Cost-effectiveness of a primary care based physical activity intervention in 45-74 year old men and women: a randomised controlled trial  
Stevens W, Hillsdon M, Thorogood M, McArdle D

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  
A health promotion programme involving prescription for exercise based on consultation with an Exercise Development Officer (EDO) for inactive individuals aged 45-74 years. The programme had three stages: identification as inactive, invitation for consultation, and completion of the programme.

Type of intervention  
Primary prevention.

Economic study type  
Cost-effectiveness analysis.

Study population  
Inactive individuals aged 45-74 years.

Setting  
Primary care. The economic study was carried out in London.

Dates to which data relate  
Dates were not reported.

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

Link between effectiveness and cost data  
The costing was carried out on the same patient sample as that used in the effectiveness study. It was not explicitly specified whether the costing was performed prospectively or retrospectively.

Study sample  
Power calculations were not used to determine the sample size. With a 57% response rate, a total of 1,288 individuals returned a baseline questionnaire. A total of 827 were categorised as inactive. 113 patients were excluded. A total of 714 patients were randomly assigned either to the intervention group (n=363) with an average age of 59.1 years or to the control group (n=351) with an average age of 59.2 years.

Study design
The study was a randomised controlled trial, carried out in two centres. The duration of the follow-up was 8 months. At the end of the 8-month follow-up period the loss to follow up was about 45% (163/363) in the intervention group and 39% (136/351) in the control group.

**Analysis of effectiveness**

The analysis of effectiveness was based on intention to treat. The main health outcome measures were reduction in the proportion of people classified as sedentary, increase in the number of people who were active, and movement to a higher level of physical activity. The measurement of health outcome at baseline and after 8 months was based on a self-assessment questionnaire. The participants were shown to be comparable in baseline characteristics.

**Effectiveness results**

The net reduction in the number of sedentary people was 10.6% (95% CI: 4.5 - 16.9%). The net increase in the number of people who were active was 2.7% and movement to a higher level of physical activity was 20%.

**Clinical conclusions**

"This study has shown that it is possible to reduce the proportion of sedentary people in this population, but it is more difficult to achieve the current recommended levels of activity. ... Small gradual changes in activity behaviour seem to be more achievable than major ones, and an increase in moderate intensity physical activity has proved easier to achieve than an increase in vigorous intensity activity”.

**Measure of benefits used in the economic analysis**

The measures of benefits were net reduction in the number of sedentary people, net increase in the number of people who were active and movement to a higher level of physical activity. A self-assessment questionnaire sent to participants at baseline and at 8-month follow-up was the base for the measurement of the benefits.

**Direct costs**

Cost discounting was not required as the study period was less than one year. Quantities were not reported separately from the costs. Cost components of the intervention by stage were reported separately. The cost analysis covered the costs of postage, stationery, labour (administration and EDO), and equipment. The perspective adopted in the cost analysis was not explicitly specified. The date of the price data was not specified. The costs attributable to the research were excluded.

**Indirect Costs**

Not considered.

**Currency**

UK pounds sterling (€).

**Sensitivity analysis**

One-way and two-way sensitivity analyses were performed on changes in the definition of capital and administration costs, and response rates at stage 1 and 2.

**Estimated benefits used in the economic analysis**

The net reduction in the number of sedentary people was 10.6% (95% CI: 4.5 - 16.9%). The net increase in the number of people who were active was 2.7% and movement to a higher level of physical activity was 20%.
Cost results
The total costs of the intervention by stage were 2,517 (stage 1), 1,580 (stage 2), and 24,044 (stage 3).

Synthesis of costs and benefits
Three cost-effectiveness measures were used to synthesise costs and benefits. The measures were cost per sedentary person reduced (623), cost per person classified as active (2,498), and cost per person of movement into higher level of physical activity (327). The sensitivity analyses established that "response rate at stage 2 had the biggest effect" on the cost-effectiveness ratio.

Authors' conclusions
Moderate physical activity can be successfully encouraged in previously sedentary men and women aged 45-74 through a primary care based intervention. The process of recruitment was the most important variable cost. A high uptake rate would maximise cost-effectiveness, and sensitivity analysis suggested that unit costs could be halved with a more effective recruitment strategy.

CRD COMMENTARY - Selection of comparators
No specific justification was given for the choice of the comparator. You, as a database user, should consider whether this is a widely used option in your own setting.

Validity of estimate of measure of benefit
The internal validity of the estimates of the benefit measures is likely, due to the randomised design used in the effectiveness analysis. As the authors acknowledged, the main drawbacks of the effectiveness study were the lack of an objective assessment measure and exposure to a "therapist effect" bias.

Validity of estimate of costs
Quantities were not reported separately from the costs but adequate details of the methods of cost estimation were given.

Other issues
The issue of generalisability to other settings or countries was not systematically assessed. No dates were given for the effectiveness, resource use, and price data.

Implications of the study
"More research into optimal methods of recruitment participants for all primary care based health promotion initiatives is needed".

Source of funding
Supported by West London Health Promotion Agency through a grant awarded by North Thames NHS Executive Responsive Funding Programme (RFG013). W Stevens, M Hillsdon and M Thorogood are all supported by the Health Gain Project, funded jointly by North Thames NHS Executive and the Health Education Authority.

Bibliographic details

PubMedID
9773174

Indexing Status
Subject indexing assigned by NLM
MeSH
Age Factors; Aged; Confidence Intervals; Cost-Benefit Analysis; Exercise /physiology; Female; Fitness Centers; Follow-Up Studies; Health Promotion /economics; Humans; Male; Middle Aged; Patient Selection; Primary Health Care /economics; Self Care; Sensitivity and Specificity

AccessionNumber
21998001441

Date bibliographic record published
30/09/1999

Date abstract record published
30/09/1999