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Research report

Cost-effectiveness analysis of a collaborative care programme for depression in primary care

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ABSTRACT

Background: Collaborative care programmes lead to better outcomes in the management of depression. A programme of this nature has demonstrated its effectiveness in primary care in Spain. Our objective was to evaluate the cost-effectiveness of this programme compared to usual care.
Methods: A bottom-up cost-effectiveness analysis was conducted within a randomized controlled trial (2007–2010). The intervention consisted of a collaborative care programme with clinical, educational and organizational procedures. Outcomes were monitored over a 12 months period. Primary outcomes were incremental cost-effectiveness ratios (ICER): mean differences in costs divided by quality-adjusted life years (QALY) and mean differences in costs divided by depression-free days (DFD). Analyses were performed from a healthcare system perspective (considering healthcare costs) and from a society perspective (including healthcare costs plus loss of productivity costs).
Results: Three hundred and thirty-eight adult patients with major depression were assessed at baseline. Only patients with complete data were included in the primary analysis (166 in the intervention group and 126 in the control group). From a healthcare perspective, the average incremental cost of the programme compared to usual care was €182.53 ($p < 0.001$). Incremental effectiveness was 0.045 QALY ($p = 0.017$) and 40.09 DFD ($p = 0.011$). ICERs were €4,056/QALY and €4.55/DFD. These estimates and their uncertainty are graphically represented in the cost-effectiveness plane.
Limitations: The amount of 13.6% of patients with incomplete data may have introduced a bias. Available data about non-healthcare costs were limited, although they may represent most of the total cost of depression.
Conclusions: The intervention yields better outcomes than usual care with a modest increase in costs, resulting in favourable ICERs. This supports the recommendation for its implementation.

1. Introduction

Over the course of a year, 4–7% of the European adult population suffers from major depression (Wittchen et al., 2011; Gabilondo et al., 2010). For society and for the healthcare system, the costs associated with depression are very high due to its prevalence as well as to other factors, such as increased use of healthcare resources, and most importantly, lost productivity, which can represent more than three-quarters of the total cost (Gustavsson et al., 2011; Salvador-Carulla et al., 2011).

The WHO's strategy for mental health considers primary care to be the most appropriate and efficient level of healthcare for the management of the most common mental health problems found in the general population —including depression— even in economically developed countries, and has proposed expanding and improving capacities to address this issue (WHO, 2001, 2008). In fact, most individuals with depression are handled either solely in primary care or in primary care combined with other services (Aragonès et al., 2004). However, difficulties have been described in the management of depression in primary care, particularly with regard to ensuring that treatments are adhered to, proper patient follow-up and the continuity of care (Fernández et al., 2010; Pinto-Meza et al., 2008).

There is evidence that collaborative care programmes designed to improve the management of depression based on the chronic

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care model are effective in improving clinical care and in obtaining better outcomes (Thota et al., 2012). The core elements of these interventions consist of the systematic use of evidence-based treatments, promoting adherence to treatment plans, proactive monitoring of patients to closely track progression, and adjusting treatment in accordance with the clinical status of the patient at all times. These programmes usually have case managers, a role often filled by primary care nurses, and establish mechanisms for cooperation and coordination between primary care and psychiatry (Katon and Seeling, 2008). We recently published data on the clinical efficacy of a programme of this nature designed to improve the management of depression in primary care in Spain. The programme resulted in improved evolution of depressive symptoms (effect size: 0.35 at 6 months and 0.23 at 12 months), better response rates to treatment, and higher remission rates (66.9% vs. 51.5%, and 48.8% vs. 35.4% at 12 months) (Aragonès et al., 2012).

Implementing a care model for the management of depression depends not only on its clinical efficacy, but also on the additional costs associated with its execution. A recent systematic review concluded that, in general, these models of collaborative care for managing depressive disorders provide a good return on investment (Jacob et al., 2012). However, most of the studies analysed were from the United States and the results obtained cannot easily be extrapolated to other health systems (i.e., to European health systems) (Jacob et al., 2012; Gilbody et al., 2006).

Our objective is to evaluate the cost-effectiveness and the cost-utility ratios of a collaborative care programme for the management of depression in primary care compared to the usual care in the Spanish healthcare system.

2. Methods

2.1. Design

This is a bottom-up cost-effectiveness analysis of a collaborative care programme for depression in primary care following a randomized controlled trial with primary care centres participating in two alternative arms: (a) the intervention arm (a new programme for depression) and (b) the control arm (usual care).

The Research Ethics Committee of the Jordi Gol Primary Care Research Institute (IDIAP) approved the study protocol in Barcelona, on 29 March 2006 (ref: P06/16). All participants provided written informed consent. This study is registered as International Standard Randomized Controlled Trial number ISRCTN16384353. A more detailed description of the study's design and procedures has already been published (Aragonès et al., 2012, 2007).

2.2. Randomization

The centres agreed to participate before the random allocation. The participating centres were matched according to their characteristics: number of doctors, urban/rural location and the availability of a psychiatrist in the centre (some centres have mental health specialists available part time). Then, the centres in each pair were allocated to the intervention or control arm by a blinded person not involved in the study by means of a random sequence of numbers.

2.3. Settings and patients

The study was conducted in 20 public primary care centres in the province of Tarragona, Catalonia, Spain. In Spain primary care centres provide universal care to nearly 100% of the population in their catchment area and are coordinated with specialised mental health care and with hospital care. All approached centres agreed to participate in the study. The family physicians selected patients to take part in the study from among those who attended their surgery and were clinically diagnosed as depressed. They had to verify that the depressive episode complied with the diagnostic criteria (DSM-IV) for major depression using the Patient Health Questionnaire (PHQ-9) checklist. The inclusion criteria for patients were as follows: age of at least 18; the diagnosis of a major depressive episode (DSM-IV) with a score of >14 on the PHQ-9 (moderate to severe depression), or a score of 10–14 (mild depression) which had persisted for more than a month; and abstention from antidepressant medication for at least 3 months. Patients with physical, mental or language limitations, a concurrent illness that would impede understanding of or participation in study assessments, psychotic or bipolar disorder, alcohol or drug dependence, or who were pregnant or breastfeeding were excluded from the study.

2.4. Intervention

INDI (Interventions for Depression Improvement) is a multicomponent programme based on the chronic care model (Bodenheimer et al., 2002) adapted to primary care settings within the Spanish public health system. It is of a training-based, organizational, clinical, and psycho-educational nature and aims to look at how the management of depression is organized within the primary care team and how the skills of health professionals can be improved in this area. One of its noteworthy features in terms of costs is that the intervention model is based on the optimization of available resources rather than the acquisition of additional resources. Moreover, the intervention model did not require more professionals than were already available at the primary care centres. The programme has been described in detail elsewhere (Aragonès et al., 2007, 2008) and an overview of the programme can be found in the online Appendix A1.

2.5. Usual care

In the control arm centres, patients with depression were attended using standard criteria and all available resources considered appropriate, including drug treatments, referrals to psychiatry, and recommendations for the use of private medical services.

2.6. Measurements and masking

The results were monitored using standardized telephone interviews conducted by a qualified independent survey taker (a psychologist). The interviewer did not know which study group the patients interviewed belonged to (blind). Follow-up interviews were conducted at 0 (base), 3, 6 and 12 months. Medication consumption data and information about work leave due to depression were obtained directly from patients' electronic medical records and pharmacy electronic billing databases.

2.7. Measurement of costs

Costs were estimated from the health system perspective, including direct intervention costs and healthcare costs related to depression care, and from the societal perspective counting direct costs plus costs for loss of productivity.

2.7.1. Direct costs

We have followed a conservative approach from a health provider and planner perspective. In order to do so, we took into account the previous analysis of the cost of depression in Catalonia