

Impact of an educational nursing intervention in patients with COPD

Impacto de uma intervenção educacional de enfermagem em pacientes portadores de DPOC

Impacto de una intervención educativa de enfermería en pacientes con EPOC

*Renata Camargo Alves^I; Luciane Soares de Lima^{II}; Dulce Aparecida Barbosa^{III};
Silvana Andrea Molina Lima^{IV}; Ana Rita de Cássia Bettencourt^V*

ABSTRACT

Objective: to evaluate the immediate effects of the orientation of the hospital discharge plan for patients with COPD. **Method:** prospective and comparative study performed in a private hospital in São Paulo, with patients with COPD. In first step it was used the questionnaire "Educational Plan for COPD patients" to assess patient knowledge about their disease. In second step, educational intervention was carried out and in the third, again the of the questionnaire was used. The comparison between pre and post-test results was done by paired T-test. The project was approved by the research ethics committee. **Result:** from the 50 patients who participated in study, 68% reported not knowing their disease well before orientation and only 22% after educational intervention. In all sections of questionnaire there was an increase in correct answers after educational intervention. **Conclusion:** the orientation of the hospital discharge plan was effective resulting in an immediate improvement of knowledge.

Descriptors: Patient discharge; pulmonary disease, chronic obstructive; education, nursing; health education.

RESUMO

Objetivo: avaliar os efeitos imediatos da orientação do plano de alta hospitalar aos pacientes com DPOC. **Método:** estudo prospectivo, comparativo, realizado num hospital privado de São Paulo, com pacientes com DPOC. Na primeira etapa foi aplicado questionário "Plano educacional para pacientes com DPOC" para avaliar conhecimento do paciente sobre sua doença. Na segunda etapa foi realizada intervenção educacional e na terceira, reaplicação do questionário. A comparação do resultado do pré e pós-teste foram feitas pelo teste T pareado. Projeto de pesquisa aprovado em comitê de ética, parecer nº 003/12. **Resultados:** dos 50 pacientes participantes do estudo, 68% responderam não conhecer bem sua doença antes da orientação e apenas 22% após intervenção educacional. Todas seções do questionário apresentaram aumento na média de acertos após intervenção educacional. **Conclusão:** orientação do plano de alta hospitalar mostrou-se efetiva resultando em melhora imediata do conhecimento.

Descritores: Alta do paciente; doença pulmonar obstrutiva crônica; educação em enfermagem; educação em saúde.

RESUMEN

Objetivo: evaluar los efectos inmediatos de la orientación del plan de alta para pacientes con EPOC. **Métodos:** estudio prospectivo, comparativo, realizado en hospital privado de São Paulo, con pacientes con EPOC. En la primera etapa se aplicó el cuestionario "Plan de Educación para los pacientes con EPOC" para evaluar el conocimiento del paciente sobre su enfermedad. En la segunda etapa fué realizada intervención educativa, en la tercera se realizó reaplicación del cuestionario. La comparación del resultado del pre y post-test fue hecha por la prueba T pareado. Proyecto de investigación aprobado por comité de ética, protocolo nº 003/12. **Resultados:** de los 50 pacientes participantes, 68% dijeron desconocer su enfermedad antes de la orientación, sólo 22% después de la intervención educativa. Todas secciones del cuestionario se produjo aumento en promedio de acertos después de la intervención. **Conclusión:** la orientación del plan de alta fué eficaz, resultando mejora inmediata del conocimiento.

Descriptores: Alta del paciente; enfermedad pulmonar obstructiva crónica; educación en enfermería; educación en salud.

INTRODUCTION

Chronic diseases represent a considerable problem for society due to high mortality and economic burden during treatment and pose a challenge to health teams regarding patient awareness during their preparation for discharge to achieve adherence to treatment.

^INurse. PhD Student of the Graduate Nursing Program, Botucatu Medical School – Unesp. São Paulo, Brazil. E-mail: recamargoalves@gmail.com

^{II}Nurse. Post Doctorate in Nursing. Full Professor of the Nursing Department. Federal University of Pernambuco. Pernambuco, Brazil. E-mail: luciane.lima@globo.com

^{III}Nurse. Post Doctorate in Nephrology. Associate Professor IV – Associate Professor at the Paulista Nursing School. Federal University of São Paulo. São Paulo, Brazil. E-mail: dulce.barbosa@unifesp.br

^{IV}Nurse. PhD Assistant Professor of the Nursing Department, Botucatu Medical School – Unesp. São Paulo, Brazil. E-mail: smolina@fmb.unesp.br

^VNurse. PhD in Nursing. Adjunct Professor of the São Paulo Nursing School. Federal University of São Paulo. São Paulo, Brazil. E-mail: arcbettencourt@unifesp.br

Chronic Obstructive Pulmonary Disease (COPD) is a disease with progressive and chronic evolution. Its treatment mainly aims to improve the patient's quality of life and to slow down the progression of the pathological process. Despite the obstacles encountered by the health care team and the use of the biomedical model in the health systems, we see an increase in investments for the patient to gain knowledge to effectively and safely manage their disease.

Thus, measuring evidence that makes us reflect on the effects and repercussions of orientation to patients with COPD can bring us discussions about treatment process, degree of these subjects knowledge before and after nursing discharge guidance and the opportunity that nursing professional has available to educate and sensitize individuals about their pathology and, therefore, contribute to team's performance and provide patients with knowledge about their condition and better self-care conditions after discharge.

This study aimed to evaluate the immediate effects of the discharge plan orientation on COPD patients about their disease.

LITERATURE REVIEW

COPD is a respiratory disease with systemic manifestations, characterized by the progressive development of airflow limitation that is not fully reversible. Dyspnea can be severe and often interferes with the patient's daily activities¹.

COPD generates a substantial economic burden on the individual with the disease and on health care system due to reduced activity and hospitalizations^{2,3}.

The treatment of the disease aims mainly to improve the patient's quality of life and to slow down the progression of the pathological process. During hospitalization, the focus of care is to treat the obstructed airways through the use of bronchodilators, antibiotics, oxygen therapy, adequate nutrition, respiratory physiotherapy, and psychological support⁴⁻⁶. For these reasons, this disease has been the subject of numerous studies, especially in matters concerning the patient's educational process.

In Brazil, patient education is still discrete, resulting in a high number of hospital readmissions. Due to tasks overload and numerous assignments, the nurse performs discharge guidance in a protocol way, disregarding the specific conditions of each patient⁷.

Discharge planning should be performed by an interdisciplinary team with the nurse as the responsible for the linking the professionals. The discharge plan consists of an organized way of expressing the activities determined by the particularities of each patient, being ideal that their planning should begin shortly after admission, so that the nurse has the possibility to clarify doubts and to evaluate the effective results in the knowledge⁸.

The nurse should elaborate a discharge plan compatible with the patient's degree of understanding and guide him/her in order to transmit knowledge that may modify his/her health behavior, especially when it comes to chronic diseases. Therefore, it is essential that health professionals understand how COPD affects patients not only from physiological point of view, but also that they see the psychological and social side so that nursing behaviors are effective and that the elaborated intervention plan is coherent with their expectations and possibilities^{9,10}.

In this sense, studies related to health education are fundamental to contribute to the team's performance and to provide patients with knowledge about their situation and better self-care conditions after discharge, in order to effectively and safely manage their disease, thus decreasing complications and hospitalizations^{11,12}.

This study aims to evaluate the immediate effects of guidance from the discharge plan in COPD patients.

METHOD

A prospective, comparative, before and after study, conducted in the inpatient units of a large private hospital located in the city of São Paulo.

Data collection was performed from May 2012 to May 2013 and the sample consisted of 50 patients who agreed to participate in the study. There were no refusals or withdrawals during the research. The study included patients diagnosed with COPD according to the hospitalization chart and who remained hospitalized for more than three days. Patients with a Mental State Mini-Exam (MSME) score below 18 (for patients without formal education) and below 24 (with at least 1 year of school education) were excluded. This instrument aims to assess the cognitive capacity of the patient and consists of seven categories: temporal orientation (0 to 5 points), spatial orientation (0 to 5 points),

three word record (0 to 3 points), attention and calculation (0 to 5 points), recent memory (0 to 3 points), language (0 to 8 points) and visual constructive capacity (0 to 1 point). Its score may range from 0 to 30 points¹³.

The questionnaire used to assess the patients' knowledge of their disease was the Educational Plan for patients with chronic obstructive pulmonary disease, a knowledge assessment tool developed and validated by the Pulmonary Rehabilitation Center of the Federal University of São Paulo/São Francisco Home School (*Universidade Federal de São Paulo/Lar Escola São Francisco*, UNIFESP/LESF), in the city of São Paulo. Consisting of 30 questions and divided into seven sections that address the following, respectively: anatomy of the respiratory system; daily activity; secretion mobilization; practice of physical exercise; use of medication; smoking and nutrition. Question 30 addresses the patient's perception on self-knowledge of the disease. Each question has four alternatives, and the last choice has the following as answer: I don't know; except question number 30, which has two alternatives (yes or no). The score of this questionnaire is given by the percentage of right and wrong answers; being possible to know the information degree the patient has about his/her disease¹⁴.

Once a day, the researcher accessed the hospital health management software that allowed access to the patients' list admitted to the inpatient units and their respective diagnoses.

The study was conducted in three stages, on three consecutive days. On the first day, the researcher applied the form containing the sociodemographic and clinical variables, the MSME and the "Educational Plan for patients with chronic obstructive pulmonary disease" questionnaire to assess knowledge about the pathology and treatment of COPD, termed as pre-test.

The entire approach was performed in the hospital apartment with or without the presence of a companion. In cases where the companion was present, they were instructed by the researcher not to interfere with the patient's response and that all their doubts would be answered at the end of the study.

On the second day, educational intervention work was carried out to talk to the patient about the seven sections of the "Educational Plan for patients with chronic obstructive pulmonary disease" questionnaire with a mean duration of 1 hour and a half. All guidance was provided with the aid of illustrated and printed educational material that was delivered to the patient at the end of the study. On the third day of approach, the "Educational Plan for patients with chronic obstructive pulmonary disease" questionnaire, named in the study as post-test, was applied again. At the end of the answers, a space was opened again for the patient and companion to clarify their doubts and the educational material was delivered. This material was prepared by the researcher based on all the content that would be addressed.

The categorical data were summarized by absolute and relative frequency (n and %) and mean value, minimum and maximum standard deviation in the case of numerical variables. Pre- and post-test results were compared by the paired T-test, by comparing the number of correct answers in total and by section. The comparison between the pre- and post-test about disease knowledge was performed by the Mc Nemar's test (significance of changes). Statistical significance was obtained for p values < 0.05.

The study was approved by the Research Ethics Committee of the *Nove de Julho* Hospital (CEPH9J) under Opinion No. 003/12, having as co-participant the Federal University of São Paulo (CEP UNIFESP) Opinion No. 777,980. The participants signed the Free and Informed Consent Form.

RESULTS

Fifty patients with COPD participated in the study, 50% being male, and the mean age was 73.5 years old (SD±10.8). The mean schooling level was 12.8 years (SD 4.018) and the mean score of the MSME was 26.8 points (SD±1.8).

Regarding smoking data, 76% were former smokers, 14% smokers and 10% never smoked. The mean smoking time was 38.2 years (SD±14.7) and cigarette consumption, measured in years/pack, was 55.0 (SD±45.2). The mean time since COPD diagnosis was 5.6 years (SD±6.9).

Regarding COPD severity, 4% of the sample were grade I (mild COPD), 58% grade II (moderate COPD), 22% grade III (severe COPD), and 16% grade IV (very serious COPD).

Most of the patients (84%) underwent treatment for COPD and 78%, regularly. As for medication, 50% used inhaled bronchodilators and 42% inhaled corticosteroids.

Most of the patients did not seek information about the disease (74%). Among those who showed interest, 12% performed this search in a doctor's office, 8% on the Internet, 4% in books and 2% through other means.

Table 1 shows the mean of correct answers and the standard deviation in the pre- and post-test of the questionnaire's seven sections, as well as the mean of the difference between the pre- and post-test results per section and their respective standard deviations. In all the sections there was an increase in the mean score of the post-test compared to that of the pre-test correct answers. The statistical analysis shows that there was an increase in the mean of the post-test compared to that of the pre-test correct answers in all the sections ($p < 0.0001$). The data show that sections 1 and 5, which dealt respectively with the anatomy of the respiratory system and the use of medication, were the ones that presented the greatest difference in the mean of correct answers, while section 6, which addressed smoking, presented the smallest difference.

TABLE 1: Mean and standard deviation of the number of correct answers - São Paulo - May 2012 to May 2013

Sections of the questionnaire	Pre-test mean (SD*)	Post-test mean (SD*)	Difference between the pre- and post-test results	p-value † Difference between the pre- and post- test results
Section 1 - Anatomy of the respiratory system (5 questions)	2.7(0.99)	4.4(0.83)	-1.7(0.87)	<0.0001 †
Section 2 - Daily activities (3 questions)	1.9(0.95)	2.6(0.67)	-0.7(0.83)	<0.0001 †
Section 3 - Secretion mobilization (3 questions)	1.9(0.77)	2.6(0.54)	-0.7(0.76)	<0.0001 †
Section 4 - Practice of physical exercise (4 questions)	2.5(0.76)	3.4(0.63)	-0.8(0.79)	<0.0001 †
Section 5 - Use of medication (4 questions)	1.9(1.33)	3.7(0.59)	-1.7(1.18)	<0.0001 †
Section 6 - Smoking (5 questions)	4.2(0.76)	4.6(0.54)	-0.4(0.63)	<0.0001 †
Section 7 - Nutrition (5 questions)	3.0(1.17)	3.7(0.89)	-0.7(1.07)	<0.0001 †

*SD – Standard Deviation; † Statistically significant difference

Regarding the last question, which addressed the perception of self-knowledge of the disease, the percentages of positive and negative responses in the pre- and post-test are shown in Table 2.

TABLE 2: Percentage of positive and negative pre- and post- test answers regarding the perception of their self-knowledge of the disease - São Paulo - May 2012 to May 2013.

Perception of self-knowledge of the disease	Yes (%)	No (%)
Pre-test	32	68
Post-test	88	12

In the pre-test there was a predominance in the percentage of patients with negative responses (68%), while in the post-test, after orientation, there was a predominance in the percentage of patients who answered "yes" (88%), claiming to know their disease.

DISCUSSION

The results of this study in relation to the proportion of men and women follow the trend observed in other studies. Nowadays, we have an equivalence between female and male patients with COPD. This may be justified by the increase in tobacco use among women². The mean age in the sample is also compatible with other studies, with a predominance of elderly patients^{2,15}. A population-based study conducted in the municipality of São Paulo showed that COPD prevalence is associated with age over 60 years old².

Regarding cognitive ability, the mean score of the MSME was 26.8 points, a value that represents a good cognitive capacity. Different results were found in the Chinese study conducted to evaluate hippocampal changes and cognitive impairment in COPD, which states that chronic hypoxemia leads to hippocampal atrophy assessed by magnetic resonance imaging. In this study, the mean presented was 28 for the control group (healthy individuals), 24.57 for mild to moderate COPD and 22.15 for severe COPD¹⁶.

The prevalence of former smokers is similar to that found in other studies^{2,17}. Data on smoking, such as mean smoking time and cigarette consumption and mean COPD time, are also in line with other studies^{2,17}.

Regarding COPD severity, most cases were classified as grade II (58%) and grade III (22%), i.e., moderate and severe COPD respectively, similar to what is found in the literature. This fact may be explained by research studies in hospital settings, and the patients with the most exacerbations and complications are those in the most advanced stages of the disease^{17,18}.

Most of the patients (84%) reported receiving treatment for the disease and 78% reported that they did it regularly. Regarding medication use, half of the sample used inhaled bronchodilator and 42% inhaled corticosteroids. A Spanish study conducted with 195 COPD patients showed that adherence to treatment tended to change over time. Adherence was measured by counting the used dose/prescribed dose. According to the data presented, in the first visit the index was 68.1%, in the second visit, 80% and in the third, 84%. These data show us the importance of guidance and patients' follow-up by health professional¹⁹. A Taiwanese study evaluated the inhalation technique of 298 patients with COPD and showed that the rate of misuse is quite high and is directly related to incorrect knowledge about inhaler use, emphasizing the need for respiratory therapy education²⁰. A French study evaluated the handling of the inhalation device in 2,935 COPD patients and found errors in more than 50% of the manipulations, regardless of the device used, and associated critical errors with severe COPD exacerbations. The results of the research proved that inhaler training is an integral part of disease management²¹.

Regarding the questionnaire, it was observed that section 1 presented a greater difference in the mean of correct answers between the pre- and post-test (-1.7). This is justified by the fact that the section contains very specific questions about the anatomy of the respiratory system. However, despite the specificities of the questions, all were necessary to provide knowledge of the disease as a whole.

Section 2, about daily activities, showed a discrete increase (-0.7), but significant in the number of correct answers after the educational intervention. A Brazilian study conducted with 40 COPD patients showed that they are less active than healthy elderly individuals and spend most of their time lying or sitting²². However, it is critical that these functional limitations be addressed, and the energy conservation techniques be taught for the patient to achieve greater functionality. A Brazilian research showed that the prevalence of depressive symptoms in COPD patients is high and is directly related to impairment in performing daily living activities²³. A study conducted in China assessed the efficacy before and 12 months after the follow-up and completion of a pulmonary rehabilitation program in patients discharged after COPD exacerbation. 267 patients who completed the study program showed a significant reduction in exacerbation episodes, emergency room visits, and hospitalization episodes. The results of this research were attributed to the pursed lip breathing technique and respiratory physiotherapy that resulted in increased coordination of neuromuscular functions and respiratory efficiency²⁴.

Secretion mobilization, addressed in section 3, also presented a mean difference of -0.7 between the pre- and post-test. According to a study from France, chronic cough and sputum production are associated with COPD exacerbations that often require patient's hospitalization²⁵. For this reason, it is critical that the patient be able to recognize changes in the amount and quality of cough and sputum.

Physical inactivity is associated with the exacerbation of the condition, resulting in hospitalization. It is essential that the practice of physical exercise be part of an education program for COPD patients, as increasing activity levels is crucial for disease management and may result in improved long-term prognosis²⁶. Regarding section 4, which addressed the practice of physical exercise, the mean difference was -0.8, demonstrating that the patients understood the importance of changing their habits to improve their health.

Just like section 1, section 5, which addressed medication use, also showed a greater difference in the mean of correct answers between the pre- and post-test (-1.7). These data are in line with a study aimed at building a teaching plan that emphasizes the patient's need to learn about the effects of medications and how to use them, and reveals that older adult patients often have greater difficulty using inhalers and nebulizers²⁷.

The smallest difference in the mean of correct answers between the pre- and post-test (-0.4) was in relation to smoking. Despite the widespread dissemination by the media of the harm caused by cigarettes, it is necessary to address this issue continuously in educational programs in order to sensitize the patient. Smoking cessation should be treated as a priority as it slows down the progression of the disease and increases quality of life²⁸.

Regarding nutrition, the mean difference was -0,7. Nutritional guidance is critical for COPD, as malnourished patients have greater gas trapping and reduced performance during physical exercises²⁸. A Spanish study found that malnourished COPD patients had worse levels of functionality than those with a normal nutritional status²⁹.

In question 30, which addressed the perception of self-knowledge of the disease, 68% of the patients answered not knowing their disease well before orientation, and the percentage lowered to 22% after the educational intervention. According to a study conducted to assess the perceptions of users with chronic diseases, it is essential that the professionals use strategies with the objective of making the patient his/her partner in the production and information of care, turning them into the manager of his/her own disease. For this, it is necessary to allow the patient to acquire a critical awareness about his health problems, thus making him/her more secure regarding the evolution and prognosis of his/her disease³⁰.

The educational process of patients and relatives during hospitalization has gained prominence in recent times and has shown relevant results mainly for chronic diseases³¹. It is worth mentioning that the participation of nurses in this process is fundamental to achieve the expected results³².

This study has limitations as it was aimed at assessing the immediate knowledge acquired. To demonstrate whether this methodology has modified late knowledge and interfered with the number of readmissions of these patients, we would have to extend data collection time for too long a period.

CONCLUSION

The results of this study demonstrated that the educational nursing intervention had a positive impact on the patient's learning, resulting in increased knowledge in all the sections addressed in the questionnaire, as well as in an improvement in self-perception regarding their disease. The use of the illustrative material employed in the hospital discharge plan was well received and helped in the educational process. These results may contribute to the planning of hospital discharge guidance for patients with chronic degenerative diseases in general, aiming at improving the quality of life and health.

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