Motivated patients are more cost-effectively rehabilitated: a two-year prospective controlled study of patients with prolonged musculoskeletal disorders diagnosed in primary care

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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.

Health technology
The technology considered was a 4-week, full-time multidisciplinary rehabilitation programme intended to return the patient to an active, independent life and to facilitate his or her return to work. The programme relied on a biopsychosocial approach and focused on Body Awareness Therapy and cognitive and relaxation treatment. The programme also included pain management, stress management, physical training and ergonomics. This was accompanied by visits to the patient workplace, creative and cultural activities, and the patients’ involvement in the setting of goals for rehabilitation efforts relating to work, leisure and social pursuits. The comparator was standard treatment. This consisted of a medical examination, advice, prescription of medicine, stand point on the need for sickness certification, and generally a referral for physiotherapy (e.g. heat, massage, mobility and strength training, stretching of tight muscles, and home training recommendation).

Type of intervention
Rehabilitation.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised patients consecutively referred to the Kronoberg Occupational Rehabilitation Centre between the beginning of 1994 and the first 6 months of 1995, who met the inclusion criteria. These criteria included MSD as the main diagnosis, such as cervico-brachial myalgia, chronic lumbago with or without sciatica, and general ache syndrome. Other inclusion criteria were problems with long and/or repeated short periods of sick leave during the past year, and a rehabilitation period in 1994 and/or 1995. The exclusion criteria were temporary or permanent complete disability pension, known substance abuse, serious mental illness, or unable to speak Swedish.

Setting
The setting was primary care. The economic study was carried out in the Kronoberg Occupational Rehabilitation Service in Sweden.

Dates to which data relate
The resource use and effectiveness data were prospectively gathered for 2 years following the patients' enrolment in the study (1994 and first 6 months of 1995). Swedish prices for 1998 were used to compute the costs.

Source of effectiveness data
The evidence was derived from a single study.
Link between effectiveness and cost data
The costing was undertaken prospectively on the same patient sample as that used for the effectiveness study.

Study sample
The authors did not report using power calculations to determine the sample size. An unselected group of consecutive patients were included in the study. A total of 129 patients who met the inclusion criteria were invited to take part in the study, of which 122 agreed. The Regional Social Insurance Office identified a control group matched for MSD, age, gender, cultural background, employment and unemployment, and the extent of sick leave. Of those invited, 114 control group patients accepted the invitation.

Study design
This was a prospective, matched, non-randomised controlled study that was conducted in a single centre, the Kronoberg Occupational Rehabilitation Service in Sweden. The duration of follow-up was 2 years. At the 2-year follow-up, 113 (93%) of the patients in the rehabilitation group and 102 (89%) in the control group were included in the study, although 18 patients in the rehabilitation group and 5 patients in the control group did not complete the rehabilitation diary. Hence, the economic evaluation comprised 95 (rehabilitation group) and 97 (control group) patients in the two groups, respectively.

Analysis of effectiveness
The analysis was conducted on the basis of treatment completers only. The main primary health outcome considered was the global score in the Nottingham Health Profile (NHP). In addition, the proportions of patients working full- and part-time were compared. The demographics and baseline characteristics of the patients in the rehabilitation and control groups were reported to be comparable.

Effectiveness results
The global NHP score improved from 39.2 (standard deviation, SD=15.7) to 29.4 (SD=20.7) in the rehabilitation group, and from 37.0 (SD=18.2) to 30.5 (SD=21.6) in the control group, (p<0.001 within both groups). When the difference values within the groups were compared, there was a tendency towards improvement in favour of the rehabilitation group, (p=0.08).

Within the rehabilitation group, 43 (45%) of the patients worked full-time, 29 worked part-time and 23 (24%) were on total sick leave. The corresponding figures for the control group were 36 (37%), 32 (33%) and 29 (30%), respectively, (p=0.487).

Clinical conclusions
The results of the study indicated that, compared with standard treatment, multidisciplinary rehabilitation improves the patients' perceived HRQoL.

Measure of benefits used in the economic analysis
There was no summary measure of benefit synthesised with costs. In effect, a cost-consequences analysis was conducted.

Direct costs
The direct costs of the health service were included in the analysis. The quantities and the costs were reported separately. Discounting was not carried out, although it may have been relevant as the study follow-up was 2 years. The costs included were visits within primary care, visits within open specialist care, and institutional care. Primary care visits were for a general practitioner, physiotherapy and occupational therapy. Open specialist care covered X-rays, specialist doctors, psychological and/or psychosocial therapy, and additional multidisciplinary rehabilitation.
programmes during follow-up. Institutional care related to orthopaedic operations and inpatient care. Resource consumption was determined from health care events recorded in the patients' diaries for the 24 months' follow-up from baseline. The direct unit costs were determined by the cooperation committee of the southern region of the medical service in Sweden. The price year was 1998. Discounting was not carried out.

**Statistical analysis of costs**
The cost data were treated stochastically. A significance level of p less than 0.05 was considered. A t-test was applied if the data were normally distributed,. Wilcoxon's signed rank-sum test was applied to other continuous and ordinal variables.

**Indirect Costs**
The indirect costs were calculated using the human capital approach. As with the direct costs, discounting was not carried out. The patients and the Regional Social Insurance Office provided information relating to patient-specific loss of production 6 months prior to the study and during the follow-up, together with the patients' annual income. Partial working days were computed as for whole days.

**Currency**
Swedish kroner (SEK). These were converted to UK pounds sterling (GBP). The mean exchange rate in 1998 was 1.00 = SEK 13.17.

**Sensitivity analysis**
The authors investigated variability in the data. A one-way sensitivity analysis was used to investigate:

- a 25% decrease in indirect costs in the control group on account of higher indirect costs at baseline;
- a 25% increase in indirect costs in the rehabilitation group on account of lower indirect costs at baseline;
- a 25% increase in direct costs in the control group on account of lower total direct group costs at the 2-year follow-up; and
- a 25% decrease in direct costs in the rehabilitation group on account of higher total direct costs at the 2-year follow-up.

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

**Cost results**
After a 2-year follow-up, the total mean direct cost per patient was 20,477 (SD=11,624) in the rehabilitation group and 19,075 (SD=13,584) in the control group. The difference between the two groups was 1,402 (95% confidence interval, CI: -2,148 - 4,952; p=0.255).

The total mean indirect cost per patient was 6,620 (SD=1,504) in the rehabilitation group and 3,009 (SD=2,956) in the control group. The difference between the two groups was 3,611 (95% CI: 2,994 - 4,278; p=0.000).

The mean total indirect cost per patient was 13,857 (SD=10,593) in the rehabilitation group and 16,066 (SD=12,222) in the control group. The difference between the two groups was -2,209 (95% CI: -5,468 - 1,049; p=0.265).

**Synthesis of costs and benefits**
Not applicable.
Authors' conclusions
The multidisciplinary rehabilitation programme was more effective than conventional treatment within primary care in terms of improving the patients' perceived health-related quality of life (HRQOL), but it was also more expensive. The authors did not state if they thought the extra benefit warranted the extra cost.

CRD COMMENTARY - Selection of comparators
The rationale for the choice of the comparator was clear. It represented standard practice in primary care and general practice in Sweden.

Validity of estimate of measure of effectiveness
The study design was a prospective, non-randomised controlled study. The study investigators tried to minimise selection bias by matching the patients in the study and control groups. However, this cannot guarantee the elimination of selection bias. It was unclear whether the sample was of a sufficiently size to obtain robust results. The HRQoL measure and time in work may have adequately reflected the health outcomes.

Validity of estimate of measure of benefit
There was no summary measure of benefit synthesised with costs. In effect, a cost-consequences analysis was undertaken.

Validity of estimate of costs
The indirect costs were appropriately included in the analysis given the societal perspective adopted in the study. However, the authors did not include the non-direct health service costs, so the total costs might not fully reflect the actual costs. The cost estimates were likely to be specific to the southern region of the medical service in Sweden, but the resource quantities were reported separately. This could enhance the generalisability of the results to other settings. The price year was reported and the quantities and the costs were reported separately, thus enhancing the transferability of the results.

Other issues
The authors acknowledged that a randomised study design would have been preferable. They made extensive and detailed comparisons of their findings with those of prior research, stating that this piece of research reflected the trend of lower indirect costs for patients in the comprehensive rehabilitation group, but greater mean total costs. The only area of generalisability addressed by the authors was the difference in outcomes for more or less motivated patients. The results were not reported selectively and the authors' conclusions reflected the scope of the analysis.

Implications of the study
The results of this research supported the recommendation for further studies, as earlier investigations have failed to support the cost-effectiveness of comprehensive rehabilitation programmes in prolonged MSDs compared with less comprehensive approaches.

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Other publications of related interest


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