Cost-effectiveness of preventing depression in primary care patients: randomised trial
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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 study examined a Dutch version of cognitive-behavioural minimal contact psychotherapy for depression, based on the "Coping with Depression" course. The experimental intervention consisted of a self-help manual with instructions on mood management. The self-help therapy was guided by six short telephone calls with a prevention worker.

Type of intervention
Primary prevention.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised patients presenting with sub-threshold depression, defined as having at least one core symptom plus one, two or three current depressive symptoms according to the Instel screening instrument. Exclusion criteria were the presence of full-blown DSM-IV (Diagnostic Statistical Manual of Mental Disorders) depressive disorder, dysthymia, bipolar disorder, social phobia, agoraphobia or panic disorder in the past 12 months, as measured with the Composite International Diagnostic Interview (CIDI).

Setting
The setting was primary care. The economic study was carried out in the Netherlands.

Dates to which data relate
The effectiveness and resource use data were derived from a study published in 2004. The price year was 2003.

Source of effectiveness data
The effectiveness evidence was derived from a single study.

Link between effectiveness and cost data
The costing was carried out prospectively on the same sample of patients as that included in the effectiveness analysis.

Study sample
Patients were enrolled at difference practices. Of the 5,276 patients initially contacted, 3,825 were screened. Of these, 2,351 had no symptoms, 559 had other disorders, and 699 did not respond. Thus, 363 patients were included for diagnostic interview. However, 95 had Axis I disorder and 52 did not respond. Therefore, the final study sample consisted of 216 patients of which 107 were in the experimental group and 109 in the control group. The participants were predominantly female (66%), living with a partner (78%) and employed (83%). The participants had a mean age
of 41 years and had received, on average, 14 years of education.

**Study design**
This was a prospective, randomised clinical trial that was carried out at 19 primary care practices in the Netherlands. The randomisation process was carried out centrally, using blocked randomisation stratified by general practice with the patient as the unit of randomisation, with blocks of four patients. The length of follow-up was one year. Follow-up data were available for 83 patients in the experimental group and 94 patients in the control group. A regression imputation procedure was used to deal with the loss to follow-up. Interviewers were blinded to group allocation, while patients were obviously aware of the type of care they received.

**Analysis of effectiveness**
The analysis of the clinical study was conducted on an intention to treat basis. Several clinical measures were used in the primary trial (including the CIDI and the Centre for Epidemiological Studies - Depression Scale), but only the incidence rate of depression disorder at 12 months was used in the current analysis. The study groups were well matched at baseline, showing that randomisation was successful.

**Effectiveness results**
The incidence rate of depression disorder was 11.9% in the experimental group and 18.3% in the control group. Therefore, the incidence rate ratio was 0.65 (11.9/18.3), suggesting that the experimental intervention was significantly more effective than usual care, (p=0.04).

**Clinical conclusions**
The effectiveness analysis showed that the intervention examined in the study was more successful than usual care in reducing the incidence of depressive disorder.

**Measure of benefits used in the economic analysis**
The summary benefit measure was the proportion of patients who did not develop depression. This was derived directly from the effectiveness analysis.

**Direct costs**
The cost analysis was carried out from a societal perspective. It included both medical and non-medical direct costs. The medical costs covered the study intervention, GP visits, hospital days, antidepressants and other medication. The non-medical costs included travel and parking. The unit costs were reported for both medical and non-medical costs, but data on resource consumption were given only for non-medical costs. The costs of the intervention, GP visits and hospital days were estimated from standard cost prices for the Netherlands. Drug costs came from average wholesale prices plus 6% added tax plus a dispensing fee. The sources of the non-medical direct costs were unclear. Resource use was estimated from patients enrolled in the clinical trial using a specific questionnaire. Data were available at 12 months for 75 patients in the experimental group and for 87 patients in the control group. Discounting was not relevant and was not carried out as 1-year costs were considered. The price year was 2003.

**Statistical analysis of costs**
The costs were presented as mean values with standard deviations. Statistical tests were carried out to test the statistical significance of cost-differences. Missing data were imputed using the same approach as in the analysis of effectiveness. Bootstrapped estimates were also generated.

**Indirect Costs**
The analysis of the costs included indirect non-medical costs (i.e. productivity losses owing to illness) since the societal
viewpoint was used. The indirect costs referred to three categories: absence from work, reduced productivity, and inability to perform domestic tasks. The unit prices for the three cost components were obtained from the literature. The friction cost approach was used to value productivity losses. Resource use was estimated from patients enrolled in the trial using a specific questionnaire. The unit costs and the quantities of resources used were presented separately. As in the analysis of the direct costs, discounting was not relevant and the price year was 2003.

**Currency**
Euros (EUR).

**Sensitivity analysis**
A sensitivity analysis was carried out in order to take a narrower perspective in which the indirect costs were excluded.

**Estimated benefits used in the economic analysis**
The proportion of patients who did not develop depression was 88.1% in the intervention group and 81.7% in the control group.

**Cost results**
The total direct medical costs were EUR 1,687 (+/- 305) in the experimental group and EUR 1,627 (+/- 419) in the control group (cost-difference EUR 60; p=0.914).

The total direct non-medical costs were EUR 441 (+/- 59) in the experimental group and EUR 507 (+/- 77) in the control group (cost-difference -EUR 66; p=0.453).

The total indirect non-medical costs were EUR 4,638 (+/- 1,634) in the experimental group and EUR 6,481 (+/- 1,393) in the control group (cost-difference -EUR 1,843; p=0.261).

The total costs were EUR 6,766 (+/- 1,712) in the experimental group and EUR 8,614 (+/- 1,490) in the control group (cost-difference -EUR 1,849; p=0.281).

The cost-differences did not reach statistical significance, although there was a trend towards cost-savings in the intervention group.

**Synthesis of costs and benefits**
Incremental cost-effectiveness ratios (ICER; cost per depression-free person-year) were calculated to combine the costs and benefits of the alternative strategies. A cost-effectiveness acceptability curve (CEAC), showing the probability that the intervention was cost-effective relative to usual care given different thresholds for the willingness-to-pay per case of prevented depression, was also used.

The ICER for the intervention in comparison with usual care was negative. This suggested that the intervention was both more effective and less expensive than usual care (dominant).

The CEAC suggested that when the willingness-to-pay for an averted depressive episode was equal to EUR 0.00, there was a 70% probability that the therapy was more cost-effective than usual care. This rose to 83% for a willingness-to-pay of EUR 30,000.

In the sensitivity analysis, where indirect costs were excluded, the experimental intervention dominated usual care in 39% of bootstrapped ICERs. The CEAC showed that when the willingness-to-pay for an averted depressive episode was equal to EUR 0.00, there was a 46% probability that the therapy was more cost-effective than usual care. This rose to 75% for a willingness-to-pay of EUR 30,000.
Authors' conclusions
Adjunctive minimal contact psychotherapy improved outcomes and generated lower costs in comparison with standard care for the management of patients at risk of depression in the Netherlands.

CRD COMMENTARY - Selection of comparators
The rationale for the choice of the comparator (i.e. usual care) was appropriate since this reflected the current standard of care for patients at risk of depression. You should decide whether this is a valid comparator in your own setting.

Validity of estimate of measure of effectiveness
The effectiveness evidence came from a clinical trial, which was appropriate for the study question. However, the trial was published in a companion paper, in which more details of the study were reported. The method of randomisation was described and should have reduced the impact of selection bias. The approach used to select the sample of participating patients was reported, and the reasons for the loss of patients during enrolment and over the study period were stated. The study groups were well matched at baseline, which should strengthen the robustness of the comparison. Further, the analysis was conducted on an intention to treat basis and appropriate statistical methods were used to deal with missing data. No justification for the sample size was provided. It was unclear whether the clinical outcomes might have been different over a longer timeframe, but this issue might have been addressed in the primary publication. Only blinding of the study investigators was performed, in order to limit assessment bias. The use of a multi-centre design ensured a high internal validity. These issues should be considered when evaluating the robustness of the study design.

Validity of estimate of measure of benefit
The summary benefit measure was specific to the study setting. It is not comparable with the benefits of other health care interventions. The impact of the intervention on quality of life was not explicitly addressed. A validated instrument was used to assess the benefit measure.

Validity of estimate of costs
The perspective adopted in the analysis was appropriate as all the relevant categories of costs were included. An alternative analysis was also carried out in which the indirect costs were excluded from the analysis. Extensive information on the unit costs and quantities of resources used was provided, although not for all categories of costs. This enhances the possibility of replicating the results of the analysis in other settings. The source of the data was stated. The cost estimates were specific to the study setting and the impact of using alternative economic estimates was not investigated. The price year was given, thus enhancing the possibility of reflating the costs in different time periods. Statistical analyses of the costs were also performed. These took the non-normal distribution of costs into consideration and also assessed whether differences in the costs were significant.

Other issues
The results of the analysis were consistent with those published in recent studies on the cost-effectiveness of cognitive-behavioural therapy in primary care patients with depression. The authors noted that caution should be exercised when transferring the results of the study to other countries since the analysis reflected specific treatment patterns in the Netherlands. The authors noted that the costs and benefits were assessed over one year, a period that might have been too short to estimate the true cost-effectiveness of the alternative strategies. At the time this abstract was written, only two cost-effectiveness analyses had been carried out in the field of preventive psychiatry, namely, the present study and that by Lynch et al 2005 (see "Other Publications of Related Interest" below for bibliographic details).

Implications of the study
The study results support the use of minimal contact psychotherapy to prevent depression. The authors pointed out two key issues for future research. First, long-term studies should be carried out to corroborate the current findings. Second, delivery of the intervention over the internet would cut most costs of providing the intervention and extend its use in a larger group of patients.
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Other publications of related interest


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