Review: evidence on the effectiveness of interventions to assist patients' adherence to prescribed medications is limited

McDonald HP, Garg AX, Haynes RB. *Interventions to enhance patient adherence to medication prescriptions: scientific review.* JAMA 2002;288:2868–79.

QUESTION: In patients with medical or mental disorders (but not addictions), are interventions designed to assist patients' adherence to self administered prescribed medications effective?

Data sources

Studies were identified by searching Medline, CINAHL, PsycLIT, SOCIOFILE, IPA, EMBASE/Excerpta Medica, and the Cochrane Library (all from 1967 to August 2001). Bibliographies of relevant articles were reviewed, and authors of included studies were asked to suggest other published or unpublished trials that had been missed.

Study selection

Studies were selected if they were unconfounded randomised controlled trials (RCTs) of an intervention to improve adherence with self administered prescribed medications for a medical or psychiatric disorder; measured both medication adherence and treatment outcome, had $\geq 80\%$ follow up of each group studied, and duration of follow up for studies with positive initial findings was ≥ 6 months.

Data extraction

Data were extracted on sample size, details of intervention strategies for adherence, details of treatment for the underlying medical or mental disorder, study quality, and outcomes (adherence rates and patient outcomes).

Main results

33 RCTs met the selection criteria. These trials evaluated 39 unconfounded interventions. Adherence interventions were tested alone and in combination, with common themes such as more instruction for patients (oral and written material and programmed learning); increased communication and counselling (eg, compliance therapy and family intervention); increased convenience of care (eg, provision at the worksite and simplified dosing); involving patients more in their care through self monitoring of their blood pressure, seizures, or respiratory function; reminders (eg, special reminder pill packaging); and reinforcement or rewards for both improved adherence and treatment response (eg, reduced frequency of visits and partial payment for blood pressure monitoring equipment). Conditions studied included hypertension (8 RCTs); schizophrenia or acute psychosis (8 RCTs); asthma, chronic obstructive pulmonary disease, or both (5 RCTs); depression (2 RCTs); human immunodeficiency virus (2 RCTs); diabetes (2 RCTs); rheumatoid arthritis (1 RCT); epilepsy (1 RCT); and hyperlipidaemia and cardiovascular disease (1 RCT). 3 RCTs examined treatment compliance in short term conditions.

49% (19/39) of interventions tested were associated with statistically significant increases in medication adherence, and 44% (17/39) reported statistically significant improvement in treatment outcome. Adherence interventions that were effective were mainly complex, including combinations of more convenient care, information, counselling, reminders, self monitoring, reinforcement, family therapy, and other forms of additional supervision or attention. Simple interventions that received some support included simplified dosing regimens for patients taking antihypertensive and lipid lowering medications and counselling about the importance of full adherence to antibiotic regimens reinforced by written instructions. Effective interventions were not distinguished from ineffective interventions in terms of number or type of components (behavioural, cognitive, or social).

Conclusion

In patients with medical or mental disorders (but not addictions), evidence for the effectiveness of interventions designed to assist patients' adherence to prescribed medications shows that some interventions may be effective, but no consistent characteristics of effective interventions were identified.

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For correspondence: Dr R B Haynes, Department of Clinical Epidemiology and Biostatistics, McMaster University Medical Centre, Hamilton, Ontario, Canada. bhaynes@mcmaster.ca

A modified version of this abstract appears in APC Journal Club.

COMMENTARY

The review by McDonald *et al* used rigorous standards and in doing so shows us the complexity and challenges inherent in trying to optimise adherence and clinical outcomes in patients who administer their own medications. What is striking is the relative lack of high quality, adequately powered studies in this area, resulting in a lack of evidence for several adherence interventions rather than evidence of no effect. Only unconfounded RCTs with follow up $\geq 80\%$ were eligible for inclusion in this review, and there may be effective interventions other than those identified. Some potentially important interventions such as simplified dosing regimens and dose dispensing units, which (to quote the authors) "may work well," were "not tested well." Many of the studies identified in the review had small sample sizes, resulting in a lack of power to exclude clinically important differences in outcome.

This review provides some important lessons to inform clinical practice. Firstly, there is the confirmation that many patients do not adhere to their medication prescriptions even when complex approaches are used to help them do so, and clinicians should keep this in mind when evaluating patient responses to medication plans. Secondly, increasing adherence may require multifaceted, complex interventions (the adherence intervention packages reviewed comprised an average of 3 components). An easy answer or a single approach that can assure adherence does not exist. However, the review highlights a number of potentially effective combinations of approaches including more convenient care, information, counselling, reminders, and self monitoring. Finally, increased adherence does not always improve treatment outcomes.

Michael Carter, RN, DNSc, FAAN, APRN-BC
University Distinguished Professor of Nursing
University of Tennessee Health Science Center
Memphis, Tennessee, USA