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Does anxiety predict the use of urgent care by people with long term conditions? A systematic review with meta-analysis

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ABSTRACT

Objective: The role of anxiety in the use of urgent care in people with long term conditions is not fully understood. A systematic review was conducted with meta-analysis to examine the relationship between anxiety and future use of urgent healthcare among individuals with one of four long term conditions: diabetes; coronary heart disease, chronic obstructive pulmonary disease and asthma.

Methods: Electronic searches of MEDLINE, EMBASE, PSYCINFO, CINAHL, the British Nursing Library and the Cochrane Library were conducted These searches were supplemented by hand-searching bibliographies, citation tracing eligible studies and asking experts within the field about relevant studies. Studies were eligible for inclusion if they: a) used a standardised measure of anxiety, b) used prospective cohort design, c) included adult patients diagnosed with coronary heart disease (CHD), asthma, diabetes or chronic obstructive pulmonary disease (COPD), d) assessed urgent healthcare use prospectively. Data regarding participants, methodology, and association between anxiety and urgent care use was extracted from studies eligible for inclusion. Odds ratios were calculated for each study and pooled using random effects models.

Results: 8 independent studies were identified for inclusion in the meta-analysis, with a total of 28,823 individual patients. Pooled effects indicate that anxiety is not associated with an increase in the use of urgent care (OR = 1.078, p = 0.476), regardless of the type of service, or type of medical condition.

Conclusions: Anxiety is not associated with increased use of urgent care. This finding is in contrast to similar studies which have investigated the role of depression as a risk factor for use of urgent care.

Introduction

Long term conditions (LTCs) are common and are associated with high healthcare costs. Globally, 50–80% of all healthcare spending is related to LTCs [1] with approximately 78% of the entire healthcare budget of the United States of America spent on providing healthcare for people with LTCs [2] and 69% of the healthcare budget in England allocated to the care of individuals with LTCs [3]. A disproportionate amount of healthcare costs are spent on urgent healthcare, some of which may be avoidable [4–6]. In the UK, there has been an increase in the use of urgent care over the last decade with an ever increasing number of patients presenting to Emergency Departments [7–9]. The reason for this is likely to be multi-factorial and to include factors related to organisational issues around the delivery of healthcare, disease severity, an ageing population with complex disease co-morbidity, and a variety of other, as of yet, unidentified factors.

Depression and anxiety and common co morbidities of LTCs and are associated with negative health outcomes such as: significant role impairment [10,11], increased physical morbidity [12,13] increased mortality [14,15], poorer quality of life [16,17], increased re-admission rates following hospital discharge [18–20], increased healthcare costs [21–23], and loss of work days [24–26]. However, much research has focused on the relationship between depression and LTCs, and less is known about the effect of co-morbid anxiety disorders. Anxiety disorders occur in approximately 18.1%–33% of the general population at any period of time [27,28] and the lifetime prevalence is approximately 28.8% [27]. The prevalence of anxiety symptoms in LTCs is much higher than that in the general population, reaching up to 69% for some conditions [29,30]. Anxiety disorders are associated with significant

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functional impairment and poor disease control in the context of certain LTCs [31,32].

In a recent systematic review, it was shown that depression is associated with an increase in the use of urgent care in people with LTCs by approximately 50% [23]. However, the impact of anxiety on urgent care use remains unclear. Therefore, we have conducted a systematic review of the literature with meta-analysis to clarify the extent to which anxiety predicts urgent care use in people with LTCs.

Method

Four non-communicable, exemplar LTCs were chosen for the purposes of the review: chronic obstructive pulmonary disease (COPD), coronary heart disease (CHD), asthma and diabetes. These four conditions contribute as the leading non-communicable causes of death worldwide, when excluding cancer [33].

The methods and results for this review are reported in line with the PRISMA Guidlelines [34].

Eligibility criteria

The study team included papers which met the following criteria;

1. Included adults (over 18 years of age) with one or more of the following LTCs: diabetes (type 1, type 2 or unspecified), asthma (acute or chronic), COPD (acute or chronic), or CHD (myocardial infarction, stable or unstable angina), presenting results independently to any further LTMCs not included in the review criteria.
2. Prospective cohort study design.
3. Included a standardised measure of anxiety at baseline.
4. Assessed urgent healthcare use prospectively.

Urgent care was defined as any of the following: unscheduled visits to GP, consultant, or specialist nurse; visits to accident and emergency, walk in clinics, or other urgent hospitalizations; as well as costing data for these events.

In order to maximise the number of studies included within the review we did not exclude studies due to the way in which anxiety was assessed provided that patients were assessed using a valid, standardised anxiety measure. We also included all studies which used prospective, standardised measures of urgent care.

Studies were included within the review regardless of date or language of publication, sample size or length of follow up period. Papers presented in non-English languages were translated prior to screening. However, studies only available in conference abstract form, or as of the time of searching, unpublished papers, were not included in the review. This decision was made so as to ensure papers included were of high methodological quality, and typical of other published papers included. See Appendix A for full exclusion and inclusion criteria.

Study selection

Team members with experience of conducting systematic reviews conducted in-team electronic search strategies in MEDLINE, EMBASE, PSYCHINFO, CINAHL, The British Nursing Index (using OVID search interface) and the Cochrane Library, retrieving papers from the inception of each of these databases up until the search date. Search strategies included terms of reference relevant to CHD, COPD, asthma and/or diabetes, as well as terms relevant to healthcare use, and were limited to prospective studies (see Appendix A for detailed accounts of search strategies used). As there was no medical subject heading (MeSH) terms relevant to the use of unscheduled care, electronic searches were conducted for studies relevant to all healthcare utilisation. The subset of studies that collected data on unscheduled care was identified by the research team hand-searching studies of all healthcare utilisation.

Electronic searches were first conducted in 2008 and updated periodically until 2013. Electronic searches were supplemented by hand searches of papers meeting inclusion criteria, and relevant papers were citation searched using the Social Science Citation Index.

Titles and abstracts of papers were screened by one of five researchers (AB, AK, CB, CH, and JJ) in order to identify any studies which potentially met the study inclusion criteria. Full texts of any potentially relevant papers were then screened in full by two researchers independently to assess suitability. These were then discussed in pairs, and any disagreements were resolved through discussion and/or screening by a third researcher.

Authors were contacted for further information where results did not specify the effect of anxiety as an independent factor on the use of urgent healthcare, where healthcare was not specified as urgent or non-urgent, and where data on urgent healthcare use were not presented separately. Fifteen authors were contacted and nine responded within the pre-determined time frame of two weeks. Of the nine authors who responded, six were able to provide us with the requested data (see Appendix A for full information on studies included and excluded after author contact). Fig. 1 displays a summary of the study selection process.

Data extraction

Standardised data extraction sheets developed by study team members and piloted on previous occasions were used to extract data from studies included in the review. Data was extracted from the studies regarding participant characteristics, measure of anxiety used, measure of urgent care use, and the strength of association between anxiety and urgent care (both univariable and multivariable associations were extracted where possible).

Primary data extraction was performed on each included paper individually by two of five researchers (AB, AK, CB, CH, JJ), and compared between two members to ensure consistency in extracted data. Any disagreements were resolved through discussion.

Risk of bias in individual studies

The Quality Assessment Tool for Quantitative Studies was used in order to assess the methodological quality of individual studies [35,36], dependent on whether there was:

a) An absence of selection bias for participants
b) Appropriate study design
c) Adequate control for confounding factors
d) Participants blinding to research question
e) Assessors blinding to participant's anxiety status
f) Valid and reliable data collection methods
g) Appropriate action taken for participant withdrawal
h) Appropriate use of analytical methods (The item of quality assessment relating to the integrity of interventions was excluded from the assessment).

Two researchers independently assessed the quality of studies; with consensus being reached through discussion when any disagreements occurred (the full quality assessment can be found in Table 3).

Statistical analysis

Odds ratios (OR) and 95% confidence intervals (95% CIs) were extracted or calculated for each study where the number of participants using urgent care with and without anxiety was presented alongside the total number of subjects within each group. ORs > 1 indicated that anxiety was associated with an increased use of unscheduled care.

Where study data was presented in alternative formats (e.g. continuous data, p-value comparisons with group sizes, or as correlations), appropriate transformations were conducted using Comprehensive Meta Analysis software.