Comparative effectiveness of collaborative chronic care models for mental health conditions across primary, specialty, and behavioral health care settings: systematic review and meta-analysis

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CRD summary
This review concluded that collaborative chronic care models could improve mental and physical outcomes, for patients with mental disorders, in a wide variety of settings. Uncertain trial quality and high variation between trials in some analyses, imply that the reliability and generalisability of the authors' conclusions are uncertain.

Authors' objectives
To evaluate the effectiveness of collaborative chronic care models, for mental health conditions, across disorders and treatment settings.

Searching
MEDLINE, PsycINFO, EMBASE, Scopus, The Cochrane Library, and ClinicalTrials.gov were searched to August 2011; search terms were reported. The bibliographies of relevant studies were searched and relevant investigators were contacted to identify other studies.

Study selection
Randomised controlled trials (RCTs) comparing collaborative chronic care models, with other care models or with treatment as usual were eligible for inclusion, if they reported the effects on mental health symptoms or mental quality of life. Participants could be formally diagnosed mental disorders or not, and any setting was eligible. Chronic care models had to have at least three of the six Improving Chronic Illness Care Initiative components, which were patient self-management support, delivery system redesign, use of clinical information systems, provider decision support, health care organisation support, and linkage to community resources (full details were reported). Trials that compared two chronic care models or where the intervention included a mobile treatment team were excluded, as were trials of other comprehensive rehabilitation programmes. Trials of patients with schizophrenia were excluded. The relevant outcomes included social role function, and physical and overall quality of life.

All the included trials had parallel groups, and most took place in mainland USA. The mean number of chronic care model components in the interventions was 3.9 (SD 0.6). The mean treatment length was 13.7 months (range three to 36 months); follow-up was generally at the end of treatment; eight trials investigated the residual effects, months or years after treatment. Controls were most commonly usual care (58% of trials). Many trials (68%) were in primary care settings, and 47% of trials were in non-integrated systems. The mean age of participants was 49.4 years (range 17.2 to 77.6); three trials were of patients over 60 years. The mean percentage of women was 63 (range 3.5 to 100); four trials were of minority groups. Forty trials were of depression; four were of bipolar disorder; three were of anxiety; and 10 were of multiple or other disorders, including combined behavioural and medical disorders or risks.

One or two reviewers screened articles for relevance. The number of reviewers who selected full papers was not reported.

Assessment of study quality
A formal assessment of trial quality was not performed.

Data extraction
Only one measure was extracted per domain and continuous data were extracted in preference to categorical data. Mean differences, with 95% confidence intervals, were extracted. The data were extracted for the longest time point. Subsets of data were not extracted where the data for a larger group of patients was present.

The authors implied that two or more independent reviewers extracted the data, with differences resolved by consensus.
Methods of synthesis
The results were pooled to give standardised mean differences, with 95% confidence intervals, using Cohen's d and a random-effects model (DerSimonian and Laird). Publication bias was assessed using the Begg and Egger tests, by calculating Spearman's rank correlation coefficient between-study effect sizes and sample sizes, and visually in funnel plots. A standardised assessment of all trial results was made by categorising the them as favouring the model, favouring control, or with no significant difference, and then summarising the effects.

Results of the review
Fifty-seven RCTs were identified, with 22,037 patients (range 55 to 2,796); 30 trials were included in meta-analyses. Most trials were randomised at the patient level.

Chronic care models, versus controls, significantly reduced depression (SMD 0.31, 95% CI 0.16 to 0.77; I²=79%; 14 RCTs), and significantly improved mental quality of life (SMD 0.20, 95% CI 0.04 to 0.36; I²=40%; six RCTs), physical quality of life (SMD 0.33, 95% CI 0.17 to 0.49; I²=31%; six RCTs), and social role function (SMD 0.23, 95% CI 0.02 to 0.44; I²=56%; three RCTs).

The effect was not significant for overall quality of life (SMD 0.20, 95% CI -0.02 to 0.42; I²=42%; two RCTs), and global mental health (SMD 0.09, 95% CI -0.17 to 0.35; I²=0; two RCTs).

The results were reported for the standardised assessment. There was no evidence of publication bias.

Cost information
There was no significant difference between chronic care models and controls, for economic outcomes (I²=16.5%; 13 RCTs).

Authors' conclusions
Chronic care models could improve mental and physical outcomes, for patients with mental disorders, in a wide variety of settings.

CRD commentary
The review addressed a well-defined question in terms of study design, participants, interventions, and outcomes. The search was appropriate and included unpublished trials. It was not clear whether efforts were made to reduce error and bias during study selection, as they were apparently made during data extraction. A formal assessment of trial quality was not made, but only RCTs were included. There were many trials and many details were reported, but their relative quality remains unclear.

An appropriate meta-analysis was performed for the main outcomes, but not for the subgroup analyses by mental disorder and care setting, for which the standardised assessment was used. There was high heterogeneity for some of the pooled outcomes, and this could have been investigated using separate meta-analyses for each mental health symptom group. Since most trials were of depression in primary care, it was unclear whether these results could be applied to other settings and patients.

Due to uncertain trial quality and high variation between trials in some analyses, the reliability of the authors' conclusions is uncertain.

Implications of the review for practice and research
Practice: The authors suggested that chronic care models could be useful beyond the primary care setting and depression, and that they could be implemented by telephone.

Research: The authors identified a need for research into chronic care models, including: their costs and effects in settings other than primary care; the mediators, moderators, and mechanism of their effects; the components that are necessary; and the best time frame. Research should focus on identifying those populations that will benefit from the models, and whether these models have similar effects in less integrated care settings.

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