General Hospital Psychiatry 37 (2015) 399–407

Contents lists available at ScienceDirect

General Hospital Psychiatry

journal homepage: http://www.ghpjournal.com

Systematic review and meta-analysis of the impact of depression on subsequent smoking cessation in patients with chronic respiratory conditions

Shu Ying Ho, R.C.S.I. [a,*], Nora Alnashri, R.C.S.I. [a], Daniela Rohde, M.Sc. [b], Paul Murphy, M.L.I.S. [a], Frank Doyle, Ph.D. [c]

[a] Royal College of Surgeons in Ireland, Dublin 2, Ireland
[b] School of Nursing, Midwifery and Health Systems, University College Dublin, Dublin 4, Ireland
[c] Division of Population Health Sciences (Psychology), Royal College of Surgeons in Ireland, Dublin 2, Ireland

ARTICLE INFO

Article history:
Received 2 November 2014
Revised 3 May 2015
Accepted 4 May 2015

Keywords:
Systematic review
Meta-analysis
Depression
Smoking cessation
Chronic respiratory disease

ABSTRACT

Objective: To systematically review the impact of depression on subsequent smoking cessation in prospective studies of chronic respiratory patients.
Method: A systematic search of electronic databases (MEDLINE, PsycINFO, CINAHL) was conducted to identify prospective studies of chronic respiratory patients that measured depression at baseline and smoking status at follow-up, dating from 1st January 1990 to 21st February 2014. The standardized mean difference (SMD) and 95% confidence interval (CI) for the association between baseline depressive symptoms and subsequent smoking cessation was estimated from available data using random effects meta-analysis.
Results: A total of 1314 citations were retrieved and 197 articles were further evaluated by two reviewers. Seven articles provided sufficient data to estimate the association between depressive symptoms and subsequent smoking cessation. Those with elevated depressive symptoms were significantly less likely to quit smoking at follow-up than those not reporting elevated depressive symptoms (SMD = −.31, 95% CI −.43 to −.19; I^2 = 0%, P = .506).
Conclusions: The association between depression and subsequent smoking was poorly reported or omitted in most studies. However, the available evidence suggests that depression decreases the likelihood that patients with chronic respiratory conditions will quit smoking. Future research is needed to determine how best to manage depression and smoking cessation in this population.

1. Introduction

Smoking is a leading cause of preventable death worldwide and accounts for 6 million deaths annually [1,2]. According to the Centers for Disease Control and Prevention, smoking causes 90% of lung cancer deaths and 80% of deaths from chronic obstructive pulmonary disease (COPD). To combat this problem, respiratory patients are encouraged to quit smoking [1]. According to guidelines, respiratory patients have greater urgency to quit smoking and smoking cessation should be integrated into the management of respiratory conditions such as COPD [5,6]. Smoking cessation is highly cost effective and the single most important intervention for reducing the risk of respiratory diseases such as COPD and lung cancers [7,8] and improving respiratory symptoms [7]. However, up to 15–43% of respiratory patients continue to smoke postdiagnosis, while approximately 20% do not attempt to quit [9]. Therefore, identification of factors that predict smoking continuation and relapse is crucial.

Depression may negatively impact on smoking cessation [1,10,13–16]. Depression is common among patients with chronic respiratory disease [11], with up to 40% of patients reporting elevated depressive symptoms [12,17–19]. In a recent systematic review, Atlantis et al. [12] described that depression was associated with increased risk of mortality in COPD patients, and it is possible that smoking continuation partially mediates this association. However, no systematic review of the effect of depression on subsequent smoking status has been conducted in chronic respiratory patients, and as such, it is unclear whether depression truly impacts on smoking in this population. Such a study may have important implications for the management of such patients. We aimed to fill this gap in the literature.

2. Methods

As this is a systematic review, institutional review board approval was not required.

* Corresponding author. 35 Canon Court, Bride Street, Dublin 8, Ireland. Tel.: +353-83-410-6730.
E-mail address: shuyingho@rcsi.ie (S.Y. Ho).

http://dx.doi.org/10.1016/j.genhosppsych.2015.05.002
0163-8343/

2.1. Search strategy

A systematic literature search, following recommended principles [20], of MEDLINE, Web of Science, PsycINFO and CINAHL was performed on 21st January 2014. Searches involved subject headings and keywords (see Appendix A for example). We included studies dating from 1st January 1990 to 21st February 2014 in the analysis. Additional articles were identified from reference lists of the included articles and we also checked citing articles.

2.2. Study selection and data extraction

We included studies that met the following inclusion criteria: chronic respiratory patients (i.e. COPD, asthma, lung cancer, chronic bronchitis and interstitial lung disease), published in peer-reviewed journals in 1990 or later, English language, prospective design (observational or randomized trials [control groups or full data if controls only data were unavailable]), depression measured at baseline (i.e. diagnostic interview, questionnaire, antidepressant prescription, single-item questions) and measure of smoking (self-report or objective, validated or unvalidated) at follow-up.

Potentially relevant studies relating to depression and smoking cessation in chronic respiratory patients were yielded from multiple electronic databases. Two reviewers completed the first screening of abstracts/titles independently (S.Y.H. and N.A.). Articles were then excluded because their titles and abstracts revealed that they were not relevant or did not fit the eligibility criteria. Studies that were considered eligible for inclusion were retrieved and evaluated in full, and suitability for inclusion was independently determined by S.Y.H. and N.A. Disagreements and queries were managed by consensus or discussions with a third reviewer (F.D.). Extraction of data for each study was based on setting of the study, sample type (i.e. chronic respiratory patients), follow-up duration, depression measures and smoking status. Authors were contacted to provide further information when there were insufficient data (i.e. association between depression and smoking cessation not reported) provided in the published paper.

2.3. Quality assessment

The Crowe Critical Appraisal Tool (CCAT) [21–23] was used to appraise study quality (D.R.), as per a similar review [16]. CCAT scores have exhibited adequate reliability and construct validity and are provided after an objective and subjective appraisal of eight categories of study quality with a range of 0–5 each. The total is then expressed as a percentage. As per a previous review, we considered higher-quality studies to have scores ≥60% [16].

2.4. Statistical analysis

The primary outcome was smoking status at follow-up. A priori, we used a hierarchical system to establish better depression measures:

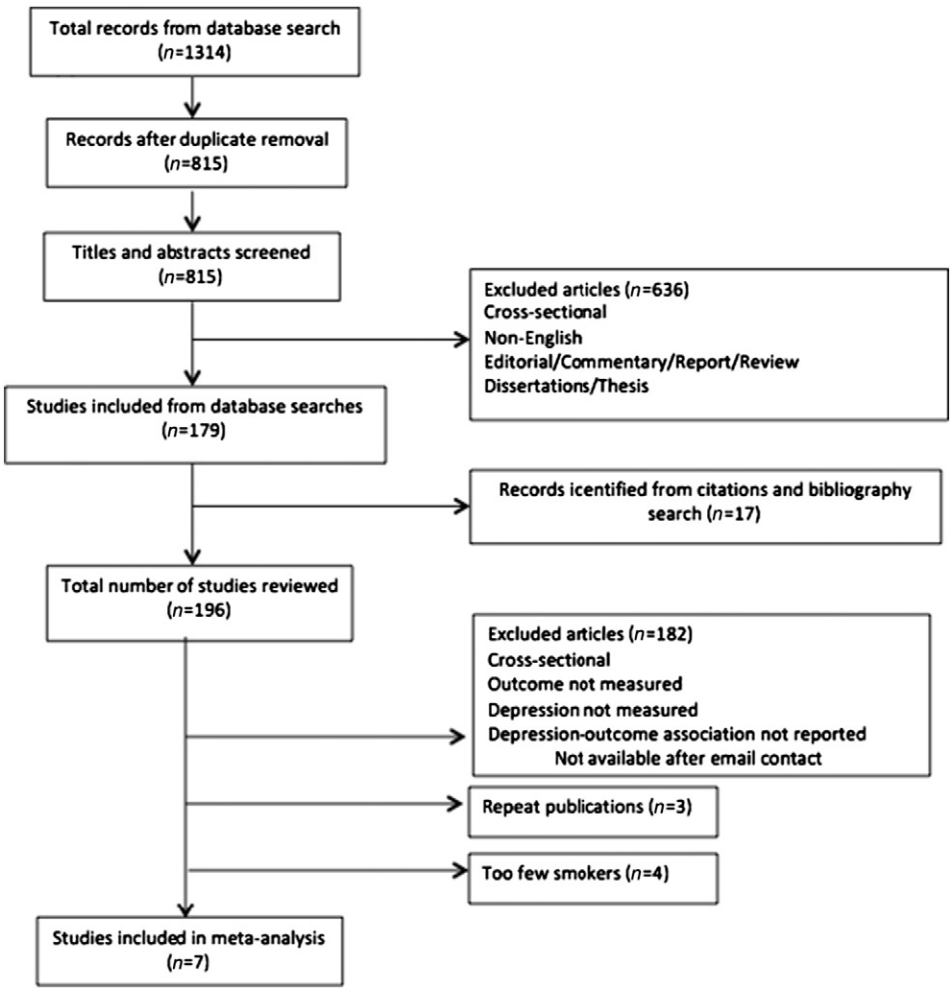

Fig. 1. Flow diagram of selected articles in systematic review.