



Determining Key Features of Effective Depression Interventions

EXECUTIVE SUMMARY

March 2009

Prepared for:

Department of Veterans Affairs
Veterans Health Administration
Health Services Research
& Development Service
Washington, DC 20420

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EVIDENCE SYNTHESIS FOR DETERMINING KEY FEATURES OF EFFECTIVE DEPRESSION INTERVENTIONS

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BACKGROUND

Current clinical guidelines for depression address depression treatment for patients detected in primary care (Agency for Health Care Policy and Research 1993; Schulberg, Katon et al. 1998; Agency for Healthcare Policy and Research Depression Guideline Panel 2000); VA/DOD depression guidelines (<http://vaww.oqp.med.va.gov>); and NICE guidelines (NICE guidelines <http://www.nice.org.uk/Guidance/CG23>) Research to date indicates that, under usual care conditions, less than half of primary care patients found to have major depression complete minimally adequate medications or psychotherapy (Wells, 2000; Charbonneau, 2003). A variety of organizational changes aimed at improving care for depression in primary care have been tested. Yet evidence-based guidance for healthcare organizations and their primary care practices about which organizational changes are necessary for achieving improved depression outcomes is lacking. The purpose of this review is to establish a basis for organizational guidelines or best practices for achieving improved depression care.

The collaborative care model for depression has been extensively studied, and found to be both effective and cost-effective in prior meta-analysis (Gilbody, Bower et al. 2006; Gilbody, Bower et al. 2006). Collaborative care models are organizational interventions designed to remedy known deficits in current depression care (Hepner, Rowe et al. 2007). These multifaceted models are loosely defined as involving collaboration between providers from different specialties to provide appropriate, timely depression care (Craven, 2002) or as involving two of three types of professionals (a case manager, a primary care clinician, and a mental health specialist) (Gilbody, 2006) working collaboratively within primary care. Thus, while all applications of this model are similar in focusing on supporting effective management of primary care patients detected outside of a mental health specialty setting, the specific features of the model vary from study to study. These variations make it difficult for care settings to know what features of the models tested and found to be effective in randomized trials of collaborative care are essential for achieving the expected effects.

Collaborative care definitions like these have been directed primarily at staffing (e.g., the presence of case manager or mental health specialist). Current theories of chronic illness care, however, postulate that key additional organizational changes are required to achieve consistent, sustainable improvement (Institute of Medicine 2001) (Bodenheimer, 2002). When the multiple facets of collaborative care models are considered, most can be considered specific applications of the general, across-disease chronic illness care model (Wagner, Glasgow et al. 2001). This review focuses on high quality depression care randomized trials that involved at least one change in the organization of care as described in the chronic illness care model (Williams, Gerrity et al. 2007).

Our main research question was whether there are specific design features of collaborative care *interventions* that are consistently associated with greater impact on depression symptoms compared to a usual care control group. We also aimed to explore additional outcomes including patient satisfaction and functioning. In addition, we asked whether there were specific design features of randomized trial evaluations of collaborative care that were associated with consistently greater effects. Secondly, we aimed to assess whether any patient characteristics, such as comorbidities, were associated with differential collaborative care effects, and the degree to which model effects persisted over time. We investigated these goals based on the following research questions.

- 1) **Primary Research Question: What is the core set of intervention features that characterize collaborative care interventions, and which additional features are most linked to enhanced outcome effects?**
- 2) *Secondary Research Question: Are there specific evaluation features among randomized trials of collaborative care that are associated with effect size differences, independently of intervention features?*
- 3) *Secondary Research Question: To what extent is collaborative care more effective than usual care for decreasing depressive symptoms among patients with comorbid mental health conditions (PTSD, dementia, anxiety, dysthymia, substance abuse) or medical conditions?*

METHODS

We used a set of articles identified and preliminarily reviewed as part of an earlier, non-quantitative literature review on depression care models (Williams, Gerrity et al. 2007) to carry out quantitative meta-regression analysis of collaborative care features. Studies were high quality randomized trials of depression collaborative care interventions compared to usual care that incorporated at least two features of the chronic illness care model. At least one of these features had to directly support patients in completing depression treatment. We did not review studies that only sought to change primary care clinician behavior (e.g., using reminders), without an additional patient-directed component, such as care management. We contacted authors extensively to identify, clarify, or verify study variables such as chronic illness care features or patient population characteristics.

We began our analyses by assessing correlations between features. For study outcomes, we evaluated the *effect size* across studies for changes in depression symptoms, and *relative risk* across studies for changes in rates of resolution of depression. For these analyses we used study effect sizes comparing intervention to usual care arms as the unit of analysis. The effect size analyses treated short (six weeks to four months), medium (five to eight months), and long (nine to twelve months) outcomes separately. We also measured *intervention impact* (high, medium, low and little or none) for each study based on reviewer ratings of de-identified sets of study outcomes, including adherence, patient satisfaction, and functioning. We eliminated variables with inadequate distributions for meaningful quantitative analysis, using a rule of thumb of at least three studies per variable category. We carried out univariate and multivariate regression to

determine relationships between intervention and evaluation features and effectiveness. .

Finally, we conducted cross-case qualitative analysis (Miles and Huberman 1994) of intervention and evaluation features, including comorbidities, against intervention impact.

RESULTS

Of 1464 articles identified, reviewers deemed 138 as potentially relevant. From this group, we identified 28 high quality randomized controlled trials that met inclusion criteria for collaborative depression care based on the chronic illness care model.

Overall Impact Effectiveness and Impact

Overall, the experimental groups in selected studies showed improvement compared to usual care. Twenty of 28 interventions improved depression outcomes over 3–12 months (an 18.4% median absolute increase in patients with 50% improvement in symptoms; range, 8.3–46%). Because of heterogeneity in outcome time frames and measures across studies, we could not analyze effect sizes for all 28 studies together. Our intervention impact measure enabled us to cross-check our results for all 28 studies as a group. The impact measure was significantly associated with both depression symptom and resolution results as measured using effect size and relative risk.

Regression Results

We found that not all studies could provide suitable information for each effectiveness analysis. 21 of 28 studies were suitable for assessing short-term; 18 for assessing intermediate-term; and 10 for assessing long-term effects on depression symptoms. 18 were suitable for assessing relative risk for depression resolution. We found that studies were too heterogeneous in their assessments of psychiatric comorbidities and demographics to evaluate these variables quantitatively. Too few studies reported on medical comorbidities to evaluate these either qualitatively or quantitatively. We identified some intervention features as too correlated for regression analysis. Initial univariate regression results evaluating the relationship between intervention features and effects on depression symptoms and resolution showed active patient self-management support as the single statistically significant intervention characteristic associated with improved depression symptoms and depression resolution. Other individual collaborative care intervention features among the five we evaluated were not significantly related to outcomes. We found no individual intervention feature associated with longer term effects on depression symptoms. Among evaluation features, enrolling patients for the evaluation through screening was significantly associated with more positive effects on outcomes.

Cross-Case Analysis Results

With between 10 and 21 studies in each regression analysis against study effect size, we did not have the sample size to fully explore potential interactions and associations between intervention features quantitatively. In addition, some variables characterized too large or too small a proportion of the studies to provide adequate variation for valid regression analysis. To understand our initial regression results, we therefore carried out extensive cross-case analyses on our full sample of 28 studies looking at combinations of characteristics versus our impact

measure.

Our cross-case analyses enabled us to evaluate features that occurred together in large proportions of higher impact studies (the 20 studies with high, medium or low impact versus the 8 with little or no impact). We considered features present in 80% or more of the higher impact studies to be core features of effective collaborative care models. Our analyses identified six collaborative care model *intervention* core features. These were:

- Primary care clinicians actively involved in patient management
- Mental health specialists actively involved in patient management
- Care managers assessed patient symptoms at baseline with a standardized scale
- Care managers assessed patient symptoms at follow-up with a standardized scale
- Care managers assessed treatment adherence at follow-up
- Collaborative care intervention included at least 16 weeks of active patient follow-up

We also confirmed our quantitative results regarding patient self-management support. Higher impact studies tended to include active patient self-management support by a care manager or mental health professional, versus passive self-management support such as providing educational brochures.

We found no evaluation design features other than those related to psychiatric comorbidities (excluding bipolar disorder and psychosis) that characterized more than 80% of high impact studies. 77% of high impact studies excluded patients based on substance abuse. Nearly 80% of all 28 studies excluded psychosis and bipolar disorder and nearly all included anxiety. 20% of studies did not mention PTSD; only three of the remaining studies excluded PTSD patients.

CONCLUSIONS

Guidelines for sites intending to implement collaborative care for depression should identify primary care and mental health specialty clinician involvement; care manager assessment of symptoms at baseline and follow-up using a structured instrument; care manager follow-up assessment of treatment adherence; and active follow-up for at least 16 weeks as core features of current evidence-based models. Guidelines should further recommend inclusion of active self-management support, such as elements of patient activation, cognitive behavioral or problem-solving therapy, or motivational techniques, for additional improvement in outcomes. No evidence is available to support using collaborative care for depression with comorbid psychosis or bipolar disorder, and few studies addressed substance abuse. Future research testing collaborative care models for depression should assess effects of medical and psychiatric comorbidities, especially substance abuse.