Impact of an Educational Program on Self Efficacy of Patients with Chronic Obstructive Pulmonary Disease

Prof. Dr. Magda Abdel-Aziz Mohammed, Prof. Dr. Mamdouh Mohammad Almezaien, Prof. Dr. Raed El-metwaly Ali Eid, Dr. Dina El-tabey Sobeh and Amora Omar Ibrahim El-Mowafy.

Professor of Medical-Surgical Nursing, Faculty of Nursing, Ain Shams University, Professor of Surgery and Vascular, Faculty of Medicine, Suez Canal University, Professor of Chest Medicine, Faculty of Medicine, Mansoura University, Lecturer of Medical-Surgical Nursing, Faculty of Nursing, Port Said University, Master degree in Medical–Surgical Nursing, Faculty of Nursing- Port Said University.

ABSTRACT

Background: Worldwide, chronic obstructive pulmonary disease (COPD) is in the spotlight because of its morbidity, mortality and high prevalence. In Egypt is highlighted as a major public health problem**. The aim of the present** study was to evaluate the impact of an educational program on knowledge, practice, and self-efficacy of patients with stable chronic obstructive pulmonary disease. **Research Design** Quasi-experimental research design was utilized in this study. **Subject& Methods,** the sample was consisted of all available patients with stable COPD during the time of data collection. **Two tools were used to collect data:** Structured interview sheet which consisted of socio-demographic characteristics, and medical history**. and;** Self-Efficacy Scale for Patients with COPD**. The result** of the study concluded that there was no statistically significant difference between pre and post & pre and follow up scores, but there was a highly statistically significant difference between pre and post program all self-efficacy factors except with weather ⁄environment, while there was no statistically significant difference between pre and follow up program in all self-efficacy factors except in negative affect factor. **Conclusion,** the study concluded that after implementation of the educational program, remarkable improvements were occurred in knowledge, practice, and self-efficacy sub scores. **Recommendation,** the study recommended continuous monitoring and evaluation of self-efficacy for patients, to enhance disease management through establishing a rehabilitation program for patient, and to improve their self-efficacy. Promotion and enhancement of the self-care modalities to the patient; a strict written instruction with pictures about disease process, allowed foods , rest and physical activities and follow up should be continued after termination of educational program.

Key word: COPD, Self-Efficacy, educational program.

INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a leading cause of death worldwide. In addition to generating high healthcare costs, COPD imposes a significant burden in terms of disability and impaired quality of life. Unlike many leading causes of death and disability, COPD is projected to increase in much of the world as smoking frequencies rise and the population ages **(Lomborg, 2013).**

Chronic obstructive pulmonary disease is a lung disease characterized by chronic obstruction of lung airflow that interferes with normal breathing and is not fully reversible. The more familiar terms 'chronic bronchitis' and 'emphysema' are no longer used, but are now included within the COPD diagnosis. It is not simply a "smoker's cough" but an under-diagnosed, life-threatening lung disease (World Health Organization, 2016_a).

Smoking is by far the most common risk factor for development of COPD, but other factors such as outdoor, occupational, and indoor air pollution may also cause COPD in the absence of smoking. Factors such as genetics, infections, nutrition, and oxidative stress may also have a role in the development and/or progression of COPD (Walia, Vellakkal, & Gupta, 2016).

The chronic airway limitation characteristic of COPD is due to inflammation that results in obstruction of the small airways and destruction of lung parenchyma. Common symptoms include chronic cough, sputum production, and progressive, persistent dyspnea that worsens with exertion (Spencer & Hanania, 2013).

According to the Global Initiative for Chronic Obstructive Lung Disease (GOLD) guidelines updated in 2016, spirometry is now required to make a confident diagnosis of COPD, whereas previously it was used to support the diagnosis. The fixed ratio of post bronchodilator forced expiratory volume in one second (FEV_1) to the forced vital capacity (FVC), or FEV_1/FVC, needs to be <70% and the staging system of spirometry classification, which has now been replaced with grading, uses: $FEV_1 \geq 80\%$ predicted (GOLD 1, mild); $50\% \leq FEV_1 < 80\%$ predicted (GOLD 2, moderate); $30\% \leq FEV_1 < 50\%$ predicted (GOLD 3, severe); and $FEV_1 < 30\%$ predicted (GOLD 4, very severe) (Global Initiative for Chronic Obstructive Lung Disease, 2016).

Chronic obstructive pulmonary disease can be prevented and treated, but the disease is incurable and the airway limitation is not fully reversible. As COPD progresses, patients are forced to limit their activities and may experience depression and a decline in their quality of life. Patients with COPD also commonly experience comorbid conditions related to aging and/or smoking, including cardiovascular disease, osteoporosis, and depression (Decramer, Janssens, & Miravitlles, 2012).

One of the most important initial steps for management of COPD is to reduce exposure to risk factors, including cigarette smoke and/or occupational dusts, fumes, and gases. Given the leading role of smoking as a cause of COPD, it may not be surprising that smoking cessation is the only intervention shown to reduce the rate of disease progression and related mortality. Patient education is a particularly important component of smoking cessation intervention, and education about some aspects of COPD may help patients to cope (Thabane, 2012).

Pharmacological therapies are useful to manage symptoms, and some are indicated to reduce exacerbations, which become increasingly important goals as the disease progresses. Various classes of drugs may be appropriate based on the patient's symptoms, risk of exacerbation, and grade of airflow limitation .In general, short-acting bronchodilators are recommended as needed at all stages of the disease, and long-acting bronchodilators may be appropriate as regular maintenance therapy for patients with moderate to severe COPD. The long-acting anticholinergic, tiotropium, was also recently approved for reduction of exacerbations in patients with COPD (Karner, & Cates, 2012).

An inhaled corticosteroid (ICS) may be appropriate as add-on therapy to long-acting bronchodilators in patients with severe and very severe COPD. For instance, a combination of the long-acting β-adrenergic, salmeterol, and fluticasone, an ICS, is indicated to reduce exacerbations in patients with COPD with a history of exacerbations. Systemic corticosteroids are recommended in the treatment of acute exacerbations of COPD, but their long-term use is not recommended due to lack of evidence of benefit and side effect (Chinet, Dumoulin, Honore, Braun, Couderc, Febvre, Mangiapan, Maurer, Serrier, Soyez & Jebrak, 2016).

As the prevalence of COPD continues to grow, management of the disease still faces considerable challenges. Despite the existence of effective pharmacological treatments, patient adherence is often poor. Side effects of medications and patients' concerns about potential side effects may contribute to poor adherence. Situated as they are at the frontline of patient care in the clinic, nurse practitioners play an important role in the management of COPD. Patient understanding of the therapy and self-management have been identified as key outcome indicators. A focus on these indicators will improve nurse care for COPD patients (Lodewijckx, Sermeus, Panella, Deneckere, Leigheb, Troosters, Boto, Mendes, Decramer &Vanhaecht, 2013).

Increasing the patients' ability to conduct and follow their own self-care activities through promoting their self-efficacy has become one of the most important parts of care plans. The nurse should assess the self-efficacy and self-care behaviors of COPD patients as one of the main parts of clinical nursing performance (Khoshkesht, Zakerimoghadam, Ghiyasvandian, Kazemnejad, & Hashemian, 2015).

AIM OF THE STUDY:

This study aimed to:

Evaluate the impact of an educational program on self-efficacy of patients with stable chronic obstructive pulmonary disease at the outpatient clinic of respiratory medicine department in Mansoura University Hospital. This was achieved through:

- Assess self-efficacy of patients with chronic obstructive pulmonary disease.
- Develop the educational program for patients with chronic obstructive pulmonary disease.
- Implement the educational program for patients with chronic obstructive pulmonary disease.
- Evaluate the impact of implemented educational program for patients with chronic obstructive pulmonary disease immediately and after three months post program.

SUBJECTS AND METHOD:

The subjects & methods of this study will be portrayed under the four main designs as follows:

I. Technical design.

II. Operational design.

III. Administrative design.

IV. Statistical design.

I- Technical design

The technical design includes; the research design, study setting, subjects, and tools for data collection.

Research design:

A Quasi experimental research design was used in this study.

Setting:

The present study was conducted at outpatient clinic of the respiratory medicine department at Mansoura University Hospital.

Subjects:

All available patients with stable COPD were included in the study during the time of data collection.

- **Inclusion criteria:**

  - All adult patients
  - Both sexes
  - Agree to participate in the study.

- **Exclusion criteria:**

  - Those with significant co- morbidity (e.g. heart disease, stroke).

A.Tools for data collection:

Two tools were used to collect data:

Tool I: A structured interview sheet:

It was developed by the researcher, based on recent and relevant literatures **(Mohamed, 2005).**

It was consisted of **two parts:**

- **Part 1: Biosocial-demographic Data:** which included demographic characteristics of the patients and composed of (6) closed ended questions including (age, sex, marital status, occupation, level of education, and residence).
- **Part 2: Medical History**: which included series of questions to elicit patient's medical history, it was composed of:

a) Present medical history: It was composed of (6) closed ended questions including (duration of disease, drug compliance, presence of chronic diseases**,** types of chronic diseases, smoking status, and smoking type).

b) Past medical history: It was composed of (2) closed ended questions including (signs & symptoms associated with disease and history of hospitalization).

c) Family history of the disease: It was composed of (2) closed ended questions which included (family history of COPD and degree of relativity).

Tool II: Self-Efficacy Scale for Patients with Chronic Obstructive Pulmonary Diseases:

Developed by (Wigal, et al., 1991) to assess self-efficacy in individuals with COPD which consisted of (34) item specifically that consisted of Likert scale with 5 responses:

"Not at all confident → (1)

Not very confident → (2)

Somewhat confident → (3)

Pretty confident → (4)

Very confident → (5)

Scoring System:

Scoring (5) representing higher self-efficacy while scoring (1) representing lower self-efficacy, and a five-factor structure including (negative affect, intense emotional arousal, physical exertion, weather/environments, and behavioral risk factors). It was translated into simple Arabic language to facilitate data collection from patients then retranslated into English to assure its accuracy. The total score for self-efficacy was (170), responses to questions were counted and then scored similar to previous study conducted by **(Scherer, Schmieder, & Shimmel, 1998)** as follows:

High self-efficacy if the score ≥ 60 % of the maximum score.

Low self-efficacy if the score < 60% of the maximum score

A proposed educational program:

This program developed to enrichment of patients with instruction, and knowledge about COPD to promote effective learning and behavioral changes. The COPD educational program in this study consisted of basic respiratory physiology, risk factors, triggers, signs and symptoms and medication, demonstrating the use of inhalers, the use of nebulizer, and promoting deep breathing.

II- Operational design:

The operational design included preparatory phase, content validity, pilot study, and fieldwork.

a- Preparatory phase:

It included reviewing of related literature, and theoretical knowledge of various aspects of the study using books, articles, internet periodicals and magazines, as well as pioneer from nursing experts in order to develop the exact tools for data collection and designing the counseling program.

b- Content validity:

Test validity was conducted to test the tool for appropriateness, comprehensiveness, relevance, correction and clearance through nine experts, from the Medical-Surgical Nursing staff at the Faculties of Nursing (Port Said, Mansoura and Benha University) and Medical Staff of chest Medicine, Faculty of Medicine, Mansoura

University. Experts were from different academic categories (professors and assistant professors). Their opinions were elicited regarding the tool format, layout, consistency, and scoring system.

Testing reliability of proposed tool was done by **Cronbach's** alpha test (.892).

c- Pilot study:

A pilot study carried out on 10% of the sample to test applicability and clarity of the tools. It was conducted before data collection to evaluate the contents and clarity of the questionnaire, reconstruct or modify the questionnaire if necessary, and estimate the time needed to fill in the questionnaire. It was excluded from sample size.

d- Field work:

The study was implemented from the beginning of May 2015 to January 2016. The instructional booklet and the educational program were designed based on analysis of the actual educational patients' needs assessment in pretest by using the pre constructed tools. The content of instructional booklet was written in a simple Arabic language and consistent with the related literature based on their level of understanding.

The instructional booklet was consisted of different elements; basic respiratory physiology, risk factors, triggers, signs and symptoms and medication, demonstrating the use of inhalers, the use of nebulizer, promoting deep breathing and coughing exercise and ways to enhance self-efficacy. the data were collected by using these tools as the following:

Tool I: Demographic data and health history sheet.

Tool II: Assessment of patient's self-efficacy.

Data were collected by the researcher three days per week (Saturday, Monday, and Thursday) during the morning shift by rotation at outpatient clinic of respiratory medicine department of Mansoura University Hospita**l.**

Methods Used:

Lecture, posters, pictures and group discussion methods.

The study consists of six sessions:

- **Pre-intervention phase:**

  - **The 1st session** included interviewing the patients to collect data regarding demographic characteristics, past history, present history, and family history of disease (Time allowed: from 10- 20 minutes for each patient).

  - **The 2nd session** included assessment patients' self-efficacy (Time allowed: from 10- 15 minutes).

Intervention phase:

From 3rd to 6th session (the educational program):

The educational program was presented in theoretical and practical sessions for patients, which aided by using booklets. The theoretical part was conducted through lectures and group discussions, while the practical part was conducted through redemonstration for breathing procedure. This program consisted of four sessions; each session lasted about 45 minutes and was accompanied by feedbacks. These educational sessions were done either individually or in groups (10-15) patients.

The researcher was contacted with the patients one day weekly for any explanation. Patients were also informed to be in contact with the researcher by telephone for any guidance.

Post-intervention phase:

The 7th session (post-test): This session included reassessment of patients' self-efficacy which aimed to evaluate the improvement after applying the educational program by using post – test (immediately and after 3 months from program.) by using the same tools. Questionnaires were filled by the patients under observation of the researcher or by researcher in illiterate patients.

III- Administrative Design:

An official letter was issued from the Faculty of Nursing, Port-said University to the director of Mansoura University Hospital & Head of chest department to obtain their permission to conduct the study.

Additional oral consents were taken from the patients who participated in the study after explanation of its purpose. They were given an opportunity to refuse the participation, and they were assured that there information which would be used for research purposes only.

Ethical considerations:

All ethical issues were taken into consideration during all phases of the study. The ethical research considerations in this study included the following: The research approval was obtained before collecting data, the objectives and the aim of the study were explained to the participants, the researcher maintained on anonymity and confidentiality of subjects, and subjects were allowed to choose to participate or not and they had the right to withdrawal from the study at any time without giving any reason. Values, culture and beliefs would be respected.

IV-Statistical Design:

All collected data were organized, categorized, tabulated, entered, and analyzed by using SPSS, (Statistical Package for Social Sciences), software program version 14, which was applied to frequency tables, statistical significance and associations were assessed using the arithmetic mean, standard deviation (SD), chi-square, t-test, Z test, and coefficient correlation (r) to detect the relations between the variables.

- Non-significant (NS) $p > 0.05$
- Significant (S) $p \leq 0.05$
- Highly significant (HS) $P < 0.001$

RESULTS:

Table (1): shows that 89.2% of the studied patients were in age group of 40-60 years old with Mean ± SD=52.68 ± 7.17, 62.5% of them were males, 67.5% were married, and 56.7% of them were working. As regard to patients' level of education 39.2% were secondary while 30.0% were illiterate

Table (2): shows that 43.3% of the studied patients had COPD for more than five years, and 73.3% of them were compliant to medication. 77.5% of the patients had chronic diseases. Regarding smoking status 36.7% of the studied patients were previous smokers, 17.5% of them were current smokers and about 43.3% of them are cigarette smokers.

Table (3): shows that 85% of studied patients had dyspnea and chronic cough. As regard to patients' previous hospitalization during last year, 37.5% of the patients were hospitalized from 2-4 times while 7.5% of them had no previous hospitalization during last year. In relation to family history of COPD; 25. 8% of the patients had family history of COPD and 20. 8% of them had 1st degree relativity.

Table (4): Shows that, there was a highly statistically significant difference between pre and post program in the studied patients after implementation of the educational program related to all self-efficacy factors with ($p \leq 0.001$) ***except*** with weather⁄environment, there was no statistically significant difference with ($p<0.083$). ***while*** there was no statistically significant difference between pre and follow up program in the studied sample after implementation of the educational program related to all self-efficacy factors with ($p<0.317$) & (1.000) ***except*** for negative affect factor was statistically significant difference with ($p<0.034$).

Table (5): Shows that, there was no statistically significant difference between pre and post program in the studied patients after implementation of the educational program in total self-efficacy with ($p \leq 0.317$), & there was no statistically significant difference between pre and follow up program in the study group with ($p<0.317$).

Figure (1): shows that 65.0% of the patients were living in urban areas while 35% of them from rural areas.

Figure (2): Shows that 55.0% had hypertension, while 15% of them had renal and others disease.

Table (1): Socio-demographic Characteristics of Patients with COPD (N=120):

Personal Characteristics	No.	**%**
Age groups (in years)		
• 20 - 40	13	10.8
• 40 – 60	107	89.2
Mean ± SD =52.68 ± 7.17		
Gender		
• Male	75	62.5
• Female	45	37.5
Marital status		
• Single	4	3.4
• Married	81	67.5
• Divorced	16	13.3
• Widowed	19	15.8
Occupation		
• Working	68	56.7
• Not working	52	43.3
Level of education		
• Illiterate	36	30.0
• Read and write	27	22.5
• secondary	47	39.2
• University	10	8.3
Total	120	100.0

Table (2): percentage & Distribution of Present Health History of Patients with COPD (N=120).

Present health history	**No.**	**%**
Duration of COPD		
• Less than < 1year	15	12.5
• From 1 -3 years	30	25.0
• From 3 - 5 years	23	19.2
• ≥ 5 years	52	43.3
Drug Compliance		
• Yes	88	73.3
• No	32	26.7
Chronic Disease		
• Yes	93	77.5
• No	27	22.5
Smoking Status:		
• None smoker	55	45.8
• Previous smoker	44	36.7
• Current smoker	21	17.5
Smoking Type:		
• Cigarette smoking	52	43.3
• Shisha	5	4.2
• Both	8	6.7

Table (3): percentage & Distribution of Past and Family Health History of Patients with COPD (N=120).

Past and Family health history	**No.**	**%**
Signs and symptoms:		
• Dyspnea	85	70.8
• Chronic cough	85	70.8
• Excessive sputum	86	71.7
• Wheezing	56	46.7
• Weight Loss	34	28.3
• Fatigue	55	45.8
• Cyanosis	43	35. 8
Previous hospitalization during last year:		
• Once	30	25.0
• From 2-4 times	45	37.5
• More than 4 times	36	30.0
• No	9	7.5
Family History of COPD:		
• Yes	31	25. 8
• No	89	74.2
Degree of relativity		
• 1st degree	25	20. 8
• 2nd degree	6	5.0

Table (4): Impact of the Educational Program on Self Efficacy Factors of Studied Patients before and after Implementation of the Educational Program and Follow up.

Items	Pre		Post		FU		Pre Vs. Post		Pre Vs. FU	
	No	%	No	%	No	%	Z	P	Z	P
Negative Affect										
High self-efficacy	8	6.7	18	15.0	2	1.7	-3.162	0.002*	-2.121	0.034*
Low self-efficacy	112	93.3	102	85.0	118	98.3				
Intense Emotional Arousal										
High self-efficacy	21	17.5	71	59.2	20	16.7	-7.071	0.001*	-1.000	0.317
Low self-efficacy	99	82.5	49	40.8	100	83.3				
Physical Exertion										
High self-efficacy	0.00	0.00	36	30.0	0.00	0.00	-6.000	0.001*	0.000	1.000
Low self-efficacy	120	100.0	84	70.0	120	100.0				
Weather\ Environment										
High self-efficacy	0.00	0.00	3	2.5	0.00	0.00	-1.732	0.083	0.000	1.000
Low self-efficacy	120	100.0	117	97.5	120	100.0				
Behavioral Risk Factor										
High self-efficacy	0.00	0.00	13	10.8	0.00	0.00	-3.606	0.001*	0.000	1.000
Low self-efficacy	120	100.0	107	89.2	120	100.0				

Not significant > 0.05(NS) *Significance ≤ 0.05 (S) ** Highly Significance ≤ 0.001 (HS)

Table (5): Comparison of Patients' Total Self Efficacy Score before and after Program Implementation and Follow Up (N=120).

Item	Total self-Efficacy				Pre Vs post		Pre Vs FU	
	Highly self-Efficacy		low self-Efficacy					
	No	%	No	%	Z	p- value	Z	p- value
Pre program	1	0. 8	119	99.2	1.000	0.317	-1.000	0.317
Post program	3	2.5	117	97.5				
Follow up	2	1.7	118	98.3				

Not significant > 0.05(NS) *Significance ≤ 0.05 (S) ** Highly Significance ≤ 0.001 (HS)

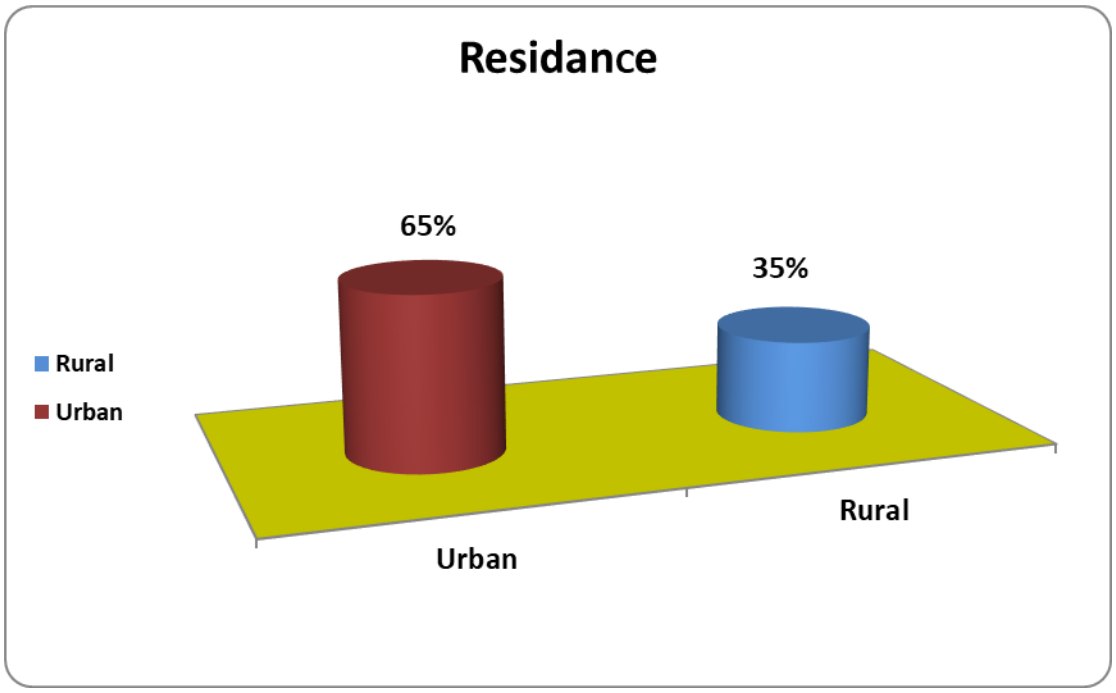

Figure (1): Distribution of Patients with COPD According to Residence.

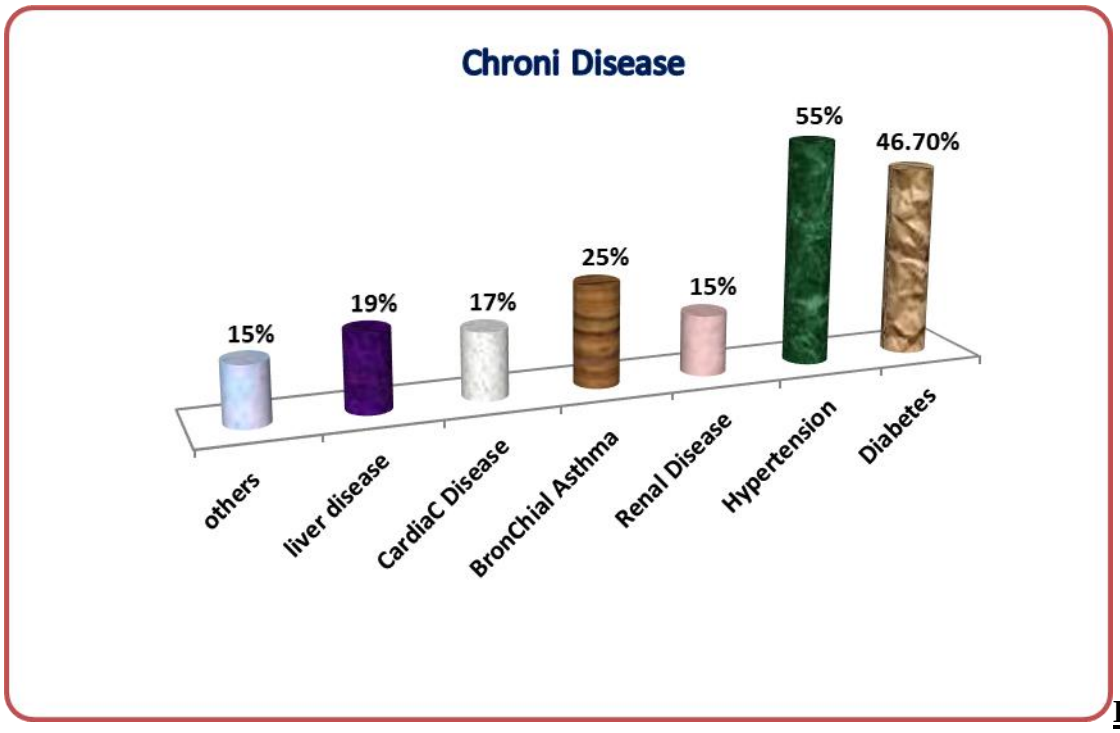

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Figure (2): Distribution of Patients with COPD according to Presence of Chronic Diseases.

DISCUSSION:

Chronic obstructive pulmonary disease is a complex, multifactorial, and progressive disease associated with significant morbidity and mortality. The rising economic burden of COPD correlates with increases in disease severity, and hospital admissions and readmissions account for a significant bulk of cost across all stages of COPD. Early appropriate behavioral and pharmacotherapy options to reduce COPD exacerbations are essential for slowing disease progression, increasing patient quality of life, and subsequently reducing the overall cost burden of this disease state (Guarascio, Ray, Finch, & Self, 2013).

Socio demographic characteristics of the studied patients revealed that; most of the studied patients were aged between 40-60years old. with mean age 52.68 ± 7.17years, These findings may be due to that COPD takes many years until serious effects of smoking on lungs appear. This is supported by (Qaseem, Wilt, Weinberger, Hanania, Criner, Van der Molen, Marciniuk, Denberg, Schünemann, Wedzicha, MacDonald, & Shekelle, 2011) that stated that the single best variable for predicting which adults will have airflow obstruction on spirometry is a history of more than 40 pack years of smoking.

Also this finding is supported by (Lewis, Dirksen, Heitkemper, & Bucher, 2014), who stated that as people age there is gradual loss of the elastic recoil of the lung. The lungs become more rounded and smaller. The number of functional alveoli decreases as peripheral airways lose supporting tissues. Changes in the elasticity of the lungs reduce the ventilatory reserve, and ability to clear secretions decreases with age.

The study finding are in agreement with (Salah, Hamdi, & Shehata,2013) who mentioned that, the mean age of more than half of patients with COPD were 50 years of age or older. According to (Badway, Hamed, & Yousef, 2016) the age of patients who included in their study was between 40-59 years and they represent approximately three quarters of study patients.

As regard to gender, the result of the present study showed that, near two thirds of study patients were male. This finding could be due to the higher prevalence of smoking in this gender in Egypt; also, males are more exposed to smoking than females, and occupational exposures are significant in male. This finding was supported by (Zamzam, Azab, Ragab, El Wahsh, & Allam, 2012**)** who stated that, the majority of patients were

males in their study entitled "Quality of Life in COPD Patients", while this finding was contradicted with (Center of Disease Control and Prevention, 2013) that reported that females are more likely to have chronic obstructive pulmonary disease than males, and with (Scott, Baltzan, Dajczman, & Wolkove, 2011) who reported that 53% were women.

In relation to marital status, the study finding showed that, two thirds of study patients were married. This finding might be due to the same age groups of the studied sample. This finding is in accordance with (Abedi, Salimi, Feizi, & Safari,, 2013) who found that the majority of the studied patients were married. This finding is in contrast with (Jacobsen, Rusch, Andersen, Adams, Jensen, & Frølich, 2014) who stated that more than two thirds of the patients were single.

Regarding occupation, the current study portrayed that, more than half of the study patients were working. This finding is in agreement with (Farag, Hafez, Elshafie, &Abo-Elkheir, 2012) who reported that three quarters (75%) of studied patients were working. The researcher opinion was that this may reflect the load, the higher levels of anxiety and depression that experienced by the patients through their role in caring for their families and to cover high cost of medications. The married patients are suffering because they may feel that, they were a burden on their partners because of the limitations in their expected roles toward their family (Mohamed, Ahmed, Mohamed, & Abdel Rah man, 2016).

Concerning with educational level, the current study portrayed that, About two fifth of studied patients had secondary education, about one third of them were illiterate, While minority of the them had completed university degree. This finding is in agreement with (Bratas, Espnes, Rannestad, & Walstad, 2010) who reported that 13.2% of studied patients had university degree, and (Farag, et al., 2012) who reported that 41% of studied patients were illiterate. This finding is in contrast with (Mohamed, 2005) who stated that, two fifth of the study group had high level education, while few of them were illiterate, and (Subba & Subba, 2015) who stated that (65.4%) were illiterate.

Regarding with residence, the current study showed that, near to two thirds of the studied patients were lived in urban areas. This is in accordance with (Lidia, 2012) who reported the same result (65%), and with (Mohamed, et al., 2016) who stated that more than half of the studied patients were lived in urban areas. This result shows the crowdedness, pollution and poor houses ventilation that those patients live in and confirm

that outdoor and indoor pollutions are risk factors for developing the disease. But the same finding is contradicted with that of (Badway, et al., 2016) who stated that one quarter of their study patients were living in urban and three quarters were living in rural areas.

Concerning with duration of COPD, the current study revealed that about half of the studied patients had COPD for more than five years. This finding is in agreement with (Belletti, Liu, Zacker, & Wogen, 2013) who found that, mean duration of COPD was approximately 4.8 years and with (Hernandez, Balter, Bourbeau, &Hodder, 2009) who found that fifty-one percent of the patients were diagnosed with COPD greater than 5 years. These findings reflect the chronicity of the disease.

Concerning with drug compliance, the present study illustrated that about three quarters of studied patients were compliant to medication. This finding isn't in accordance with (Reema, Adepu, &Sabin, 2010) who stated that most COPD patients were not on regular treatment and took medication only during acute exacerbation and with (Krigsman, Nilsson, & Ring, 2007) who stated that average of 60% of patients with COPD do not adhere to prescribed therapy.

(Jones, Hyland, Hanney, & Erwin, 2004) in a qualitative study of compliance to medication and lifestyle modification in patients with COPD found that all patients except one reported good adherence to medication.

The researcher opinion include that factors such as fear of dyspnea and feelings of vulnerability appear to contribute to improvement in compliance. This is supported by (Restrepo, Alvarez, & Wilkins, 2008)who stated that Patients' acceptance and knowledge of the disease process as well as the recommended treatment, faith in the treatment, effective patient – clinician interaction are all critical for optimal medication adherence in patients with COPD

Concerning with chronic diseases, the present study illustrated that more than three quarter of the studied patients had associated chronic diseases such as diabetes, hypertension, bronchial asthma, liver, cardiac, and renal diseases. This finding is in accordance with (Belletti, et al., 2013) and (Akazawa, Stearns, & Biddle, 2008) who stated that, the majority of COPD patients had chronic diseases in the form of co morbid asthma, hypertension, dyslipidemia, cardiovascular disease, and diabetes. These findings are supported by (Global Initiative for Chronic Obstructive Lung Disease, 2016) that

revealed that COPD often co exists with other diseases (co morbidities) that may have a significant impact on prognosis.

As regard to smoking status, the present study illustrated that more than half of studied patients were smokers; about two fifth of them were previous smokers while about one fifth of them were current smokers. This finding is in accordance with (Kupryś-Lipińska & Kuna, 2014) and (Antwi, Steck, &Heidari, 2013) who found the same result. While this finding is in contrast with (Fu, Yu, Wong, & Lam, 2016) who indicated that approximately half of them were current smokers. This finding is in the same line with the fact that, smoking is a major risk factor for COPD.

Concerning to smoking type, the present study illustrated that near half of smokers were cigarettes smokers, while minority of them were smoking shisha or both. This finding is in agreement with (Mahmud, Bokhari, & Aasim, 2012) who found the same result. These findings are supported by (Global Initiative for Chronic Obstructive Lung Disease, 2016) that stated that cigarette smoking is the best-studied COPD risk factor, moreover cigarette smokers have a higher prevalence of respiratory symptoms and lung function abnormalities, a greater annual rate of decline in FEV1, and a greater COPD mortality rate than nonsmokers.

Regarding signs and symptoms of COPD, the present study revealed that, about three quarter of studied patients had dyspnea, chronic cough, and excessive sputum, near half of them had wheezing, fatigue, and cyanosis, and more than one quarter of them were suffering weight loss. This finding is in agreement with (Bentsen, gundersen, dassmus, bringsvor, & Berland, 2013) and (Hernandez, Balter, Bourbeau, & Hodder, 2009) who mentioned that most frequently reported symptoms of patients with COPD to occur “every day” or “most days” included coughing, bringing up of sputum, and shortness of breath. These results also supported by (Global Initiative for Chronic Obstructive Lung Disease, 2016) that stated that cough, dyspnea, and sputum are common manifestations of COPD.

As regard to previous hospitalization, the present study revealed that most of studied patients had been previously hospitalized from 1 to more than 4 times during previous year of study. The researcher opinion may be due to the increasing frequency and severity of exacerbations which are provoked by exposure to irritants and pollutants in addition to frequent respiratory tract infection.

This finding is in accordance with (Mohamed, 2005) who stated that majority of COPD patients were previously admitted to hospital, and (Baghai–Ravary, Quint, Goldring, Hurst, JDonaldson, & Wedzicha, 2009) who stated that, hospitalization rates in the patients with COPD are high, and increase with age. Also (Subba & Subba, 2015) stated that 83.2%were hospitalized 1-2 times in last year. However this finding is in contrary with (Salah, et al., 2013) who stated that 68.0% of patients weren't hospitalized before.

As regard to family history of COPD, the present study illustrated that more than one quarter of studied patients had positive family history of COPD with a first degree relativity. This finding is in accordance with (Hernandez, Balter, Bourbeau, Chan, Marciniuk, & Walker, 2013) who stated that there was a significant number of COPD patients reported a positive family history of COPD, and with (Stavngaard, Shaker, &Dirksen, 2006) who stated that half of patients had alpha1-antitrypsin deficiency. These findings are supported by (Global Initiative for Chronic Obstructive Lung Disease, 2016) who revealed that although alpha 1-antitrypsin deficiency is relevant only to small part of the world's population, it illustrates the interaction between genes and environment.

Participation in a structured education program could enhance COPD patients' self-efficacy regarding their ability to manage, or avoid, breathing difficulty while participating in certain activities. Identifying situation in which individuals with COPD are experiencing low self-efficacy would enable the development of specific rehabilitation interventions designed to increase the participants' self-efficacy (Davis, Carrieri-Kohlman, Janson, Gold, & Stulbarg, 2006).

In the current study, there was a highly statistically significant improvement in self-efficacy subscales scores post implementation of the educational program($p<0.001$) except for weather/environmental subscale ($p<0.083$), and statistically significant improvement in self-efficacy subscale (Negative affect $p<0.034$) in follow up, while the patients' total CSES scores showed no significant improvement . This result is consistent with (Khoshkesht, et ,al, 2015) who reported that there was a significant difference between the two groups in all subscales of self-efficacy ($p<0.001$). Also with (Garrod, Marshall, & Jones, 2008) who reported significant improvement in self-efficacy subscales after using the pulmonary rehabilitation program.

This finding is in contrast with (Kara & Aşti, 2004) who stated that the scale general score increased statistically significantly. Also (Stellefson, et al., 2012) who stated that there was no significant improvement between 1-month and 2-month follow up across any of the 5 dimensions of self-efficacy.

CONCLUSION:

Results of this study concluded that after pretest, patients had good knowledge regarding to COPD and good practices, but after implementation of the educational program, remarkable improvements were occurred in knowledge and practice.

RECOMMENDATIONS:

Continuous educational programs for patients with COPD and their family about COPD management, complication, and ways of prevention. Prospective follow up studies are warranted to develop and refine interventions to improve patient's adherence to treatment and prevent further deterioration. Recommendation concerning Ministry of Health (MOH) activities, hospitals and specialized centers' activities and increase awareness among the population at risk and general population. Also suggested guidelines should be available to improve nurse's knowledge and performance toward advanced technology and management of patients with COPD and encourage them to teach about everything they need about COPD.

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أثر برنامج تعليمي على الكفاءة الذاتية لمرضى السدة الرئوية المزمنة

أ.د/ ماجدة عبد العزيز[1]- أ.د/ ممدوح محمد المزين[2] - أ.د/ رائد المتولي علي عيد [3] - د/ دينا التابعى صبيح [4] - أموره عمر إبراهيم الموافى[5]

[1]أستاذ التمريض الباطني و الجراحي- كلية التمريض- جامعة عين شمس /[2] أستاذ الجراحة والأوعية الدموية كلية الطب - جامعة قناة السويس /[3]أستاذ الصدر- كلية الطب - جامعة المنصورة /[4]مدرس التمريض الباطني و الجراحي - كلية التمريض- جامعة بور سعيد/[5]ماجيستير التمريض الباطني والجراحي - كلية التمريض- جامعة بورسعيد.

الخلاصة

يمثل مرض السدة الرئوية المزمنة محور الاهتمام في جميع أنحاء العالم لما يسببه من الأمراض والوفيات وارتفاع معدلات الانتشار، وفي مصر يتم التعامل معه كمشكلة صحية عامة أساسية. تهدف هذه الدراسة إلى تقييم اثر برنامج تعليمي علي مستوي المعرفة والممارسة والكفاءة الذاتية لمرضى السدة الرئوية المزمنة المستقرة. وقد تم استخدام التصميم شبه التجريبي لإجراء هذه الدراسة وتألفت عينة البحث من جميع المرضى المتاحين (120) الذين يعانون من مرض السدة الرئوية المزمنة المستقرة في العيادة الخارجية لأمراض الجهاز التنفسي في مستشفى جامعة المنصورة. وقد استخدمت اربع أدوات لجمع البيانات: استمارة استبيان والتي شملت بيانات عن خصائص المرضى الشخصية ،التاريخ الحالي ،السابق والتاريخ العائلي للمرض. وتقييم الكفاءة الذاتية لديهم. وقد أظهرت نتائج الدراسة تحسن إيجابي إحصائي ملحوظ في الخمس مستويات الفرعية للكفاءة الذاتية باستثناء المستوى الفرعي الرابع(الأحوال الجوية و البيئية) بعد تطبيق البرنامج التعليمي مباشرة و تحسن إيجابي إحصائي ملحوظ في المستوى الفرعي الأول (التأثير السلبي) في المتابعة بعد ثلاثة اشهر بينما لم يكن هناك تحسن إيجابي إحصائي ملحوظ في النتيجة الكلية للكفاءة الذاتية .وأوصت الدراسة بتقديم برامج تعليمية مستمرة لمرضي السدة الرئوية المزمنة وأسرهم حول مرض السدة الرئوية المزمنة وطرق العلاج والمضاعفات وطرق التخفيف من حدة المضاعفات. وأيضا برامج تعليمية مستمرة لرفع الكفاءة الذاتية للمرضي من خلال الاشتراك في برامج تأهيل.

الكلمات المرشدة: مرض السدة الرئوية المزمنة، الكفاءة الذاتية، برنامج تعليمي.