A pragmatic multicentered randomized controlled trial of yoga for chronic low back pain: economic evaluation


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
The study compared the cost-effectiveness of yoga plus usual care versus usual care alone for the treatment of chronic or recurrent low back pain. The authors concluded that 12 weekly group classes of specialised yoga were likely to be a cost-effective intervention. This trial-based analysis was satisfactorily and transparently carried out. The authors’ conclusions appear valid.

Type of economic evaluation
Cost-utility analysis

Study objective
The cost-effectiveness of yoga plus usual care was compared with usual care alone for the treatment of chronic or recurrent low back pain.

Interventions
The yoga intervention group had one yoga class (75 minutes) each week for 12 weeks including with a relaxation CD, a student yoga manual, a yoga mat, and an education booklet for improving back pain; this was in addition to usual care. The comparator was usual care (the education booklet was also given).

Location/setting
UK/primary care.

Methods
Analytical approach:
The analysis was based on a single randomised controlled trial (RCT). The time horizon was one year. The authors stated that the perspective of both the UK National Health Service (NHS) and society were adopted.

Effectiveness data:
The clinical analysis was based on a recent UK-based RCT with a three-month follow-up period. The trial involved 39 general practices across England. Three hundred and thirteen consenting participants were randomised (156 in the yoga group; 157 in the usual care group). Patients were followed for up to 12 months. An intention-to-treat approach was used. The primary endpoint was the improvement of back function measured by Roland-Morris Disability Questionnaire (RMDQ) completed at three, six and 12 months post-randomisation.

Monetary benefit and utility valuations:
Utility valuations were assessed at follow-up points of three, six and 12 months post-randomisation during the trial using the EQ-5D questionnaire.

Measure of benefit:
Quality-adjusted life-years (QALYs) were used as the summary benefit measure.

Cost data:
Costs were estimated for the yoga intervention (teaching and equipment), visits to health care professionals (general practitioners, practice nurses, physiotherapists and other consultations), emergency services, hospital admissions,
outpatient visits, private care, and productivity losses. Private care and productivity loss costs were excluded from the perspective of the NHS. Unit costs were based on official national tariffs, such as Personal Social Services Research Unit, and NHS reference costs. Costs of private care came from an insurance provider in the UK market. The average national income per day was used to estimate the cost of productivity losses. Quantities of resources used came from the RCT. Costs were in UK £ and referred to 2008/2009 prices.

Analysis of uncertainty:
Mean incremental costs and QALYs were estimated using a regression-based approach. Cost-effectiveness acceptability curves were constructed to investigate uncertainty on the cost-effectiveness of the two interventions at different willingness-to-pay thresholds. Sensitivity analyses were carried out to assess the impact of missing data in utility scores and costs, which were imputed using through multiple imputation. The impact of variations in yoga intervention costs was investigated. And finally, in an alternative scenario, the costs of travel and informal care were considered on the basis of evidence from another trial.

Results
Expected one-year mean QALYs were 0.778 with yoga and 0.725 with usual care.

Mean NHS costs were £762.0 with yoga and £529.7 with usual care. The incremental cost per QALY gained with yoga over usual care was £13,606. At a willingness-to-pay threshold of £20,000 per QALY, the probability of yoga being cost-effective was 72%.

Mean societal costs were £1,502.1 with yoga and £2,319.2 with usual care. Yoga was the dominant strategy as it was less expensive and more effective than usual care. At a willingness-to-pay threshold of £20,000 per QALY, the probability of yoga being cost-effective was 95%.

Changes in the cost of the yoga intervention affected the cost-effectiveness figures, but yoga remained the preferred strategy in a variety of scenarios.

Yoga remained dominant even when the costs of travel and informal care were included.

Authors' conclusions
The authors concluded that 12 weekly group classes of specialised yoga were likely to be cost-effective for the treatment patients with chronic or recurrent low back pain.

CRD commentary
Interventions:
The selection of the comparators appeared to have been appropriate as the proposed intervention was compared with usual care (conventional care) in the authors’ setting.

Effectiveness/benefits:
Clinical data came from a pragmatic RCT. The RCT had several strengths: a multi-centre study; an intention-to-treat approach; and methods deal with missing data. The main clinical outcome used was relevant to low back pain. The clinical side of the analysis presented high internal validity. Some data inputs were varied in the sensitivity analysis.

QALYs were a relevant outcome measure as low back pain impacts on patients’ quality of life. The EQ-5D questionnaire was appropriate instrument for utility weights.

Costs:
The analysis was carried out satisfactorily. Two different perspectives were appropriately adopted. The authors pointed out that, as classes took place in the evening or on Saturday, the costs associated with days away from work unpaid and time of those participating in yoga classes were not included. Extensive information on unit costs and quantities of resources used was provided, which enhanced transparency. The price year was reported, which allowed reflation exercises in other time periods. Data sources were clearly reported and reflected the UK NHS setting. Variations in cost estimates were considered in the sensitivity analyses.
Analysis and results:
An incremental approach was appropriately used to synthesise costs and benefits. Valid approaches were used to deal with uncertainty and variability in trial-based data. The results of alternative scenarios and cost-effectiveness acceptability curves were clearly presented. The authors acknowledged that a limitation of the analysis was the short time-horizon and that a longer follow-up might be more favourable with yoga intervention. The findings were specific to the UK setting and could not be directly transferred to other jurisdictions.

Concluding remarks:
This trial-based analysis was satisfactorily and transparently carried out. The authors’ conclusions appear valid.

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