study had several main strengths. For instance, appropriate statistical analyses were undertaken to test for statistically significant differences between the two study groups. In addition, the study sample appears to have been representative of the study population and the patient groups were shown to be comparable at analysis. However, some potential weaknesses should also be pointed out. First, no power calculations were conducted to ascertain whether an adequate sample size was used. Second, blinding of the outcome assessment was not reported. Finally, it was unclear whether all the patients included in the study were accounted for in the analysis. These factors have the potential to introduce bias.

Validity of estimate of measure of benefit
The authors did not derive a summary measure of benefit. In effect, a cost-consequences analysis was performed.

Validity of estimate of costs
The perspective adopted in the economic analysis was not explicitly stated. However, it was not societal since the
indirect costs were not used in the analysis. Some relevant costs were excluded from the analysis. For example, capital costs of the sports facilities were not included, which might have affected the authors' conclusions. In addition, drug therapy costs were not included in the analysis as they were common to both groups.

The costs and the quantities were reported separately, thus enhancing the reproducibility of the results to other settings. The quantities of resources used were derived from the single study. However, no statistical analysis of them was performed, which may introduce uncertainty into the results. Although not explicitly stated, it seems that the cost estimates have been derived from the authors' setting. These were treated deterministically and no sensitivity analysis was carried out to assess the robustness of the estimates used. This may limit the interpretation of the study findings. Appropriate currency conversions were performed. Although methodologically relevant, given the long timeframe of the analysis, no discounting was performed. The price year was not reported, which may hinder any future reflation exercises.

Other issues
The authors did not compare their findings with those from other studies. However, this may have been due to a lack of published literature in this specific area. The issue of generalisability of the results was not addressed. The authors do not appear to have presented their results selectively. The study enrolled adult patients with schizophrenia and this was reflected in the authors' conclusions. The authors did not report any limitations to their study.

Implications of the study
The authors did not make explicit recommendations for changes in policy or practice, or for further research. However, the analysis indicated areas where more information is needed.

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Bibliographic details

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