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REVIEW ARTICLE

Development and impact of computerised decision support systems for clinical management of depression: A systematic review[☆]



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Abstract One of the proposals for improving clinical practice is to introduce computerised decision support systems (CDSS) and integrate these with electronic medical records. Accordingly, this study sought to systematically review evidence on the effectiveness of CDSS in the management of depression. A search was performed in Medline, EMBASE and PsycInfo, in order to do this. The quality of quantitative studies was assessed using the SIGN method, and qualitative studies using the CASPe checklist. Seven studies were identified (3 randomised clinical trials, 3 non-randomised trials, and one qualitative study). The CDSS assessed incorporated content drawn from guidelines and other evidence-based products. In general, the CDSS had a positive impact on different aspects, such as the screening and diagnosis, treatment, improvement in depressive symptoms and quality of life, and referral of patients. The use of CDSS could thus serve to optimise care of depression in various scenarios by providing recommendations based on the best evidence available and facilitating decision-making in clinical practice.

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PALABRAS CLAVE

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Desarrollo e impacto de los sistemas informatizados de apoyo a las decisiones en el manejo clínico de la depresión: revisión sistemática

Resumen Una de las propuestas para conseguir mejorar la práctica clínica es la incorporación de sistemas informatizados de apoyo a las decisiones (SADC) y su integración con los registros clínicos electrónicos. El objetivo de este trabajo es revisar de forma sistemática la evidencia sobre la eficacia de los SADC en el manejo de la depresión. Para ello se realizó una búsqueda bibliográfica en Medline, EMBASE y PsycInfo. La calidad de los estudios cuantitativos se evaluó mediante el método SIGN y los estudios cualitativos mediante el *checklist* de CASPe. Se identificaron 7 estudios (3 ensayos clínicos aleatorizados, 3 ensayos no aleatorizados y un estudio cualitativo). Los SADC evaluados incorporaron contenidos derivados de guías u otros productos basados en la evidencia. En líneas generales, los SADC mostraron un impacto positivo sobre diferentes aspectos como el cribado y diagnóstico, tratamiento, mejora de síntomas depresivos y calidad de vida y derivación de pacientes a asistencia especializada. El empleo de SADC podría optimizar la atención de la depresión en diversos escenarios mediante la provisión de recomendaciones basadas en la mejor evidencia disponible y la facilitación de la toma de decisiones de los profesionales en la práctica clínica.

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Introduction

Depression is one of the most frequent mental disorders and one of the main global causes of disability.^{1,2} Despite advances on the approach, it is still very much associated to suicidal behaviour,³ a tendency towards recurrence and chronicity⁴ and, in some cases, the lack of response to different treatments.⁵ As regards care, there is evidence of an unsupported variability in the diagnosis and treatment, both by defect^{6–10} and excess.^{11,12}

Clinical practice guidelines (CPG) may play an important role in the improvement of the those aspects, although its implementation entails many obstacles.^{13,14} One of the proposals to overcome these barriers is to include it in the workflow^{15,16} and to integrate it with electronic clinical records¹⁷ through the development of clinical decision support systems (CDSS), defined as “tools designed for the support of clinical decisions, where recommendations are made according to the characteristics of the patients”.¹⁸

Although some studies have shown that CDSS may contribute to improve the interaction of scientific evidence with the patients’ information, the results on its introduction into clinical practice are currently limited and at the time being, it is impossible to draw a final conclusion on aspects such as the cost-effectiveness, workload or efficiency of these systems.^{18–23}

The purpose of this article is to review the scientific evidence available on the efficacy of CDSS in the clinical management of depression. The intention was to answer 3 questions: (1) What is the efficacy/effectiveness of CDSS in the diagnosis and management of depression?; (2) What is the acceptability and satisfaction of professionals and patients with these systems? and (3) What are the characteristics of CDSS used which may be associated to an improvement in health processes or results?

Methodology

This systematic review has been carried out as part of a broader project to update the CPG on the management of major depression in adults²⁴ and follows the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).²⁵

Search strategy

A preliminary search of systematic reviews was carried out. The review prepared by the Agency for Healthcare Research and Quality (AHRQ)¹⁸ was chosen because it was the most recent and the one with the highest quality, and its bibliography search was updated from January 2011 to February 2014. For such purposes, its search strategy was replicated on general databases (Medline [PubMed] and EMBASE [OvidSP]) and specialised data bases (PsycInfo [OvidSP]). The search strategy combined terms related to the type of studies (case-control studies, cohort studies, clinical trial, multi-centre study, clinical practice guideline, validation studies, meta-analysis), intervention (clinical decision support systems, computer-assisted therapy, reminder systems, medical order entry systems, provider order entry, physician order entry) and disorder (depression, depressive disorder, major depressive disorder, mood disorders). The bibliography of all selected studies was also reviewed.

Inclusion and exclusion criteria

Studies where any electronic system specifically designed for the purposes of supporting the decision making for the clinical management of depression were included (at a preventive, diagnosis or therapeutic level); the specific characteristics of a patient were used to generate a certain indication for professionals; and both the

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