Smoking cessation interventions in chronic obstructive pulmonary disease and the role of the family: a systematic literature review

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Accepted for publication 22 May 2007

Abstract

Title. Smoking cessation interventions in chronic obstructive pulmonary disease and the role of the family: a systematic literature review

Aim. This paper is a report of a systematic review to assess the effectiveness of family-focused smoking cessation interventions for people with chronic obstructive pulmonary disease and to determine what data on families are documented in studies of smoking cessation interventions.

Background. Chronic obstructive pulmonary disease is a major public health problem and cigarette smoking is the most important factor contributing to its development and progression. However, smoking cessation rates are low and relapse is common. The role of families in smoking cessation efforts has received little attention.

Methods. All studies were included in the review that (i) addressed an evaluation of a psycho-social/educational smoking cessation intervention for people with chronic obstructive pulmonary disease, (ii) addressed some information on the family (i.e. living arrangements, marital status, smoking history of family members, support for quitting) and/or included the family as part of the intervention and (iii) were published between 1990 and 2006. Electronic data sources, existing systematic reviews of smoking cessation interventions and the grey literature were reviewed.

Results. Seven studies were included. Six studies (11 papers) included data on marital status, smoking status of household members, support for quitting and related variables. In two of the studies, the variable on the family was used to analyse smoking cessation outcomes. One additional study met the inclusion criterion of an evaluation of a smoking cessation intervention, which also included a family focus in the intervention.

Conclusion. No conclusions about the effectiveness of a family-focused smoking cessation intervention could be drawn from this review. Further research is needed to determine if a more family-focused intervention, in conjunction with pharmacological and counselling approaches, would lead to improved smoking cessation outcomes.

Keywords: chronic obstructive pulmonary disease, family care, public health nursing, respiratory nursing, smoking cessation, systematic literature review
Introduction

The aim of this paper was to report on a systematic review of the literature on the role of the family or significant others in smoking cessation interventions for people with chronic obstructive pulmonary disease (COPD). We report on the process of searching for studies in which family members/significant others were included in the smoking cessation intervention/programme and the outcomes in smoking cessation achieved. In addition, we report on studies which include some data on families (i.e. smoking practices of household members).

Background

Chronic obstructive pulmonary disease is a major public health problem and an area where generalist/specialist nurses are involved. It is considered to be the fourth leading cause of chronic morbidity and mortality in the United States and is projected to rank fifth by 2020 in disease burden world wide [Global Initiative for Chronic Obstructive Lung Disease (GOLD) (2006)]. In the UK, COPD affects over 900,000 people (British Lung Foundation, 2005) with over 27,000 deaths reported in 2004 (British Thoracic Society 2006). International evidence-based guidelines outlining the goals for managing COPD include the prevention of disease progression, relief of symptoms, improvement of exercise tolerance and health status, prevention and treatment of exacerbations, and reducing mortality (Pauwels et al. 2001). Treatment of COPD is mainly symptomatic with no drugs capable of halting the progression of the disease (Donnelly & Rogers 2003).

Active cigarette smoking is the most important factor contributing to the development and progression of COPD (European Lung White Book 2003, GOLD 2006) and smoking cessation is the most important self-care intervention for patients with COPD. Smoking cessation can reduce symptoms and disease progression (Sherman et al. 2003, Pauwels & Rabe 2004, Rennard 2004) and may confer a survival benefit (Anthonisen et al. 2005) including among patients with very severe disease (Hersch et al. 2004). Ten to 15% of all smokers and up to 26% of heavy smokers develop COPD (Scanlon et al. 2000). Encouraging people to stop smoking is one of the most important components of the management of patients with COPD. The NICE COPD Guideline recommends that all patients regardless of age be offered help to quit smoking at every clinical opportunity (NICE 2004, p. 13).

Chronic obstructive pulmonary disease has a major impact on patients, families and the healthcare system. The annual financial burden of lung diseases in Europe amounts to nearly 102 billion Euros, and COPD contributes to nearly half of these costs. This includes direct as well as indirect costs including lost work days, inpatient and outpatient care and prescription drugs (European Lung White Book 2003). Patients with COPD in England use > 1 million hospital beds days yearly (British Thoracic Society 2006). Quitting smoking is associated with a significant reduction in the risk of hospitalization for Patients with COPD (Godtfredsen et al. 2002). Any improvement in smoking cessation rates for people with COPD and resultant improvement in lung function may reduce demands on the healthcare system and increase financial savings.

The role that the family may play in smoking cessation efforts of patients with COPD has received little attention. Research in the general smoking cessation literature purports that the initiation, maintenance and cessation of smoking are strongly influenced by other family members. For example, spousal support is predictive of successful quitting in studies in the general population (Key et al. 2004). However, in a systematic review of studies of interventions to enhance partner support (Park et al. 2006), the reviewers found that the interventions failed to increase partner support in most studies and quit rates were not increased. The range of clinical conditions and interventions and the lack of any studies specifically addressing partners of Patients with COPD made it difficult to draw any conclusions as to what interventions may potentially be effective with this population and supports the need for more understanding of the family’s role in smoking cessation in COPD. In this review, we were interested in identifying the extent to which, if at all, family members are considered/included in smoking cessation interventions or in the design of such studies for people with COPD. In the text below, the use of the term family is used inclusively of those people identified in the literature as family members or significant others.

The review

Aim

The aims of this review were (1) to assess the effectiveness of family-focused smoking cessation interventions for people with chronic obstructive pulmonary disease and (2) to determine what data on families are documented in studies of smoking cessation interventions.

Design

The review followed the Centre for Reviews and Dissemination (CRC) (March, 2001) Report no. 4 (Second edition) with modifications as noted below.
Search methods

Inclusion/exclusion criteria
Studies were included in which participants were adults (18 years and older), of either gender and had a medical diagnosis of chronic obstructive pulmonary disease or equivalent. Although the use of the term COPD is now currently recommended (NICE 2004), searches with previously used diagnostic terms were also carried out. Studies of patients with asthma and no diagnosis of COPD were excluded because of differences in the underlying pathology. Studies of people at all levels of COPD as measured by pulmonary function tests were included although documented FEV1 values were not required for inclusion. Patients with COPD often have co-morbidities, hence studies with patients with co-morbidities were not excluded.

For inclusion, studies had to incorporate a non-pharmacological smoking cessation intervention. The smoking cessation intervention could focus on cognitive/psychological, supportive, or educational initiatives. Studies were included if the interventions also included a pharmacological component in conjunction with psycho/educational support. Studies were excluded if the intervention was solely pharmacological (i.e. solely bupropion or nicotine replacement therapy).

There were no exclusions as to the type of smoking cessation interventions other than those listed above. The intervention could have been carried out in one or multiple sessions; in any location (i.e. patient’s home, primary/community care or hospital location); delivered in conjunction with other primary or secondary care or independently; delivered by the patient’s usual caregiver or other person (e.g. primary/specialist physicians, nurses in primary care and hospital settings, physiotherapists, etc.). Studies could include those people who use any inhaled tobacco products including cigarettes, cigars and pipes.

Types of studies
The design of studies which were acceptable for inclusion in the final review included randomized clinical trials (RCTs), quasi-experimental studies and pre–post test designs. From the initial scoping of the literature, we did not expect there would be many experimental studies and we decided to include other studies which might provide supportive information to help address the review aims. We also took note of any other types of studies, including qualitative studies, which might assist in uncovering the subjective experience of participants or provide other information helpful in interpreting the quantitative data.

Data sources
Several data sources across a wide range of professional disciplines were searched. Data sources included: Psych Info., Ovid (2000–2006), Ovid Medline (1966–2006), EMB reviews (including Cochrane review), systematic reviews in progress (Cochrane databases), Embase Ovid (1990–2006), Embase (1988–2006), Ovid Medline (1990–1999), Ovid Medline (2000–2006), Ovid database (1990–2006), CINAHL (1990–2006). Other databases searched included Database of Abstracts of Reviews of Effectiveness (DARE), Cochrane Controlled Trials Register (CCTR), Published Clinical Guidelines (e.g. NICE), and grey literature including dissertations and theses (abstracts and full documents), patient association websites, conference abstracts, Lung Society documents, reference lists from articles/reviews and research reported as in progress. Only English language studies were included. The rationale for this inclusion was the availability of English language journals for international researchers to access for publishing their findings as well as the cost of accurate translation. The search terms used in this review were: chronic obstructive pulmonary/lung disease (COP/LD); chronic obstructive airway disease (COAD); chronic bronchitis; emphysema; smoking cessation; smoking cessation programmes; smoking cessation interventions; family; family health promotion; family health; family smoking history; significant others; spouse; partner; husband; wife; (and combinations).

Studies were included in the final review if they documented any details on the participant’s family. This included participant’s marital status and living arrangements (i.e. living with family/significant others), smoking status of household members, support provided by their family member to stop smoking, as well as programmes specifically designed for the person with COPD and his/her family or included family members in the intervention.

The clinical outcome of interest was smoking cessation including the percentages of people who quit smoking and how long they abstained as assessed by self-report or biochemical analysis. The end point to assess quitting smoking reported in the literature is variable. Studies with smoking cessation at any end points were acceptable for this review.

A multi-staged retrieval process was carried out. Initially, smoking cessation and COPD searches were conducted and then the searches refined with the family variables of interest (as described above). Next, all published studies of COPD identified in reports of two systematic reviews of smoking (van der Meer et al. 2001, Wagena et al. 2005, Rigotti et al. 2006), which were not captured in the searches as outlined above, were retrieved and examined. Both included and
excluded studies were examined. Additional sources (e.g. grey literature, theses, conference procedures, etc.) were searched, retrieved and reviewed. Additionally, references identified from the articles in the electronic searches and grey literature were noted and relevant publications retrieved and reviewed. The search period was 1990–2006 inclusive.

Search outcome

From the initial electronic search of COPD (or equivalent) and smoking cessation, over 2500 titles of articles were identified. From these, over 300 abstracts were reviewed and 150 appeared to focus on a smoking cessation intervention with people with COPD. However, over 130 were excluded after a review of the full article. Additional searches from reference lists yielded 20 further papers but most of these were excluded because they duplicated papers already reviewed or for reasons noted below. Reasons for exclusion included: no evaluation of a smoking cessation intervention (i.e. not a research study); study date out of the review time period (1990–2006); and/or study did not address people with COPD. Of the remaining articles, all reported on the evaluation of a smoking cessation intervention for people with COPD. Of these studies, 10 were excluded because they did not include the family variables of interest, namely:

(1) information related to the family or household members and/or (2) an intervention that had a family focus or component. A list of the excluded studies was maintained with rationale for exclusion chronicled (CRC 2001, State II, Phase 4, p. 4–5; See below).

The search of the masters and PhD theses yielded six studies with one (Gonzales 1991) addressing all the criteria of an evaluated smoking cessation intervention with Patients with COPD and the family variables of interest. This unpublished thesis was based on data from the Lung Health Study and was assessed as part of the collection of published papers (six) from this work (see below). Other grey literature, including studies reported as ongoing in the systematic reviews, were searched in several databases and no further studies were uncovered. No qualitative studies were found that included any information on smoking cessation in relation to the family.

Because of the small number of studies which met the criteria of evaluation of a smoking cessation intervention for people with COPD and also addressed the family variables of interest, we decided to also review those studies which met the smoking cessation intervention criteria for participants which included mainly, but not solely, patients with COPD. Four of these studies were identified (Springett et al. 1990), Campbell et al. 1996, Miller et al. 1997, Jonsdottir et al. 1995).

<table>
<thead>
<tr>
<th>Table 1 Name of study and type of data on family/household</th>
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<tbody>
<tr>
<td>Study</td>
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<tr>
<td>------------------------</td>
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<tr>
<td>Springett et al. (1990)</td>
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<tr>
<td>Lung Health Study (LHS)</td>
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<td>Gonzales (1991) PhD (see Nides below)</td>
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<td>O’Hara et al. (1993)</td>
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<td>Murray et al. (1995)</td>
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<td>Nides et al. (1995)</td>
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<td>Scanlon et al. (2000)</td>
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<td>Murray et al. (2000)</td>
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<td>Pederson et al. (1991)</td>
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<td>Brandt et al. (1997)</td>
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<td>Tashkin et al. (2001)</td>
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The final outcome of all the searches resulted in seven studies, one with a family-focused intervention and six with some details on the family variables of interest (see below). Two reviewers (KC and MS) carried out the initial searches and assessment of the articles. One reviewer reviewed the ‘decision trail’ to confirm the search and inclusion processes (AC).

Quality appraisal

Papers with information about family/household members were examined to determine: (1) what family/household variables were included and (2) if the family variable(s) were used to analysed the smoking cessation outcomes. Because of the small number of studies located with any information on family variables, none were excluded based on the quality of the methodology. The one study with a family-focused intervention (Monnikhof et al. 2004) was assessed for quality of design and conduct using a data extraction check list [adapted from the Centre for Reviews and Dissemination (CRC) March, 2001, Report no. 4] for observational (before/after designs; Stage 2:2.5.2, p. 10). The check list documented study design, inclusion criteria, adequacy of the description of the intervention, drop outs, outcome assessment, assessment time postintervention, etc.). The study characteristics were assessed qualitatively (Stage III, Phase 8, p. 10) and a grading of C (level of evidence) assigned to the study.

All papers were reviewed by two reviewers (KL and AC). Agreement using a consensus process was carried out. Differences in assessment were minor and were handled through a re-review of the studies by all four reviewers and further discussion of those points, which were in dispute until consensus was reached.

Data abstraction

Data on family variables were compiled in table format (Table 1). No further attempt was made to synthesize the findings given that only one family intervention study was located.

Results

The findings are reported in the two sections below. The first section reports on those studies which include any information about the family/household members (review aim 2) and the second section reports on the studies which included any family focus in the intervention and any resultant outcomes for participants (review aim 1).

Studies including data on family/household

Six studies were identified which reported data on family variables (See Table 1). Each of the studies is described briefly below.

Springett et al. (1990) described two similar multi-site, large trials evaluating physician advice, signed agreement to stop smoking by a set date, letters of encouragement and two visits by a health visitor (Study A). Study B was similar but without the health visitor visits. Abstinence rates at 12 months (confirmed by carboxyhaemoglobin) ranged from 4.9% to 9%. Marital status was reported and also used to analyse smoking cessation outcomes. In study A, marital status significantly affected smoking cessation outcomes with married and widowed participants achieving higher quitting rates (9.1% and 8.2%) than divorced or separated (3.0%) or single participants (3.9%) \( \chi^2 = 8.6, P = 0.004 \). In addition, if the person ‘closest to the patient’ was a non-smoker, the patient was more likely to stop smoking than if this person was a smoker (10.3% vs. 6.0%; \( \chi^2 = 8.4, P = 0.004 \), p. 837).

However, these outcomes were not replicated in the second study.

Six papers relevant to our review originated from the Lung Health Study (LHS; see Table 1). The LHS is a major clinical trial involving 10 centres in North America. Early stage Patients with COPD were enrolled \( n = 5887 \) (Murray et al. 1997) and followed-up for smoking cessation outcomes for over 5 years (Murray et al. 2000) and for other outcomes including mortality for almost 15 years (Anthonisen et al. 2005). Participants were randomized to: (i) a special counselling assisted intervention (SI) with bronchodilator, (ii) SI with placebo or (iii) usual care (Murray et al. 2000). Both SI groups received a strong physician message to quit smoking, plus an intensive 12-week ‘cognitive behavioural programme’ (including self-management techniques, coping strategies etc.), including an initial orientation, plus nicotine replacement therapy (NRT; unless contra-indicated; Gonzales 1991). Follow-up was scheduled every 4 months with opportunities to ‘re-start’ smoking cessation at any point after experiencing cessation and then relapsing (Murray et al. 1997). The LHS participants achieved biochemically verified abstinence rates of 22% in the intervention group at 5 years postintervention (Murray et al. 2000) making it one of the most significant smoking cessation trials to-date.

Several variables of interest to this review were reported. These included: marital status, smoking status of household members, attendance of a supportive person at the stop
smoking orientation, and a ‘significant other’ who wanted the participant to quit smoking (Murray et al. 1995). The results indicated some gender differences with men who had a supportive person at the outset of the programme (i.e. at the orientation) having significantly improved smoking cessation outcomes immediately after the intervention and also at 12 months (chi-square value not reported, \( P < 0.001 \)). Both men and women who had a support person at the time of the orientation who was an ex-smoker, were more likely to have quit smoking and remained quit at the 12-month follow-up (chi-square values not reported, \( P < 0.05 \)). Smoking cessation benefits were sustained at the 12- and 24-month follow-up for both men and women (Chi square values not reported, \( P < 0.03 \); Nides et al. 1995). The unpublished thesis from this study (Gonzales 1991) also reported similar findings. At 5-year follow-up, social support, defined as the ‘presence of a significant other at the orientation’, was still predictive of positive outcomes (OR/CI 1.21, 1.04–1.40, \( P < 0.01 \); Murray et al. 2000). The remaining papers from the LHS provided some information on the variables of marital status [O’Hara et al. 1993 (descriptive data only), Scanlon et al. 2000 (chi-square value not reported, \( P > 0.05 \), ns] and smokers in the household (O’Hara et al. 1993) (see Table 1 for a summary of the family variables reported).

In the third study reported in this review, hospitalized Patients with COPD (\( n = 74 \)) were randomized to a smoking cessation intervention arm (received stop smoking advice from physician prior to hospital admission, three to eight counselling sessions in hospital, and self-help materials) or control group (received stop smoking advice from physician prior to hospital admission) and smoking cessation was validated by serum carboxyhaemoglobin (Pederson et al. 1991). There were no statistically significant differences between the two groups in abstinence rates at 6 months postintervention (Wagena et al. 2005). In this study, data were reported on the marital status of the participants, but this was not used to analyse smoking cessation outcomes.

Brandt et al. (1997) present a report of a minimal intervention whereby participants were either informed that they had ‘smoker’s lung’ (intervention group, \( N = 25 \)) or given the usual diagnosis of COPD (controls, \( N = 31 \)). All other aspects of care remained the same in the two groups. The intervention group were more likely to stop smoking and to have maintained abstinence at 1 year. Smoking habits of partners were recorded as a baseline variable in both arms (incidence reported as comparable, no actual numbers given), but not included in the analyses, nor were partners involved in the intervention.

In the fifth study, a double-blind, randomized intervention trial was carried out with 404 participants with mild or moderate COPD (Stages I or II) (Tashkin et al. 2001). Intervention participants received personalized counselling during clinic visits and follow-up telephone support delivered by a certified counsellor and a 12-week course of bupropion or placebo. Smoking abstinence at 26-week postintervention was significantly higher in the patients receiving counselling and bupropion (16% vs. 9%). Data were reported on the smoking status of household members but not analysed with smoking cessation outcomes.

In the final study, a minimal intervention smoking cessation intervention was carried out with Patients with COPD in general practice and outcomes at 6 months compared with patients receiving usual primary care (Hilberink et al. 2005). In this trial, 43 practices and 392 patients were studied. Significantly more smokers in the intervention group made a quit attempt (44.9% vs. 36.5%) and actually quit smoking (16% vs. 8.8%) compared with controls. The presence of a partner was reported but not used to analyse the smoking cessation outcomes.

In summary, the demographic/smoking status variables were used to analyse the smoking cessation outcomes in only two studies (Springett et al. 1990), and the Lung Health Study, e.g. Nides et al. 1995; in the other four studies, the data are reported descriptively only.

Involvement of family members in smoking cessation interventions

Monninkhof et al. (2004) carried out a one group pre-postintervention comparison study. Consenting Patients with COPD received three 15–30 minutes home-based counselling sessions, a self-help manual and bupropion or nicotine replacement therapy (optional) (Table 2). The intervention was delivered by a pharmacy assistant or respiratory nurse and took place in the patient’s home to ‘increase the involvement of family members in the smoking cessation process’ (p. 232). Also, the researchers commented that the home-based counselling provided counsellors with more insight as to the social barriers for smoking cessation allowing them to better anticipate problems in delivering the intervention. At 9 months postintervention, 63 (of the 64 patients) were available for follow-up and 23 (36%) reported smoking abstinence. However, 15 of these did not test negative for cotinine or no sample was available resulting in a sustained quit rate of 12.7–13.3% (depending on the interpretation of missing data; Monninkhof et al. 2004). The standard for assessing cotinine at 20 mg/mL likely rules out any influence from second hand smoke (Wagenknecht et al. 1992, Wells et al. 1998). The smoking cessation rate at 9 months was low compared with earlier reported studies.
RCT, randomized controlled trial; NRT, nicotine replacement therapy; COPD, chronic obstructive pulmonary disease.

(i.e. The Lung Health Study, Anthonisen et al. 1994). However, the authors argue that this study had a higher proportion of patients with advanced disease and long established smoking habits.

No information was reported as to how the intervention was delivered in the home and how, if at all, the family members were engaged in the smoking cessation intervention. Therefore, it was not possible to conclude that this intervention truly included the family and, as a result, this study did not provide any evidence of benefit (or lack of benefit) for a family-focused intervention.

### Discussion

Limitations of this review included the focus on English language studies only. There may have been studies in other languages which did include a focus on the family. In addition, studies which included information on family variables were not stringently assessed for the quality of the research design. Our focus was to examine the studies primarily for the inclusion of information on the family. This may be considered an oversight of the work. However, despite these potential limitations, the review has much strength as outlined below.

Early work on smoking cessation trials with respiratory patients (80% of the total sample of 1550 had a diagnosis of COPD) conducted by the British Thoracic Society (1984) reported that single and married men were more likely to achieve smoking cessation than separated or divorced men and that smoking cessation for men was less likely to be achieved if ‘the most important person in the patient’s life was a smoker’ (p. 652). As well, 13% those who quited successfully cited the family as the most important factor in their success (p. 653). Women often cited pressure at home and the existence of smokers in the family as reasons for not succeeding in their smoking cessation efforts (p. 655). In the discussion of this paper, the authors urged that clinicians should attempt to persuade other family members to stop smoking with the patient or, at least, advise the patient to take account of this factor (p. 655). This early recommendation to involve the family in smoking cessation interventions with people with COPD seems to have been largely ignored in research studies in the decades which followed. We identified no smoking cessation intervention studies for people with COPD, which were specifically designed and carried out with family/household members.

The findings from this review clearly indicate that the family and social environment of the patient is infrequently considered in smoking cessation interventions for people with COPD. Only one study (Monninkhof et al. 2004) was identified which considered the family in designing the smoking cessation intervention (purposively situating the intervention in the participant’s home) and, even in this study, there was no report of actually how or if the family was involved in the intervention. In the LHS, several of the publications noted that the participants were invited to have a family member/friend accompany them to the orientation session; however, the intensive stop smoking intervention was not designed for the couple but focused solely on the individual participant. As well, few studies were found, which included any data on the patient’s living arrangements/marital status or smoking status of the people in the household. Of the six studies which did provide any information on the family/living arrangements, only the LHS and Springett et al. (1990) analysed the smoking cessation outcomes with selective family variables. In the other four studies, the information was only reported. It was interesting to note that in one of the excluded studies, even when extensive smoking cessation interventions were delivered in the home [30 minutes a day for 65 days for the intervention group (Crowley et al. 1995)], no data were reported on the marital status/living arrangements of the participants, the smoking status of household members, or the involvement of the family in any capacity in the smoking cessation intervention.

The role of support for smoking cessation for people with COPD has received little attention outside the Lung Health Study. Murray et al. (1995, 2000) reported findings on several ‘support’ variables and concluded that ‘support people’ should be included in cessation intervention.

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### Table 2  Studies with involvement of the family members in the smoking cessation interventions

<table>
<thead>
<tr>
<th>Study</th>
<th>RCT</th>
<th>Participants</th>
<th>Intervention</th>
<th>Biochemical/ self-report</th>
<th>Time</th>
<th>Outcome-abstinence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monninkhof et al. (2004)</td>
<td>No</td>
<td>64 outpatients COPD</td>
<td>3, 15–30 minutes home-based counselling sessions, self-help manual bupropion or NRT (optional) no report of if/how family was involved</td>
<td>Biochemical</td>
<td>9 months</td>
<td>12.7–13.3%</td>
</tr>
</tbody>
</table>

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What is already known about this topic

- Cigarette smoking is the most important factor contributing to the development and progression of chronic obstructive pulmonary disease.
- Sustained quit rates at 12 months reported in studies of smoking cessation interventions are fairly low, ranging from 5% to 33%.
- Spousal support may assist people to quit smoking.

What this paper adds

- Family/significant others have not been included in published studies of stop smoking interventions for people with chronic obstructive pulmonary disease.
- Future research is needed to determine if adding a family-focused component to existing interventions results in increased smoking cessation and relapse prevention.

Programmes. However, much of the information about ‘support for smoking cessation’ outlined in the LHS papers was gathered indirectly and reported inconsistently. For example, of the six LHS papers reviewed for this paper, only two (Murray et al. 1995, Nides et al. 1995) mentioned that nicotine replacement therapy (NRT) was provided to support persons who were attempting to quit (including the original publication outlining the baseline variables; Buist et al. 1993). Also, the number of support persons who did use NRT was not reported or analysed with the participants’ smoking cessation outcomes. As well, the definition of ‘supporting individual’ changed from the initiation of the study (‘presence of accompanying person at the orientation’) to ‘spouse or significant other living in the home’ at the 12-month follow-up (Murray et al. 1995). This and other inconsistencies make it difficult to interpret the merit of many of the variables related to support for smoking cessation.

As well, none of the papers from the LHS or the other studies which also included variables on the family/household, directly measured participants’ perceptions of the support they received for quitting smoking (i.e. through self-report); instead they used indirect measures (e.g. presence of a family member/friend at the orientation, presence of a spouse, etc.). Future research would benefit from more conceptually clear definitions of ‘support for quitting’, validated approaches for measuring this construct, and consistent procedures for measurement throughout the longitudinal data collection period. Spousal/family support for quitting smoking is an important area that needs additional study. Findings from the general smoking cessation literature (i.e. not clinical populations), as well as some of the findings from this current review, suggest an important role for family members. However, intervention studies designed to increase partner support have not clearly demonstrated a benefit (Park et al. 2006).

Improving smoking cessation rates of patients with COPD is clearly an important area for future research. The current evidence from smoking cessation trials with people with COPD suggests that the most effective outcome is achieved when pharmacological and counselling interventions are included (Wagena et al. 2005). However, most people are not successful in quitting or relapse within the first year of stopping smoking. Including a focus on the family in the smoking cessation intervention has yet to be systematically evaluated to determine if this type of focus, along with pharmacological and supportive counselling, would increase quit rates and reduce relapse. However, as smoking occurs within a social context, it seems reasonable to hypothesise that it might do so.

Altering family members’ smoking behaviours and protecting non-smoking family members from environmental tobacco smoke (Eisner et al. 2005) are also important if the rising rates of COPD are to be curtailed. There is limited research on smoking cessation interventions in families with chronic lung problems (Solak et al. 2005). Much more knowledge is needed about smoking and smoking cessation in families with a family member with COPD. Rigorously designed qualitative studies of patients’ and family members’ beliefs about COPD, smoking and smoking cessation would shed light on both patients’ and family members’ smoking behaviours. Findings from this research could then inform the development of interventions for patients and families dealing with COPD. Once the critical components of the intervention are known, studies could then be mounted and the intervention systematically evaluated.

Conclusion

People with COPD do not live in isolation from their social network. The literature in the general population, along with some clinically related populations, lends support for the likely importance of the family in smoking continuation and cessation behaviours in the COPD population. In addition, theoretical underpinnings such as family systems theory promote the perspective of viewing individual behaviours within the context of the family and the importance of interconnection and interaction among all of the components of the family system (von Bertalanffy 1968). If this perspective were taken in smoking cessation research, the impact of smoking and other health promotion behaviours of other
family members as well as family processes would be critical in the design of interventions. Nurses have an important role in influencing the smoking cessation agenda in chronic disease management; however, to do this they require sound evidence concerning the effectiveness of interventions. Future research is needed to determine if a family-focused intervention, in conjunction with pharmacologic and counselling approaches, would lead to improved smoking cessation outcomes for people with COPD.

Author contributions

KAL was responsible for the study conception and design and KIC was responsible for the drafting of the manuscript. ALC and MPS performed the data collection and KAL, KIC and ALC performed the data analysis. ALC and MPS provided administrative support. KAL and ALC made critical revisions to the paper. KAL and KIC supervised the study.

References


**Excluded studies**

(Papers excluded which met the criteria of a smoking cessation intervention study with patients with chronic obstructive pulmonary disease but no family intervention or variables.)


**568**