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Nurse-led interventions pertaining to emotional, physical, and clinical status in patients with COPD

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Abstract

Background: Nursing techniques include respiratory rehabilitation, early detection of decompensation signs, palliative care, inhalation medication management, health education, and supporting healthy lifestyles. This review set out to examine the impact of nurse-led hospital or community interventions on the treatment and follow-up of COPD patients.

Method: systematic review was carried out in compliance with the PRISMA guidelines. A systematic search was performed for articles published between 2013 and 2016 using the PubMed, Web of Science, and Embase databases.

Results and conclusion: The process of discharge planning for COPD patients is effective in increasing the patients' knowledge of the disease and their own well-being. Both inhaler proficiency and adherence to nurse-driven inhaler instruction showed improvement. Evaluating how well the patients utilize inhalers is necessary to determine their educational limitations. A nurse-led telephone intervention is feasible in primary care and may improve patients' health and quality of life. It has not been demonstrated that walking at home with a phone mentor increases exercise capacity. Nurses may employ the PR program to support patients with their discharge plans and to enhance their self-efficacy ratings on all subscales for adults with COPD.

Keywords: Interventions; Clinical Status; COPD; Nurse Led

1. Introduction

The progressive inflammatory lung condition known as COPD is characterized by pulmonary emphysema and persistent blockage of the peripheral bronchus. With symptoms including a persistent cough, phlegm, wheezing, shortness of breath, and a rise in respiratory tract infections, the condition is incapacitating. Severe COPD patients also frequently

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have additional symptoms such as congestive heart failure, melancholy, weariness, cognitive impairment, brittle bones, muscle weakness, malnourishment, and weight loss (1).

The prevalence of COPD, which is currently the world's fourth greatest cause of mortality, is rising in emerging nations. By 2020, COPD is predicted by the World Health Organization (WHO) to rank third globally in terms of cause of death (2). The death rate varies among nations and is correlated with the population's smoking prevalence. China, Mongolia, Eastern and Central Europe, Australia, New Zealand, the United Kingdom, and Ireland have high rates of mortality (3). According to estimates, 25–30% of smokers in Sweden get COPD, with the condition becoming more common as people age. 8% of the population over 50 is thought to have the illness. Over 75-year-old smokers had a 50% chance of developing COPD (4).

A new care paradigm has emerged as COPD management has grown in importance as a part of outpatient and primary care. According to research from throughout the world, increasing the role of hospital and primary care nurses may help COPD patient's live better lives. Nurse-led care models may also help improve clinical results and patient satisfaction (5).

Nursing practices include health education, encouraging healthy lifestyles, managing inhalation medication appropriately, spotting decompensation symptoms early, and respiratory rehabilitation. Better results in the daily treatment of the disease are achieved by nursing care for COPD patients, and the patient's understanding of disease management is enhanced (5). In fact, remote management using telemedicine by nurses in primary care should be taken into consideration for patients with COPD as well as their families at the time of release (6). The aim of this study was to investigate how nurse-led hospital or community interventions affected COPD patients' care and follow-up.

2. Method

In accordance with the Preferred Reporting Items of Systematic Reviews and Meta-Analyses (PRISMA) guideline, the systematic review were conducted. A methodical search was conducted via the PubMed, Web of Science, and Embase databases for publications published from 2013 to 2016. Search terms include; nurse, family nurse, respiratory nurse, community nurses, family nurses, respiratory nurses, nursing, nurses, copd, asthma, chronic bronchitis, chronic bronchitises, pulmonary emphysema, pan lobular emphysema, centriacinar emphysema, centrilobular emphysema, centrilobular emphysemas, chronic obstructive pulmonary disease, chronic obstructive pulmonary, pulmonary disease, chronic obstructive. We included 5 studies in the final qualitative analysis (Fig 1).

The following were the inclusion criteria: observational studies or intervention studies; manuscripts analyzing patients with COPD; studies involving nursing-led interventions in primary care or hospitals; studies evaluating some sort of health outcome.

Every reference found throughout the search was evaluated separately by four investigators. After removing duplicates, titles and abstracts were read in order to conduct screening. Then, full text papers that satisfied the first phase's inclusion requirements were examined to decide whether or not they should be included. In case of differences between the two investigators, a third party was contacted.

Using a predesigned form created especially for the purpose, the following data was taken from the studies: citation, title, patient population characteristics, sample size, study duration, intervention, and main findings.

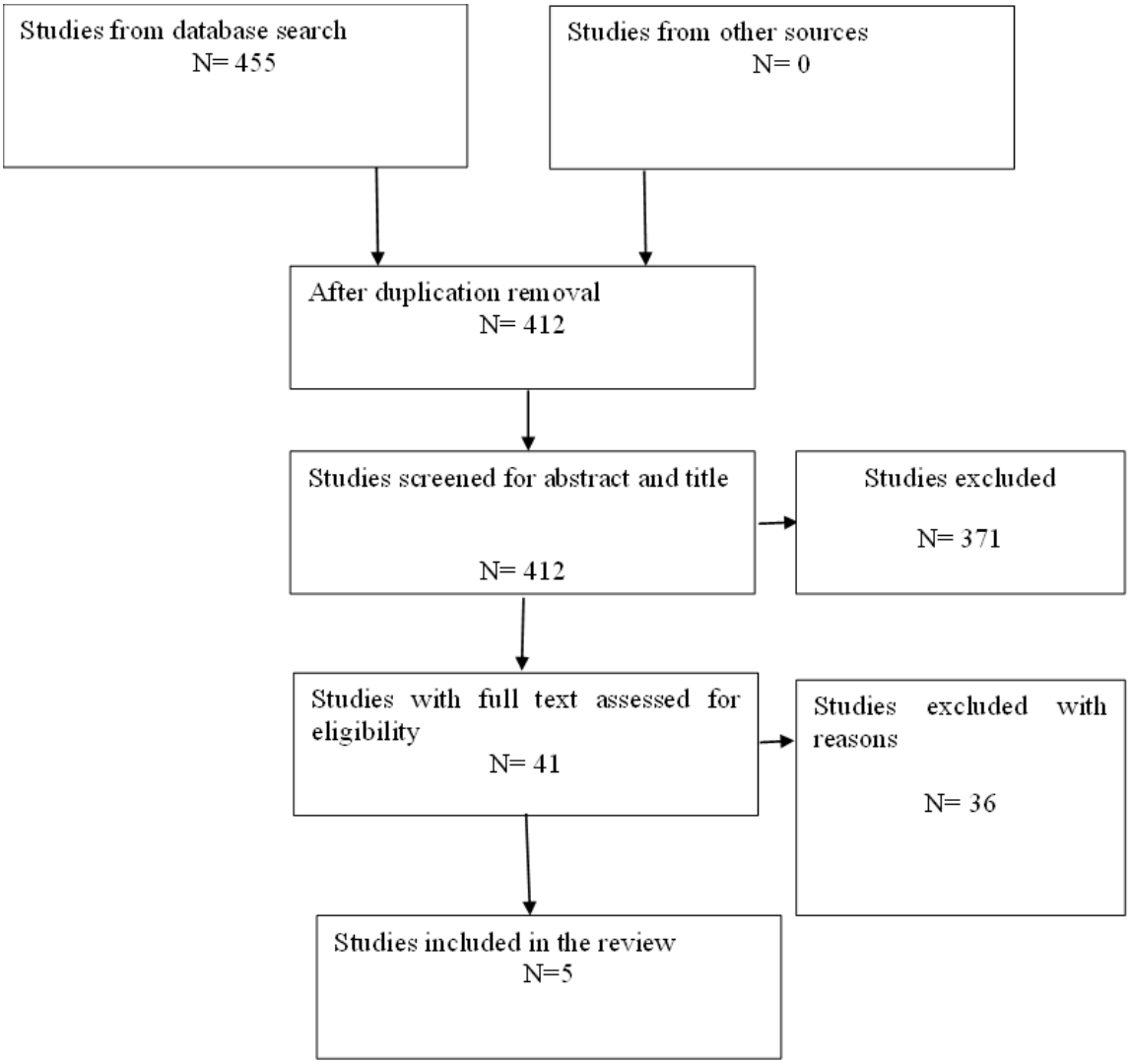

Figure 1 PRISMA consort chart of selection process

3. Results and discussion

In this systematic review study we included 5 articles, 2 were Quasi experimental studies and 3 randomized controlled trials Table 1). Various types of nurses lead interventions, including respiratory, palliative, community, and general hospital nurses (7). These professionals generally work in different settings and with different methods: telecare, home telemonitoring, palliative care in hospitals and at home, health education through ongoing training, training in inhalation techniques and home oxygen management, respiratory rehabilitation in hospitals and at home or telerehabilitation, self-efficacy, and instruction in quitting smoking. Patients with COPD frequently use inhalers incorrectly, which lowers the effectiveness of medication therapy and worsens patient outcomes (8). It has been demonstrated that receiving inhaler instruction from a qualified nurse greatly enhances patient performance (9). Among COPD patients, anxiety and sadness are prevalent symptoms. The patient's mental state deteriorates due to the uncertainty of when an acute incident of dyspnea may transpire, leaving them to manage the resulting worry and melancholy.These results imply that psychological treatment, such as cognitive behavioral therapy and counseling, can help COPD patients with their anxiety and depression symptoms (10).

According to Al-Kalaldeh et al. (9) study, positive results were obtained in terms of inhaler proficiency and compliance with nurse-driven inhaler education. In Billington et al. (11) study, in primary care, a nurse-led telephone intervention is doable and might benefit patients' health and wellbeing. Only controls showed a very little and clinically insignificant rise in 6MWD during the waiting time prior to PR, according to Cameron-Tucker et al.'s findings, which showed no discernible objective improvement in the 6MWD for tele-rehab, or PR. This is difficult to explain and probably indicates measurement mistake rather than a real effect. The secondary outcomes did not alter. There is insufficient data,

according to Cameron-Tucker et al., to support the efficacy of telephone health coaching for self-management in terms of physical capability or home-based self-directed exercise. Others have reached a similar conclusion: self-management in general or self-management with an emphasis on education have no bearing on physical ability (12,13).

A comprehensive analysis of phone interventions for physical activity in adults—many of whom had chronic diseases but did not have COPD—suggested that making 12 or more calls over the course of six to twelve months was an effective way to improve food habits and physical activity levels (14). If peers had emphasized the value of supervised exercise and if this was perceived as a top priority, attendance at exercise sessions may have increased (15). It is imperative that participants comprehend the importance of engaging in greater intensity supervised exercise (16,17). and without this they cannot expect to experience the benefits of PR. Tucker et al., findings are consistent with the larger body of research indicating that supervised exercise is a crucial part of PR, and that significant intensity exercise sessions, at least twice a week, are probably necessary to increase physical capability (16,17).

The research groups in Abad-Corpa et al.'s work exhibited some differences in readmissions, mortality, satisfaction, and the utilization of healthcare services after hospital release in favor of the intervention group, despite the lack of statistical significance. Their findings are consistent with several health-related research studies conducted on various patients in various settings and nations (18,19). Nevertheless, synthesis has been studied; one such study was a meta-review on hospital discharge planning conducted by Mistiaen (20), which found that it is still unclear what kind of intervention works best and for whom. Discharge planning procedures are spreading to healthcare systems in North America and Europe and are becoming more and more crucial for boosting the economy via more efficient use of healthcare resources (21). Comparably, the role of the coordinating nurse under investigation in this project is becoming more significant in the Spanish national healthcare system, and studies have previously shown that it is successful in terms of readmissions and quality of life (22).

The intervention in the Billington et al. research was given by a primary care advanced nurse practitioner who was certified in COPD. The intervention compares favorably with previous trials whose treatments have required up to two days of nurse training since no training was necessary (23). However, as community nurses were engaged in the Walters et al. (23) trial to carry out the intervention, they too required to be trained on the nature of COPD and the intervention. Since the majority of primary care nurses in the UK are certified in the management of chronic illnesses, many of them also hold certifications in COPD or asthma, meaning they may provide the intervention under consideration with little further training.

While the participants in the Al-Kalaldeh et al. study were aware of the purpose of using inhalers, their understanding of other crucial aspects linked to their usage, such as the capacity to explain the incidence of certain inhaler-related difficulties, was found to be lacking. Furthermore, many stated that they never received instruction on how to use inhalers from medical professionals. According to Molimardet al. (24), this lack of awareness may hasten the occurrence of inhaler usage and lead to treatment failure. Health care professionals should be included in patient education to promote successful self-management, even if controlling chronic obstructive illness demands a significant level of patient engagement in managing their condition (25). According to Al-Kalaldeh et al.'s study, patients' overall inhaler usage performance considerably improved after receiving health education. Prior to receiving health education, the majority of survey participants felt that the most crucial stage in inhalation was "breathing out slowly before placing the inhaler in front of the mouth," which is considered the most crucial phase. Additionally, according to earlier research (26), it was the phase that was carried out the most incorrectly. But after getting health education, participants' performance on this step significantly improved.

Table 1 Characteristics and main findings of the included studies

Citation	Study duration	Sample size	Study design	Characteristics of population	Main findings
Abad Corpa et al. (27)	6 months	Total 143 intervention: 56 control: 87	Quasi experimental study	Patients admitted COPD	At 3 to 6 months following discharge, the quality of life significantly improved, according to the data; there were notable disparities in the groups' levels of COPD knowledge. Regarding the readmission rate or satisfaction, there were no changes. The intervention was shown to be unsuccessful in lowering the readmission rate by multivariate analysis.
Al-Kalaldeh et al. (9)	8 months	121	Quasi experimental study	Adult patients diagnosed with COPD	Participants' pretest knowledge of general inhaler use was lacking. The participants reported difficulties in utilizing the inhalers and issues resulting from their usage, and they had not received any prior instruction. Participants reported an increase in inhaler proficiency scores from 5.7 to 8.6 at the posttest. They also demonstrated a noteworthy decline in noncompliant behaviors, going from 15.2 to 11.1. Nurse-driven inhaler teaching provided good effects in both inhaler proficiency and compliance. The patients' appraisal of utilizing inhalers is vital to establish the patients' educational impairments.
Billington et al. (11)	3 months	71 intervention:34 control: 37	RCT	Adult patients diagnosed with COPD and FEV1/FVC ratio less than 70%	Between time 1 and time 2, the intervention group's CAT scores dramatically improved, whereas the control group's results did not change appreciably. After correcting for baseline CAT scores at time 1, a significant difference was seen between the intervention and control groups' CAT scores at time 2. At time 2, there was no discernible difference in the groups' exacerbations. Over time, there was no discernible difference in satisfaction ratings between the intervention and control groups.
CameronTucker et al. (28)	3 months	71 intervention:35 control: 30	RCT	Adult patients diagnosed with COPD, who had exacerbation within the last 2 months	The mean 6MWD was significantly higher, but not clinically meaningful, for the second test compared to the first at all time-points; there were no significant changes in 6MWD between other time-points or groups, or in any secondary outcomes. Participants attending supervised exercise showed a nonsignificant improvement in 6MWD, 12.3 m, while others showed no change, 0 m. Controls had a statistically significant increase in the median 6MWD of 12 m in the period before and after PR, but the tele-rehab group did not experience a change.
Khoshkesht et al. (29)	3 months	66 intervention:34 control: 32	RCT	Patients more than 65 years with sever or moderate COPD	Nurses can utilize the pulmonary rehabilitation program to help patients with their discharge plans and to raise their self-efficacy scores on all subscales for people with chronic obstructive lung disease.

Abbreviations

- CAT, COPD Assessment Tool
- PR; pulmonary rehabilitation
- 6MWD, 6-minute walk distance

4. Conclusion

Discharge planning process for COPD patients works well in raising the patients' level of awareness about the condition and their quality of life. Positive results were obtained in terms of inhaler proficiency and compliance with nurse-driven inhaler education. Determining the patients' educational impairments requires assessing how well they use inhalers. In primary care, a nurse-led telephone intervention is doable and might benefit patients' health and wellbeing. Walking at home with a telephone mentor has not been shown to increase exercise capacity. Nurses can utilize the PR program to help patients with their discharge plans and to raise their self-efficacy scores on all subscales for people with chronic obstructive lung disease.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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