



THE POWER OF SELF-MANAGEMENT IN A COPD PATIENT

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ARTICLE INFO

Article History:

Received 15th November, 2018

Received in revised form 7th

December, 2018

Accepted 13th January, 2019

Published online 28th February, 2019

Key words:

chronic obstructive pulmonary disease, COPD, quality of life, self-management, self-care, self-efficacy, therapeutic education, pulmonary rehabilitation.

ABSTRACT

Background: Chronic Obstructive Pulmonary Disease (COPD) is one of the major causes of morbidity and mortality worldwide. Because of its high prevalence and the possibility to be highly invalidating, costs related to COPD may constitute a very important economical and social commitment for the healthcare system. Self management, in such scenario, can be regarded as a possible solution.

Objectives: Assess the outcomes of patients affected by copd after a self management program.

Methods: Starting from Pubmed, Scopus, Cinahl and Cochrane database from June 2017, a research has been carried out. Articles on patients affected by Chronic Obstructive Pulmonary Disease using self management were selected and compared with control groups receiving a standard assistance. Here are some of the outcomes: improvement of QoL, less visits to the emergency room and hospitalizations, and users' satisfaction.

Outcomes: Almost every study, regardless of what is included in the self management program, showed an improvement in the quality of life in all patients. A good part of the studies show that, if self management is used long term, it can lead to a reduction of hospitalization for exacerbation and visits to the emergency room. On the other hand, only a few studies considered the users' satisfaction.

Conclusions: In copd patients, learning skills and behaviors helping them to live well with the disease, delaying its complications, is essential. For this reason, the main component of all self management program is therapeutic education.

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INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is one of the major causes of morbidity and mortality worldwide. Because of its high prevalence and the possibility to be highly invalidating, costs related to COPD may constitute a very important economical and social commitment for the healthcare system.

Unlike other diseases such as stroke, myocardial infarction and cancer, COPD is constantly growing: according to the WHO (World Health Organization), in the next few years it will become the third cause of chronic disease in the entire world.

In Europe, overall direct costs for respiratory diseases amount to about 6% of the entire healthcare expenses. Of these, almost 56% (38.6 billions Euros) are attributed to COPD (1). COPD average time and its progression make it the most expensive disease in terms of resource consumption, especially in its most advanced phases when acute exacerbations are more frequent and hospitalization is necessary. COPD acute exacerbations actually constitute the highest expenses for the Healthcare System. It is estimated that beyond 70% (2) of

COPD related overall costs are due to acute exacerbations, particularly those requiring hospitalizations.

Besides that, whichever estimate of direct sanitary expenses underestimates the real cost of home care for the entire society, since it does not takes the economic value of assistance provided by family members and caregivers into consideration(3).

As far as COPD impact on society is concerned, *Global Burden of Disease* (4) provides that the disease in 2030 will be the seventh cause of loss of DALY (Disability-Adjusted Life Year) in the world, compared to being ranked #12 in the Nineties (5).

From the epidemiological point of view, as well as the use of the healthcare resources, the disease is an object of great importance.

In order to face this situation it is necessary to set up a custom care plan, something totally different from the classical clinical care plan, which addresses every patient's specific issues – not only the clinical ones but also her actual potentials. It is essential to differentiate and customize the educational aspect, which must fit the patient's characteristics (limits/potentials,) as well as develop and evolve in time.

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It consists of a structured and systemic path which, starting from education about the most useful lifestyles to counter the discomfort, malaise and evolution of the disease, should progressively provide both the patient and the caregivers with a series of skills to “face” the disease, keeping a healthy state (self care maintenance) and, in time, self managing the disease (self care management).

Self-Management is considered the individual’s capacity, along with her family, the community and the health workers, to manage symptoms, treatments and changes in their lifestyles, as well as the psycho-social, cultural, spiritual consequences and the overall copd related conditions.

In this process, a strong synergy between the patient, who is aware and therefore able to act upon her clinical situation, and the health workers, specialized in preserving and promoting health, is established.

In such context, the sick person plays an active role, developing self-monitoring skills, getting to know her actual state of health, learning multi-dimensional strategies for the daily needs of a chronic disease (6).

Such strategies are multi-dimensional because they as the individual to integrate interpersonal and environmental systems in order to maximize her wellbeing. They also allow the individual to manage daily life and her chronic condition through a continuous monitoring of her health and suitable actions during the acute phases of the disease.

METHODS AND MATERIALS

The goal for this research was selecting articles pertaining to studies on patients suffering from Chronic Obstructive Pulmonary Disease (Population), in order to assess the efficacy of self management interventions (Intervention), comforting them with control individuals receiving only standard assistance (Control), whose outcomes were as follows: improvement of quality of life, reduction of hospitalizations, visits to the emergency rooms and users’ satisfaction (Outcomes).

Research Strategy

P (population): patients with Chronic Obstructive Pulmonary Disease

I (intervention): self management

C (comparing): patients receiving only standard assistant/usual care

C (confrontation): improvement of quality of life, reduction in hospitalizations, visits to the emergency room and users’ satisfaction.

Question for the research: Is self management patients suffering from copd improving quality of life, reducing hospitalizations, visits to emergency room and users' satisfaction compared to standard assistance?

A research has been carried out using Pubmed, Scopus, Cinahl and Cochrane databases in June 2017.

The total number of articles amounts to 174; the research carried out by Scopus led to 67 articles. The ones specific for the research question were 5.

The research on Cinahl led to 33 articles, 2 of which were considered relevant for the research through the review process.

The research on Pubmed led to 59 articles and allowed the finding of 7 specific articles. The research on Cochrane led to 15 articles and 1 specific one. 94 articles were rejected because not pertaining to the including criteria. After the reading of the title and the abstract, 39 were rejected, 40 rejected after reading the full text.

Pertaining and useful articles were, in the end, 15. The research led to 8 random controlled clinical studies, 3 prospective studies, 2 pilot studies and 2 quality studies. Impact Factor and ISSN (International Standard Serial Number) of the procured articles were analyzed.

“Self management” was then pinpointed as key word and put in the title (title) or abstract of the articles (field). The type of selected studies include guidelines, primary studies. Selection criteria are based on the relevance to the topic and the presence of abstracts.

RESULTS

Data from recent literature suggest that, in patients with chronic lung disease, assessment of perception of dyspnoea, psychological disturbs and the observation and subsequent evaluation of every stressful event should be considered as important as the exam of the respiratory functioning (7). Anxious and depressive symptoms frequently occur in patients with COPD, but are acknowledged in less than 50% of the cases (8).

In studies 9,10 and 11 the attention focused on the psycho-emotional state with which the patient faces everyday’s life. It has been demonstrated that CBT (Cognitive-Behaviour Therapy) can reduce symptoms such as anxiety and depression, which may occur as the disease progresses, having a negative impact on its course.

Unlike other psychotherapies, CBT focuses mainly on the present – on the solution of current problems. Patients learn some specific skills (*coping*) which may also use in the future, which concern the so called distorted ways of thinking, changing irrational beliefs and non adaptive behaviors.

An important aspect to be taken into due consideration in a patient suffering from copd is the self efficacy, that is, the belief about one’s skills to organize and perform the consequences of actions that are necessary to produce specific results.

It is about trusting oneself in general. It is actually the belief one can effectively face certain trials, cope with certain events, be able to engage in certain activities and face specific tasks. Self efficacy is not measuring one’s skills. It is the belief each person has all it takes to do whatever she has to do in certain situations.

The study (12) shows how a program of pulmonary rehabilitation carried out at one’s home may really increase self efficacy.

The program of pulmonary rehabilitation in such study included elements of self-care and self management, nutritional advice, techniques to cope with stress, respiratory exercises and effective cough, strategies to fight critical situations and exercises of global stretching. All the necessary instructions for such program were published in a flyer, which was given to every patient of the experimental group.

Some weekly follow-up calls were then made, in order to solve problems related to the implementation of the rehab program and to support and encourage patients.

Summary of the literature used

Author(s)/Year	Title	Title of the Study	Sample
1) Ling Ling Y. Tsai, Renae J. McNamara, Chloe Moddel, Jennifer A. Alison, David K. McKenzie, Zoe J. McKeough. 2016	Home-based telerehabilitation via real-time videoconferencing improves endurance exercise capacity in patients with COPD: The randomized controlled TeleR Study.	Prospective study, experimental group control group	37 participants, 36 completed the study.
2) M.E. Kunik, U. Braun, M.A. Stanley, K. Wristers, V. Molinari, D. Stoebner, C.A. Orengo. 2001	One session cognitive behavioural therapy for elderly patients with chronic obstructive pulmonary disease	Prospective study comparative	56 participants
3) M.J. Hynninen, N. Bjerke, S. Pallesen, P.S. Bakke, I.H. Nordhus. 2010	A randomized controlled trial of cognitive behavioral therapy for anxiety and depression in COPD.	RCT	51 participants
4) D.G. Bove, K. Lomborg, A.K. Jensen, D. Overgaard, B. Lindhardt, J. Midtgaard. 2016	Efficacy of a minimal home-based psychoeducative intervention in patients with advanced COPD: A randomised controlled trial.	RCT	66 participants
5) Khoshkesht S, Zakerimoghadam M, Ghiyasvandian S, Kazemnejad A, Hashemian M. 2015	The effect of home-based pulmonary rehabilitation on self-efficacy in chronic obstructive pulmonary disease patients.	RCT	66 participants
6) Jean Bourbeau; Marcel Julien; François Maltais; <i>et al</i> 2003	Reduction of Hospital Utilization in Patients With Chronic Obstructive Pulmonary Disease. A Disease-Specific Self-management Intervention	RCT	96 participants to the experimental group and 95 to the control group.
7) Langer S, Chew-Graham CA, Drinkwater J, Afzal C, Keane K, Hunter C, Guthrie E, Salmon P. 2014	A motivational intervention for patients with COPD in primary care: qualitative evaluation of a new practitioner role.	Qualitative	29 patients and 13 health workers
8) Kang-Hua Chen, Mei-Ling Chen, Sheuan Lee, Hsiu-Ying Cho, Li-Chueh Weng. 2009	Self-management behaviours for patients with chronic obstructive pulmonary disease: A qualitative study	Qualitative	18 patients
9) Ng Wl, Smith GD. 2017	Effects of a self-management education program on self-efficacy in patients with COPD: a mixed-methods sequential explanatory designed study.	RCT	26 participants in the experimental group, 25 in the control group.
10) Hoas H, Morseth B, Holland AE, Zanaboni P 2016	Are Physical activity and Benefits Maintained After Long-Term Telerehabilitation in COPD?	Pilot study	9 participants
11) Lenferink A, Frith P, Van Der Valk P, Buckman J, Sladek R, Cafarella P, van der Palen J, Effing T. 2013	A self-management approach using self-initiated action plans for symptoms with ongoing nurse support in patients with Chronic Obstructive Pulmonary Disease (COPD) and comorbidities: the COPE-III study protocol.	RCT multi-centric	300 patients
12) Nyberg A, Wadell K, Lindgren H, Tistad M. 2017	Internet-based support for self-management strategies for people with COPD-protocol for a controlled pragmatic pilot trial of effectiveness and a process evaluation in primary healthcare.	Pilot study	96 participants
13) Bourbeau J, Farias R, Li PZ, Gauthier G, Battisti L, Chabot V, Beaulieu MF, Villeneuve D, Côté P, Boulet LP. 2017	The Quebec Respiratory Health Education Network: Integrating a model of self-management education in COPD primary care.	Prospective study	54 patients
14) Sánchez-Nieto JM, Andújar-Espinosa R, Bernabeu-Mora R, Hu C, Gálvez-Martínez B, Carrillo-Alcaraz A, Álvarez-Miranda CF, Meca-Birlanga O, Abad-Corpa E. 2016	Efficacy of a self-management plan in exacerbations for patients with advanced COPD.	RCT multi-centric	85 patients, 38 in the control group, 47 in the intervention group.
15) M-A. Gadoury, K. Schwartzman, M. Rouleau, F. Maltais, M. Julien, A. Beaupre, P. Renzie, R. Bégin, D. Nault and J. Bourbeau. 2005	Self-management reduces both short- and long-term hospitalisation in COPD	RCT multi-centric	191 patients (95 standard care e 96 self management program)

Intervention	Outcomes
1 group had tele rehabilitation consisting in exercise 3 times a week for 8 weeks and the other had a standard treatment.	This study showed tele rehabilitation improved the exercise, resistance and self efficacy skills with regard to the standard treatment.
1 group had an educative intervention and the other had CBT	CBT reduces symptoms such as anxiety and depression
25 participants had CBT and 26 standard treatment.	CBT reduces symptoms such as anxiety and depression
1 group had the psycho-educational intervention at home and the other had standard treatment	The psycho-educational intervention provided relief from symptoms and improved the self management skills for the disease.
1 group had a program of pulmonary rehabilitation at home in the form of education on the disease, diet, stress reduction methods and exercises for breathing, efficient coughing and stretching. The other group had only routine visits at home.	The program of pulmonary rehabilitation can be used by nurses to organize discharges in order to improve cops patients' self-efficacy.
Patients were taken care of through phone calls.	
1 group had the self management intervention and the other had the standard treatment.	The continuum of the self management program for COPD patients provided by a qualified healthcare professional can effectively reduce the use of healthcare services and improve the health state.
Motivational intervention within the basic healthcare assistance to face the patient's psycho-social needs. Assessment was based on the patients and health workers' interviews.	After the motivational intervention carried on by health workers, cops patients' self-management improved effectively.
Interview on the symptoms management, implementation of activities and physical activity, environmental control, emotional adaptation and keeping a healthy lifestyle.	Participants showed the possibility to choose adequate behaviors for the management of the disease to prevent symptoms and complications.
Informative/educational paperback, educational workshops in self management and monthly calls.	The experimental group showed a remarkable improvement of the self efficacy, particularly in the physical effort, in the management of emotions and in environmental control.
	Providing tools for the self management and unsupervised physical exercise at home is not enough to keep the levels of physical activity.
This study investigated whether the levels of physical activity and other outcomes were kept after 1 year after 2 years of telerehabilitation. Patients received: pulse oximetry, treadmill and a tablet.	Supervision and encouragement from professionals plays an essential role on the patient's lifestyle.
All patients should learn to write a journal which shall be used for 12 months where symptoms experienced during the day will be listed. The experimental group will take part to training sessions for self management. Control group will receive the standard treatment.	
After such intervention the number of exacerbations will be evaluated. All patients suffer from copd and other co-morbidity so specific individual actions plans will be targeted.	The study shows if patient with copd is subject to an individual self management program considering her relative co-morbidity, the number of exacerbations and hospitalizations is reduced.
Interactive webpage, to support and encourage the patients' self management skills.	Difference in copd related symptoms between control group and intervention group evaluated using CAT test.
Educational intervention (stop smoking, use of action plans for acute exacerbations, inhalation techniques and adhesion to treatment).	- Reduction of visits and hospitalizations - Better adhesion tot treatment - Better quality of life - Better knowledge on the management of the disease
Group educational intervention on the diseases' main characteristics, individual training on inhalation techniques and an action plan featuring direction for physical activity and the appearance of exacerbations.	Reduction of copd related hospitalizations, emergency visits and overall exacerbations.
Educational intervention on patients who suffered 1 or more copd related hospitalizations the year before the study; old people in an advance state of the disease with scarce educational notions.	2 years later, a remarkable reduction of hospitalizations of 26.9% was recorded, as well as 21.1% in all emergency visits in the intervention group compared to the standard assistance group.

The rehabilitation program had a duration of 7 weeks with a three times per week schedule. Results were gathered using CSES (Persian version of COPD Self Efficacy Scale,) outlining a remarkable increase of the level of self efficacy.

Among the outcomes coming from the analysis of such studies, I stopped and reflected on assessing how self management programs may decrease the number of hospitalizations due to exacerbations and the visits to the emergency room (13, 14, 15, 16, 17). It is also worth to keep in mind most of these studies reached such outcomes years after the administration of the self management program. No studies showing the decreases in hospitalizations and the visits to the emergency room after such a brief implementation of the self management program were ever to be found.

In order to increase the access of patients suffering from copd to programs of pulmonary rehabilitation, particularly for those having difficulties accessing specialized centers because of their reduced mobility, lack of transportation and travel expenses, tele rehabilitation may be used.

Home supervision from the health professional through real time video conferences can really improve the quality of life and resistance to physical activity (18). The provision of tools for the self management and non supervised physical exercise at home is not enough to keep the levels of physical activity (19). For such reason motivational intervention plays a fundamental role in patients suffering from copd (20).

Supervision and encouraging from the healthcare professional is the basis to change the patient's lifestyle. Analyzing the articles led to the conclusion that 93% of the cases the self management program improved the patient's quality of life, 73% led to a decrease of visits to emergency room, 53% less hospitalizations and only 20% of cases showed users' satisfaction.

Limits

Limits of such revision concern the low level of evidence and the duration of some of the studies used in the research.

CONCLUSIONS

The analysis of the studies revealed that the main component in self management for copd is therapeutical education, which should allow patients to acquire and keep all those skills helping him to live well with her disease.

COPD patient is a very peculiar patient for whom learning skills and health related behaviors is necessary to live delaying complications related to the disease, reducing the level of dependance and leading a normal everyday life, at least as normal as possible.

Therapeutical education, at the level of secondary prevention (in the presence of a risk factor it aims at delaying the the manifestation of the disease) and tertiary (with the disease outstanding, in order to delay the onset of complications), consists in an actual planned and organized transfer of skills from the curing person to the patient, in a prospective where the sick person's dependency progressively leaves open the possibility of her responsibility as well as the "partnership" with the curing team (J.F. d'Ivernois, R. Gagnayre).

The skills the patient should develop under guidance concern: understanding herself; understanding the disease and its relative treatment; auto-monitoring skills; self-care skills; skills related to adapting the therapy to her lifestyle.

In order to gain such skills (the goals of therapeutical education,) the educational approach must focus and be fine tuned on the patient's specific characteristics (and/or the caregiver) and must be a systemic one, that is, it must be some sort of education provided respecting the logic-consequential phases following one another in an orderly way:

- Assessment/gathering of information;
- Formulation of the educational diagnosis;
- Negotiating the deal;
- Planning (contents, methods, tools, evaluation);
- Delivery;
- Assessment (of learning, process, relapse, enjoyment);
- Possible further gathering of information and revision of the entire process.

Therapeutic education is an integral part of the assistance process and it has a multidisciplinary nature, involving the entire team of duly trained healthcare professionals (physicians, nurses, rehabilitation therapists, psychologists etc.) in order to provide a prompt 360 degree assistance which will improve the patient's satisfaction as well as the efficiency of the services.

The epidemiological and demographic pictures draw a constant progressive aging population which goes hand in hand with the multi-pathology/co-morbidity phenomenon. All of this must be considered within the national healthcare

system, whose offer of services can hardly be expanded because of problems of economical nature.

The goals of self-management can be divided in two types – epidemiological and financial. If, on one hand, we are attempting to improve the patient's life increasing awareness of her conditions and involving her in the decision of the therapeutical decisions, on the other hand we are trying to cut the costs related to the use of the healthcare services (21, 22).

In such scenario, self management appears as a possible solution, one that is less expensive than the traditional methods and, in some cases, more effective (23, 24, 25).

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How to cite this article:

Andrea Giacalone and Enzo Ruberti (2019) 'The Power of Self-Management in a Copd Patient', *International Journal of Current Advanced Research*, 08(02), pp.17410-17415. DOI: <http://dx.doi.org/10.24327/ijcar.2019.17415.3302>
