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Revisão integrativa da literatura sobre gestão do regime terapêutico em pacientes com doença pulmonar obstrutiva crônica

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# Integrative literature review on treatment management in patients with chronic obstructive pulmonary disease

REVISÃO INTEGRATIVA DA LITERATURA SOBRE GESTÃO DO REGIME TERAPÊUTICO EM PACIENTES COM DOENÇA PULMONAR OBSTRUTIVA CRÔNICA

REVISIÓN INTEGRADORA DE LA LITERATURA SOBRE EL MANEJO DEL RÉGIMEN TERAPÉUTICO EN PACIENTES CON ENFERMEDAD PULMONAR OBSTRUCTIVA CRÓNICA

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## ABSTRACT

The objective of this study is to identify which is the best nursing intervention strategy to promote treatment management in patients with Obstructive Chronic Pulmonary Disease in the hospital setting. An integrative literature review was performed for the years 2006 to 2009. The data analysis revealed that the studies used different elements and specific effectiveness indicators to evaluate the intervention strategies that were addressed. Based on current evidence, it is not possible to identify the best strategy. The present review points out the need to define more consensual outcome indicators to evaluate the effectiveness of intervention strategies. Hence, it is necessary to develop, implement, and evaluate the effectiveness of nursing intervention strategies, turning to those indicators, to define the best evidenced-based intervention strategy.

## KEY WORDS

Nursing care.  
Pulmonary disease, chronic obstructive.  
Effectiveness.  
Evidence-based nursing.

## RESUMO

Com este estudo pretende-se identificar qual a melhor estratégia de intervenção de enfermagem na promoção da gestão do regime terapêutico em pacientes com Doença Pulmonar Obstrutiva Crônica no ambiente hospitalar. Realizamos uma revisão integrativa da literatura dos anos 2006 a 2009. A partir da análise dos dados, constatamos que os estudos utilizam diferentes elementos e diferentes indicadores de efetividade para avaliarem as estratégias de intervenção utilizadas. Baseando-se nas evidências disponíveis, não é possível identificar qual a melhor estratégia. Desta revisão emerge a definição dos indicadores de resultado mais consensuais na avaliação da efetividade das estratégias de intervenção. Torna-se agora necessário desenvolver, implementar e avaliar a efetividade das estratégias de intervenção de enfermagem, recorrendo a estes indicadores, para definir qual a melhor estratégia de intervenção, baseada na evidência.

## DESCRIPTORES

Cuidados de enfermagem.  
Doença pulmonar obstrutiva crônica.  
Efetividade.  
Enfermagem baseada em evidências.

## RESUMEN

Con este estudio, pretendemos identificar cuál es la mejor estrategia de intervención de enfermería en la promoción del manejo del régimen terapéutico en pacientes con Enfermedad Pulmonar Obstructiva Crónica, en el ambiente hospitalario. Realizamos una revisión integradora de la literatura de los años 2006 a 2009. A partir del análisis de los datos, constatamos que los estudios utilizan diferentes elementos y diferentes indicadores de efectividad para evaluar las estrategias de intervención utilizadas, no siendo posible identificar cuál es la mejor estrategia basada en la evidencia disponible. De esta revisión surge la definición de los indicadores de resultado más consensuales en la evaluación de la efectividad de las estrategias de intervención. Se vuelve ahora necesario desarrollar, implementar y evaluar la efectividad de las estrategias de intervención de enfermería, recurriendo a tales indicadores, para definir cuál es la mejor estrategia basada en la evidencia.

## DESCRIPTORES

Atención de enfermería.  
Enfermedad pulmonar obstructiva crónica.  
Efectividad.  
Enfermería basada en la evidencia.

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## INTRODUCTION

The purpose of this literature review is to identify the best nursing intervention for promoting self care management of patients with Chronic Obstructive Pulmonary Disease (COPD) in a hospital setting. The present review is founded on the need to apply the best available evidence to clinical practice<sup>(1)</sup>.

The population of aged individuals has been increasing, and there has been a rise in the prevalence of chronic diseases, thus creating new challenges for health systems. The current economical setting, associated to an increased search for health care makes taking on strategic strategies essential in order to guarantee the continuity, quality, and cost-effectiveness of health care.

Self care management of complex therapeutic regimens appear, in the health area, as a multidisciplinary and multi-professional response to the referred situations to capacitate patients to self-control of their health condition. The lack of cognitive and instrumental competencies has a negative effect on the patients' capacity to adapt to their health condition and implement behaviors that would likely help reduce symptoms or change/maintain their health state. This issue becomes even more evident when addressing patients receiving complex therapeutic regimens.

The COPD is a chronic and progressive disease. Patients with COPD are submitted to complex therapeutic regimens. COPD is characterized by an air flow limitation that is not entirely reversible. That air flow limitation is usually progressive and associated with an abnormal inflammatory

response of the lungs to harmful particles or gases. In addition, it may assume different levels of severity<sup>(2)</sup>.

The concept of complex therapeutic regimens refers to a therapeutic regime that uses multiple pharmacological and non-pharmacological strategies at the same time. In complex treatments, polymedication is emphasized, using several drugs, with a high number of daily doses, different times, needs to make dose adjustments due to the values resulting from self-surveillance, the use of different means of administration (oral, inhalation), simultaneously, or using non-pharmacological strategies, such as changing eating, exercise, and self-surveillance behaviors<sup>(3-4)</sup>.

An efficient self care management of complex therapeutic regimens in COPD would imply to acquire cognitive and instrumental competencies that allow for the treatment to be skillfully included in the patient's everyday life. Hence, the treatment would promote the patients' adaptation to their new health condition, helping them with the self-control of the disease and improving their quality of life.

Therefore, the following investigation problem emerged:

- What is the best nursing intervention strategy to promote self care management of complex therapeutic regimens in COPD in a hospital setting?

## METHOD

Articles were selected for the integrative literature review<sup>(5)</sup> according to the following established inclusion and exclusion criteria (Chart 1).

**Chart 1** - Inclusion and exclusion criteria for the integrative literature review, using online databases, between 2006 and 2009

Selection criteria	Inclusion criteria	Exclusion criteria
<b>Participants</b>	Patients with COPD	Patients with asthma; Family caregivers
<b>Intervention</b>	Nursing intervention in a hospital setting	Extra-hospital nursing interventions
<b>Results</b>	All the obtained results	
<b>Type of study</b>	Randomized clinical trials, quasi-experimental studies, systematic literature reviews or meta-analysis studies	Any other type of study

### Research strategy

Considering the referred problem as the guideline, a literature review was performed between March and May 2009. English/Spanish/Portuguese were the preferred idioms.

The literature review was initiated on the following databases: Data\_bases of abstracts of reviews of effects (DARE); Cochrane of systematic reviews (CDSR); National

Institute of Health and clinical Excellence (NICE). Next, research was performed on electronic databases: CINAHL Plus with Full Text; MEDLINE with Full Text; MedicLatina; SportDiscus with full text; Psychology and behavioral Sciences collection; ISI Web of Knowledge, limiting the review to the years 2006-2009. Only full-text articles were included. Keywords in line with the theme were chosen for the present review (Chart 2).

**Chart 2** - Keywords used in the integrative literature review performed on the online databases, between 2006 and 2009

Keyword 1 Chronic obstructive pulmonary disease	Keyword 2 Nursing intervention program	Keyword 3 (optional field)
Chronic Obstructive pulmonary disease	Nursing intervention	Not asthma
COPD	Patient education	Not rehabilitation
	Self management	
	Educate patient	
	Program intervention	
	Action plan	

## RESULTS

Using the referred research strategy, a total 392 articles were found in the different databases, 12 of which were repeated, 262 were rejected based on their titles, as they were not performed within the hospital setting, or were related with other disciplines. Of the remaining articles, 68

were rejected after reading their abstracts and 42 articles were rejected after reading the full text. These articles were rejected because they were not classified as randomized clinical trials, quasi-experimental studies, systematic literature reviews or meta-analysis studies. In summary, eight articles were included in the present literature review (Chart 3): two primary articles, and six literature reviews.

**Chart 3** - Articles found for the integrative literature review, on the on-line databases between 2006 and 2009

Consulted databases	Articles
Data bases of abstracts of reviews of effects ( <b>DARE</b> ); Cochrane of systematic reviews ( <b>CDSR</b> ); National Institute of Health and clinical Excellence ( <b>NICE</b> ); <b>CINAHL</b> Plus with Full Text; MEDLINE with Full Text; MedicLatina; SportDiscus with full text; Psychology and behavioral Sciences collection; <b>ISI Web of Knowledge</b>	Total full-text articles found:392 Total repeated articles:12 Total articles rejected based on the title: 262 Total articles rejected after reading the abstract: 68 Total articles rejected after reading the full-text: 42 <b>Total articles included for the literature review: 8</b>

Chart 4 lists the articles selected for the present literature review, specifying the information regarding the authors, year of publication, source, country, study partici-

pants, intervention/study objective and the methodological approach(es) used by the respective authors.

**Chart 4** - Articles selected for the integrative literature review, on online databases, between 2006 and 2009

Author, Year, Publication, Source, Country.	Participants/ sample	Intervention	Methodology	Main Results
Bridevaux et al; (2008) <sup>(6)</sup> , American Journal of Medicine, Vol 121, n° 5, pp.433-444. USA	Patients with COPD	To assess the nursing interventions for disease management based on patients education with: -2 or more specific components; -2 or more health professionals involved;	Systematic literature review based on 13 quantitative studies	COPD management programs promote moderate improvements on: the capacity for exercise; health-related quality of life; hospital admissions. Does not have any effect on mortality causes.
Coster & Norman (2009) <sup>(7)</sup> , International Journal of Nursing Studies, 46, pp. 508-52. UK	Patients with COPD	Education and nursing interventions designed to promote disease management.	Systematic literature review based on 31 quantitative studies	There is insufficient evidence about the effectiveness of the reviewed interventions. The components of successful interventions in this domain are still to be defined.
Adams et al (2007) <sup>(8)</sup> , Arch Intern Med/vol 167, pp. 551-565. USA	Patients with COPD	Chronic care model (CCM) interventions (treatment management/available health system/ Decision support/ Clinical information)	Systematic literature review based on 32 quantitative studies	Patients with COPD who received interventions comprising to or more CCM components have reduced hospital admissions, fewer visits to the emergency room, and shorter length of stay.

Continue...

...Continuation

Author, Year, Publication, Source, Country.	Participants/sample	Intervention	Methodology	Main Results
Lu Chi-Chi et al (2007) <sup>(9)</sup> , J. Nursing Research, Vol. 15, pp.89-97.Taiwan.	Patients with COPD (n=50)	Case management program and its effects on: the length of stay; health care costs; knowledge about the disease; satisfaction towards health care.	Quasi-experimental study	There are no significant differences regarding: the length of stay; health care costs. There were improvements in: the knowledge about the disease; satisfaction towards health care.
Bourbeau et al. (2006) <sup>(10)</sup> , Chest, Vol. 130, pp. 1704-1711. USA	Patients with COPD (n=191)	Economic analysis of an education program for self-management in COPD, with the supervision of a case manager.	Quantitative study (multicenter RCT)	The costs of patients subject to the program exceeded the costs of patients of the standard-care group; however, if the number of patients per case manager was increased from 14 to 50 per year, the intervention would be more cost-effective than standard care.
Kaptein Ad. et al. (2008) <sup>(11)</sup> , Journal Of Asthma, Vol. 45, p. 625-629. USA.	Patients with COPD	Study of the perception of the disease and its effect on patient outcome.	Systematic literature review based on 16 qualitative studies.	Discussing about and changing the perception of the disease improves quality of life and reduces the dependence level.
Effing T. et al (2009) <sup>(12)</sup> , Cochrane Database of Systematic Reviews, Issue 4. Art. No.: CD002990. DOI: 10.1002/14651858.CD002990.pub2. UK.	Patients with COPD	To evaluate the definitions, methods and effectiveness of educational programs for self-management, about health, and about using health services.	Systematic literature review based on 14 quantitative studies	Reduction of at least one readmission in one year and reduction in the measurement of dyspnea. No differences were found in the number of: aggravations; visits to the emergency room; respiratory function; capacity for exercise; days away from work. Results are inconclusive for: the use of antibiotics; corticoids; emergency
Turnock AC. et al. (2009) <sup>(13)</sup> , Cochrane Database of Systematic Reviews, Issue 4. Art. No.: CD005074. DOI: 10.1002/14651858.CD005074.pub2. UK.	Patients with COPD	To evaluate the efficacy of action plans on the management of COPD	Systematic literature review based on 3 quantitative studies	There is evidence of positive results for: the knowledge about self-management (recognizing aggravations); action on aggravations; starting antibiotics and steroids. There is no evidence of positive results for: health care use; quality of life; respiratory function; functional capacity; mortality; anxiety; depression.

## DISCUSSION

The articles, which comprised the inclusion criteria in this integrative literature review, revealed that the nursing intervention strategies in a hospital setting differ in terms of the specific elements composing them, and, due to insufficient evidence, the results do not permit to choose one particular strategy. The diverse strategies are comprised by specific elements and use different indicators to evaluate effectiveness.

Nonetheless, the present literature review revealed the outcome indicators most used by the various authors, and from them, it was possible to define the most consensual in terms of their sensitivity to evaluate the effectiveness of intervention strategies. These outcome indicators may consist of guides for defining the analyzed intervention strategies. The outcome results used to analyze the effectiveness of nursing intervention strategies in the present review are: quality of life; capacity for exercise; hospital admissions;

visits to the emergency room; length of stay; health care cost; aggravations; the use of antibiotics/corticoids and emergency medication; knowledge; satisfaction towards health care; anxiety; depression and mortality.

To discuss on the results, we divided the outcome indicators according to the criteria of consensus among authors, regarding its effectiveness in evaluating strategies that promote treatment management. Hence, two indicator categories were created: indicators that were consensually sensitive and those without consensus about their sensitivity to evaluate strategy effectiveness.

We first analyzed the indicators that had no consensus regarding their sensitivity for evaluating the effectiveness of strategies promoting treatment management:

A) Quality of life is an outcome used in different studies<sup>(6,11,13)</sup>, but there is no consensus among those studies. While some studies report that quality of life is moderately affected by intervention programs<sup>(6)</sup>, others claim that programs that

increase the perception about the disease have a positive effect on quality of life<sup>(11)</sup>. Furthermore, some authors report that there is not enough evidence about the effects of intervention programs on quality of life<sup>(13)</sup>. Hence, it was found that quality of life (alone) is an indicator of an outcome with little consensus in terms of its sensitivity.

B) The capacity for exercise, as an outcome, was addressed in various studies<sup>(6,12-13)</sup>, with no consensus among the authors, as some affirm that there is modest evidence of improvements to this outcome<sup>(6)</sup>, while others report there are no significant differences between the subjects for this specific outcome<sup>(12-13)</sup>. Thus, it was observed that the capacity for exercise, as well, is not an indicator of a consensually sensitive outcome.

C) The number of visits to the emergency room is also used as an outcome<sup>(8,12)</sup>. Although authors differ in their conclusions, some refer that, among their subjects, the number of visits to the emergency room were reduced<sup>(8)</sup>, while others report there were no differences in this regard<sup>(12)</sup>. It was, thus, verified that the number of visits to the emergency room also cannot be considered a consensual outcome indicator.

D) The costs of health care are also referred to as outcomes<sup>(9,10)</sup>. There authors disagree about the presented results; some refer that a positive economical result only exists if there is a minimum rate of 50 patients per case manager per year<sup>(10)</sup>, whereas others claim that using the model does not make any significant changes on the costs<sup>(9)</sup>. Thus, it is verified that to use this outcome indicator there is a need for a greater specification of the elements composing it as well as about its association with other indicators.

E) Anxiety and depression are also used as outcomes, though authors state there is no evidence regarding the effect of intervention programs on these outcomes<sup>(13)</sup>. Mortality is also used as an outcome by various authors, though there is greater agreement among them in stating that there is no evidence about the influence of intervention programs on mortality<sup>(6,13)</sup>. Anxiety, depression and mortality should not be used as outcome indicators in evaluations of nursing intervention strategies implemented in a hospital setting, in this context.

F) Length of stay is used as an outcome by various authors, though they differ in the study results<sup>(8,9)</sup>; some report that the length of stay is reduced among patients subjected to more than two interventions of the studied model<sup>(8)</sup>, while others state there is no significant difference in the results when associated to a case manager<sup>(9)</sup>. Therefore, it was observed that the length of stay also cannot be considered a consensually sensitive outcome indicator.

G) Various authors also refer to disease aggravations as an outcome<sup>(12-13)</sup>. Some authors report there is no evidence for the change in the number of disease aggravations in their sample<sup>(12)</sup>, while others state there is positive evidence about recognizing and acting upon aggravations<sup>(13)</sup>. Hence, the ca-

capacity to identify a disease aggravation and acting upon that situation are not consensual indicators to evaluate the effectiveness of the analyzed strategies.

H) The use of antibiotics/corticoids and emergency medication are also used as outcomes<sup>(12-13)</sup>. Some authors report that their study results are inconclusive<sup>(12)</sup>, while others claim there is evidence of positive results when initiating the use of antibiotics and corticoids<sup>(13)</sup>. The client's capacity to initiate the use of antibiotics and corticoids in view of an aggravation is also a non-consensual outcome indicator.

The following are indicators consensual in terms of their sensitivity for evaluating the effectiveness of strategies promoting treatment management:

A) Hospital admissions/readmissions are used as outcomes, as there is consensus among authors in saying that intervention programs produce positive outcomes<sup>(6,8,12)</sup>. Hence, hospital admissions/readmissions may be referred to as a sensitive indicator to evaluate the effectiveness of the analyzed strategies.

B) Patients' knowledge is also used as an outcome. Authors who use this outcome agree in stating that they obtain positive results<sup>(9,13)</sup>. Patients' knowledge is a consensually sensitive outcome indicator that permits to evaluate the effectiveness of the analyzed strategies.

C) Satisfaction towards the received care is used as an outcome and authors report there are better results among patients submitted to an intervention program<sup>(9)</sup>. Satisfaction towards the received care may be a sensible indicator to evaluate the effectiveness of the analyzed strategies, though stronger evidence is needed for a better assessment.

## CONCLUSION

It should be emphasized that it is not possible, based on the present integrative literature review, to define which is the best strategy to promote self care management of complex therapeutic regimens in patients with COPD in a hospital setting, due to the insufficient evidence to support that decision.

The present review permits to define the consensual outcome indicators regarding their effectiveness to evaluate the strategies to promote self care management of complex therapeutic regimens in patients with COPD in a hospital setting: hospital admissions/readmissions; patients' knowledge and their satisfaction towards the received care. This form of data analysis, which produces the indicators of effectiveness with greatest agreement among authors, justified the present integrative literature review, adding to the current evidence the possibility of comparing the effectiveness of nursing interventions in promoting treatment management.

The present integrative literature review revealed there is a need to identify the elements that should comprise



intervention strategies, develop nursing intervention programs, implement them and perform empirical evalua-

tions of their effectiveness using the evidenced outcome indicators.

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