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REVIEW

Complex interventions reduce use of urgent healthcare in adults with asthma: Systematic review with meta-regression



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KEYWORDS

Asthma;
Long-term conditions;
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Summary

Introduction: Asthma accounts for considerable healthcare expenditure, a large proportion of which is attributable to use of expensive urgent healthcare. This review examines the characteristics of complex interventions that reduce urgent healthcare use in adults with asthma.

Method: Electronic searches of MEDLINE, EMBASE, PSYCINFO, CINAHL, the British Nursing Library and the Cochrane library, from inception to January 2013 were conducted. Studies were eligible for inclusion if they: i) included adults with asthma ii) assessed the efficacy of a complex intervention using randomised controlled trial design, and iii) included a measure of urgent healthcare utilisation at follow-up. Data on participants recruited, methods, characteristics of complex interventions and the effects of the intervention on urgent healthcare use were extracted.

Results: 33 independent studies were identified resulting in 39 comparisons altogether. Pooled effects indicated that interventions were associated with a reduction in urgent healthcare use

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(OR = 0.79, 95% CI = 0.67, 0.94). When study effects were grouped according to the components of the interventions used, significant effects were seen for interventions that included general education (OR = 0.77, 95% CI = 0.64, 0.91), skills training (OR = 0.64, 95% CI = 0.48, 0.86) and relapse prevention (OR = 0.75, 95% CI = 0.57, 0.98). In multivariate meta-regression analysis, only skills training remained significant.

Conclusions: Complex interventions reduced the use of urgent healthcare in adults with asthma by 21%. Those complex interventions including skills training, education and relapse prevention may be particularly effective in reducing the use of urgent healthcare in adults with asthma.

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Contents

Background	148
Method	149
Data extraction	149
Risk of bias in individual studies	149
Statistical analysis	150
Results	151
Details of studies included	151
Details of patient populations	151
Details of the intervention	151
Publication bias	151
Discussion	153
Author contributions	155
Disclosure of potential conflicts of interest, activities, relationships and affiliations	155
Sources of funding and support	155
Role of the sponsor	155
Disclaimer	155
Supplementary data	155
References	155

Background

There are over 300 million people living with asthma worldwide and this is expected to increase to 400 million by 2025 [1]. Asthma causes approximately 1 in every 250 deaths and is associated with poor quality of life and increased healthcare use [1–3].

Current UK government policy recommends that the use of urgent care should be reduced in people with long term conditions by introducing alternative care pathways in primary care settings [4]. The cost of healthcare use in asthma is significantly increased for patients who have poor asthma control [5,6]. Therefore, achieving good symptom control in order to reduce exacerbations is currently the main goal for asthma therapy [7].

Depression and anxiety are common comorbidities in adults with asthma [8] and are known to be significantly related to poor asthma control which is independent of asthma severity [9]. In a sample of 127 adults with asthma who also had anxiety about their physical symptoms, anxiety was a significant predictor of both asthma control and asthma related health-related quality of life [10]. Depression and anxiety in adults with asthma are also associated

with decreased adherence to medication [11], increased healthcare use [12], and mortality [13].

Results from reviews of individual interventions are mixed in their effectiveness in reducing the use of urgent healthcare in adults with asthma. Yorke and colleagues (2007) [14] conducted a systematic review of psychological interventions to improve health and behavioural outcomes for adults with asthma. They found that cognitive behavioural interventions improved quality of life and that relaxation therapy was successful in reducing the use of ‘as needed’ medication. The observed benefits to health outcomes were mixed however; two studies included healthcare use (hospitalisation, emergency room visits and GP visits) as an outcome, both of which reported no significant reduction in use of healthcare [15,16]. Tapp and colleagues (2007) [17] conducted a systematic review which shows that educational interventions can significantly reduce future hospital admissions for adults who attend the emergency department with acute asthma exacerbations. However, there was no significant effect on emergency department attendance found between the intervention and control groups. A recent review of complex interventions (interventions which involve multiple components) showed that they were successful in reducing urgent

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