
Economic analysis of tai chi as a means of preventing falls and falls related injuries among older adults

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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.

CRD summary

This study examined the impact of a community-based tai chi programme to prevent falls in elderly people. The programme did not avoid a significant number of serious falls in comparison with usual care. The value of avoiding this small number of falls should be assessed against the high cost of the consequences of these falls. Although the economic data was well reported, there were some methodological limitations, which should be considered when judging the validity of the author's conclusions.

Type of economic evaluation

Cost-effectiveness analysis

Study objective

The objective was to examine the clinical and economic impact of a community-based tai chi programme intended to prevent falls in people over 60 years old, living in the community and without serious health problems.

Interventions

The intervention was 16 weeks of tai chi, with one class per week. This was compared with no intervention for those on a waiting list for the tai chi classes.

Location/setting

Australia/community.

Methods

Analytical approach:

This economic evaluation was based on data from a single study with a short-term horizon. The author stated that the perspective of the health system, which was the NSW Department of Health, was adopted.

Effectiveness data:

The clinical data came from a randomised controlled trial (RCT) that was carried out in 2002 in the Central Sydney Area Health Service. Individuals in the control group were placed on a waiting list for tai chi classes, which were due to start once the classes in the intervention group were complete. There were 347 patients in the intervention group and 337 patients in the control group. The length of follow-up was the duration of the RCT (16 weeks). The key clinical endpoint was the total number of falls with and without the intervention.

Monetary benefit and utility valuations:

Not included.

Measure of benefit:

The number of falls avoided was the summary benefit measure. The total number of individuals who fell was also reported.

Cost data:

The economic analysis included the costs of the tai chi programme (venues, advertising, and instructor), general practitioner visits, consultations with specialists, diagnostic tests, hospitalisations, and medications. The resource use

was based on data derived from the clinical trial using diaries and telephone contacts. The costs were estimated using standard prices such as Medical Benefit Schedule fees, diagnosis-related group data, and available fee schedules for ancillary care. All costs were in Australian dollars (AUD).

Analysis of uncertainty:

A deterministic one-way sensitivity analysis was undertaken on the average cost of tai chi classes and the number of hospitalisations.

Results

There were 217 falls, with 130 (84 people) in the control group and 87 (72 people) in the intervention group. While the rate of falls was significantly lower in the intervention group (25%) than in the control group (39%; $p=0.05$), the rate of falling, which was the number of people who fell at least once divided by the number of people in the group, was very similar (10% in the intervention group and 12% in the control group). The patients in the intervention group used more health services after a fall.

The mean health service cost per patient was AUD 54.51 in the intervention group and AUD 17.45 in the control group. This difference was statistically significant. Adding the cost of the tai chi course (which was the main cost category), the incremental cost per fall avoided with the intervention was AUD 1,683. This was reduced to AUD 444, if participants paid more towards the cost of the course.

The sensitivity analysis highlighted the fact that a small number of patients made extensive use of health care resources. Advertising costs could have been lower if the programme was provided by a community or a commercial organisation.

Authors' conclusions

The author concluded that the implementation of a community-based tai chi programme did not avoid a significant number of serious falls in comparison with usual care. The value of avoiding a small number of falls should be assessed against the high cost of treatment for managing the consequences of such falls.

CRD commentary

Interventions:

The selection of the intervention was appropriate as the proposed intervention was compared against the usual care for this patient population.

Effectiveness/benefits:

The clinical data came from a published RCT, which is usually considered to be a valid source of evidence given the strengths of its design. The author did not report the details of the patient sample, the randomisation procedure, nor other methodological aspects, such as the use of a power calculation and follow-up. In general, the reporting of the clinical analysis was limited. The author stated that the intermediate outcome of the number of falls avoided was preferred over more general measures such as life-years, as these would have been more difficult to understand from a health service perspective.

Costs:

The categories of costs were consistent with the viewpoint, and a breakdown of cost items was given. The unit costs and quantities of resources used were reported for all items. The author provided a justification for the exclusion of some cost categories, such as out-of-pocket expenses, which were likely to vary widely in different health systems and services. The sources of data were appropriately reported for all items. The price year was not reported, which limits the possibility of making reflation exercises in other time periods. The economic analysis was satisfactorily reported.

Analysis and results:

The costs and benefits of the two interventions were reported and incremental cost-effectiveness ratios were calculated. The issue of uncertainty was only partially addressed, as the deterministic analysis investigated only variations in the resource use and unit costs. Other aspects of uncertainty were not considered. The author noted that the main limitation of this analysis was the use of self-reported data for both clinical and economic estimates. It is well known that self-reported estimates may not be accurate due to recall bias, but traumatic episodes such as falls might be easier to

remember.

Concluding remarks:

Although the economic data was well reported, there were some methodological limitations, which should be considered when judging the validity of the author's conclusions.

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Other publications of related interest

Fuzhong L, Harmer P, Fisher K, McAuley E, Chaemeton N, Eckstrom E, Wilson N. Tai Chi and fall reduction in older adults: a randomised controlled trial. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences* 2005; 60: 187-194.

Robertson C, Devlin N, Scuffham P, Gardner M, Buchner D, Campbell D. Economic evaluation of a community based exercise programme to prevent falls. *Journal of Epidemiology and Community Health* 2001; 55(8): 600-606.

Gardner M, Robertson C, Campbell A. Exercise in preventing falls and fall related injuries in older people: a review of randomised controlled trials. *British Journal of Sports Medicine* 2000; 34(1): 7-17.

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