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## The Effect of Nursing Care Protocol on Health Outcomes of Patients with Chronic Obstructive Pulmonary Disease (COPD)

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**Abstract:** Chronic obstructive pulmonary disease (COPD) is the fourth most common cause of death in the world. COPD prevalence, morbidity, and mortality vary across countries and across different groups within countries. **Aim:** Examine the effect of nursing care protocol on health outcomes of patients with COPD. **Study design:** A quasi-experimental design was utilized to conduct this study. **Setting:** The study was conducted at outpatient clinics at Chest Hospital (AL masah ALbahary) in Port Said city. **Subjects:** A purposive sample of 45 patients with (COPD) disease was included. **Methods:** four tools were used as follow (1) Patients' assessment sheet. (2) The Bristol COPD Knowledge Questionnaire (BCKQ) sheet. (3) Patients' observational checklists. (4) Health outcomes assessment sheet. **Results:** There was improvement in patients' total knowledge scores and all practices post nursing care protocol implementation with highly statistically significance whereas  $p \leq 0.001$ , there were statistically significant difference between mean scores of total mood disturbance, sleep quality and fatigue for patients with COPD pre and post implementation of protocol of nursing care, with significant decrease in mean score whereas  $p \leq .001$  and there were improvement in level 4 of dyspnea (sever dyspnea) post implementation of nursing care protocol compared to pre nursing care protocol and there was highly statistically significant difference between levels of dyspnea pre and post implementation of nursing care protocol whereas  $p \leq .001$ . **Conclusion:** Based on the study findings, it is concluded that, application of nursing care protocol for patients with COPD has positive effect on improving their knowledge about COPD and its management, practices related to pursed lip breathing, diaphragmatic breathing, deep breathing exercise, a metered dose inhaler and dry powder inhaler and improving their health outcomes regarding mood, fatigue, sleep quality and dyspnea. **Recommendation:** Continuous educational program for patients with chronic obstructive pulmonary disease should be applied periodically in order to improve knowledge, practices and health outcomes for those patients.

**Key Words:** COPD, Health outcomes, Nursing Care protocol

### INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a multifactorial, heterogeneous and progressive condition that affects 210 million people worldwide. The Global initiative for chronic obstructive lung disease (GOLD) document states that "COPD is a common, preventable and treatable disease that is characterized by persistent respiratory symptoms and airflow limitation that is due to airway and/or alveolar abnormalities, usually caused by significant exposure to noxious particles or gases (GOLD, 2018).

In the 2017 revision, GOLD had revised the definition of COPD to include "persistent respiratory symptoms" as an essential feature; however, the reasoning behind this has not been provided and the definition is carried through into the current version (Vogelmeier, et al, 2017). The World Health Organization (WHO) defines COPD as a "chronic obstruction of lung airflow that is not fully reversible," no longer incorporating chronic bronchitis or emphysema (Welch et al., 2013).

COPD is the fourth commonest reason behind death within the world. Those with lower socioeconomic status and older adults are disproportionately affected, creating reluctance to diagnose and treat patients. It has been a major public unhealthy and among the twenty - first century it can remain a challenge for clinicians. COPD is attributable to its

morbidity, mortality and high prevalence in the spotlight worldwide. The disease burden is nice for each those UNagency area unit affected and for society (Ghattas, 2013).

COPD is highlighted in Egypt as a major state of public pathology. According to a study by Said, Ewis, Omran, Magdy, and Saleeb (2015) the prevalence of COPD among high - risk people in Egypt was calculable to be about 100 percent. (Said et al., 2015). Accordingly, Healthy People 2020 objectives aim to reduce hospitalization rates and reduce hospital emergency department visit (National Center for Health Statistics, 2015).

The major risk factor for COPD is smoke smoking; COPD is quite fourfold as prevailing among smokers as non-smokers, whereas it affects about 15% of smokers and simply three-dimensional of Non - smoking. Moreover, In addition, occupational chemicals, prolonged exposure within the geographical point to varied dust, vapor, irritants, and/or fumes. Pollution, high urban pollution levels are harmful to people with existing respiratory organ disease. A high risk of COPD is aging, frequent infection of the respiratory organs and  $\alpha$ -1 antitrypsin deficiency (Lewis. et al, 2010).

COPD can be prevented and treated. The progressive airflow limitation and abnormal inflammatory response of

the lung to noxious particles and/or gases are the characteristics of the disease (Vestbo et al., 2013). Exposure to inhaled irritants such as tobacco smoke can result in chronic inflammation of the airways, lung tissues, and pulmonary blood vessels. The inflammatory process will lead to tissue injury still as a variety of general effects. The chronic inflammation present is connected to the method of the unwellness and results in numerous injury of the respiratory organ and air flow limitation (Toraldó et al., 2013).

COPD is a common respiratory condition with an estimated 65 million people worldwide with moderate or severe disease. Like most chronic diseases, it causes a considerable burden on health services and society and is a leading cause of death in most countries. Interventions to support self-management in patients with COPD have been shown to be effective in improving health related quality of life and in reducing hospital admissions among patients with COPD (Zwerink et al. 2014 and Lenferink et al, 2017).

The primary goals of COPD Management includes rapid progression of disease, relief of symptoms, increased exercise tolerance, prevention and treatment of complications, promotion of patient involvement in care, prevention and treatment of exacerbation, improved quality of life and reduced risk of mortality. Chronic self - management of sickness, preventive health programs and care protocols are mainly focused on promoting health lifestyle, risk - factor modification, and active patient self - management of chronic diseases. Such a method is heavily dependent on increased information and communication (Adams, 2010).

Protocols for the care of COPD patients are developed at international, national and regional level. The international organization GOLD (2016) provides guidance for strategies for COPD prevention and treatment. And The regional guidelines discuss the importance of collaborative work among professionals in the care of COPD patients such as highly specialized nurses, pharmacists, physical therapists, etc. (The National Board of Health and Welfare 2015). Nurses can provide structured education and healthcare and guidance to help patients improve their ability to actually manage the disease and its life effects

#### **Significance of the study:**

Chronic obstructive pulmonary disease poses a major challenge to public health and is a major cause of chronic morbidity and death worldwide. At present, COPD is the world's fourth leading cause of death. COPD involves resources for individuals, families, health care agencies and society in terms of functional and medical care. Cost directly and indirectly affects medical management affecting individuals' loss of income and productivity growth.

#### **Aim of study:**

This study was aimed to examine the effect of nursing care protocol on health outcomes of patients with chronic obstructive pulmonary disease. This aim achieved through the following:

- (1) Assess patients' knowledge, practices and health outcomes.
- (2) Develop and implement nursing care protocol.

- (3) Evaluate the effect of nursing care protocol on knowledge, practices and health outcomes of patients with COPD.

#### **Research hypothesis:**

Nursing care protocol implementation will improve knowledge, practices and health outcomes of patients with (COPD) disease positively

#### **Materials and Methods:**

##### **Design:**

A quasi-experimental design was used.

##### **Setting:**

The study was conducted at outpatient clinics at Chest Hospital (AL masahALbahary) in Port Said city.

##### **Subject:**

A purposive sample of 45 patients with (COPD) disease was elite according to: **Inclusion criteria**

- Patients of adult
- Male and female
- Agree to participate in the study.
- Free from other chronic diseases

The selection of the sample size was primarily based on official hospital report about total number of patients with COPD in year 2017 (125 patients).

##### **Methods of data collection:-**

##### **Four tools for data collection were used as follow:**

##### **Tool I: Patients' assessment sheet:**

This tool was developed by the researcher which includes two parts:

**Part 1:** included patients' socio-demographic characteristics for example (age, gender, ....etc).

**Part 2:** included clinical data about patients' medical history which included:

- a) **Present medical history:** which included (disease duration, medications compliance, smoking habit, etc-- --)
- b) **Past medical history:** which included (signs & symptoms and hospitalization history)
- c) **Family history:** which included (family history of COPD and degree of relativity)

##### **Tool II: The Bristol COPD Knowledge Questionnaire (BCKQ) sheet:**

It was developed by (White, Walker, Roberts, Kalisky, & White, 2006) to assess patients' knowledge regarding COPD. The Bristol COPD Knowledge Questionnaire (BCKQ) had 13 items, each item consisted of five questions. These items covered epidemiology and physiology, etiology, common symptoms, breathlessness, phlegm, chest infections, exercise, smoking, immunization, inhaled bronchodilators, antibiotics, oral steroids and inhaled steroids.

##### **Scoring System:**

- Incorrect answer → (zero)
- incomplete answer → (1)
- Correct answer → (2)

The total score for knowledge was (130), the total score is calculated by summing the number of correct responses

(minimum score = 0; maximum score = 130). The scores can then be converted to percentages. The total score was calculated similar to previous study conducted by (Cosgrove, MacMahon, Bourbeau, Bradley, & O'Neill, 2013) as follows:

- Satisfactory if the score  $\geq$  60 % of the maximum score.
- Unsatisfactory if the score  $<$  60% of the maximum score

#### **Tool III: Patients' observational checklists:**

It was developed by the researcher after reviewing the recent and relevant literatures (Jacob, Rekha, & Tarachand, 2010, and Lynn, 2015) to assess patients' practices as followed:

1. Pursed lip breathing
2. Diaphragmatic breathing
3. Deep breathing and coughing exercise
4. A metered dose inhaler
5. Dry powder inhaler

**Scoring system:** The response was classified into (done correctly and not done) for each item. Two scores are given for each step write and nil for each step wrong. Total scores for all steps were (70). The total score was calculated similar to previous study conducted by (Cosgrove, et al, 2013) as follows:

- Satisfactory if the score  $\geq$  60 % of the maximum score.
- Unsatisfactory if the score  $<$  60% of the maximum score.

#### **Tool IV: Health outcomes assessment sheets:**

This tool included the following:

- 1- **Modified Medical Research Council Dyspnea Scale (MMRC):** This scale was developed by (Mahler, 1984) to assess the level of activity that produces dyspnea for COPD patients. This scale is a five point scale grading from zero to 4.
- 2- **Fatigue scale (FS):** This scale was adopted from Watson, Bentler and Hartz (2003) to evaluate the level of patient's fatigue. Which includes 11 point. Each point had five responses as follow. (Not at all=1, a little=2, moderately = 3, quite a bit = 4 & very = 5).
- 3- **Short Form of the Profile of Mood State s(POMS):** This scale was adopted from (Shelly, Michael and Jamie, 1995). It consists of 37 points that describe mood on a 5-point likert scale (0 = not at all, 1 = a very little, 2 = moderately, 3 = quite a bit, 4 = extremely).
- 4- This scale was adopted from (Shelly, Michael and Jamie, 1995). The POMS-SF consists of 37 items which describe mood on a 5-point likert scale (0 = not at all, 1 = a little, 2 = moderately, 3 = quite a bit, 4 = extremely).
- 5- **Pittsburgh Sleep Quality Index (PSQI):** This scale was adopted from (Buysse, Reynolds, Monk, Berman and Kupfer, 1989) to evaluate the severity of sleep-onset and sleep maintenance difficulties. In scoring the PSQI, seven component scores are derived, each scored zero (no difficulty) to 3 (severe difficulty). These tools were translated into an Arabic language, and then retranslated into English to assure its accuracy.

#### **Validity and reliability:**

After the translation of the questionnaires to Arabic, content validity of the questionnaires was confirmed by five

academic experts in medical surgical and community nursing. Based on their recommendation little modifications were made. Reliability test was calculated for The Bristol COPD Knowledge Questionnaire (BCKQ) sheet using Cronbach's alpha, the result showed that (alpha = 0.892) .

#### **Pilot study:**

A Sample of the pilot was carried out on 10% of patients for testing pertinence of all ponders conjointly the clarity of the questionnaire; as well on appraise the time required for each questionnaire. The modifications were done for the utilized apparatuses at that point the final shape was created. Patients were included in pilot ponder were avoided from the consider subjects.

#### **Ethical considerations:**

The research approval was obtained before initiating the study and collecting data, the aim of the study were explained to patients, the researcher maintained on anonymity and confidentiality of patients, verbal assent was gotten from patients to guarantee disposition to have interaction inside the study and patients were allowed to participate or not and they had The right to withdraw from the study without any liability at any time.

#### **Fieldwork:**

The study has been implemented from the beginning of November 2018 to January 2019. The instructional booklet and nursing care protocol were designed based on analysis of the actual patients' 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. It included two phases; implementation phase and evaluation phase.

#### **Implementation phase:**

- This phase started through the choice of patients who met consideration criteria and clarified the point of the think about however as taken their endorsement to take an interest inside
- The patient some time recently data grouping. The patients' phone numbers were gotten at the first meet at the investigation segment in arranges to total data assortment.
- First, the patients' assessment questionnaire was used to assess patients' past medical history, present medical history and family history; second, the Bristol COPD Knowledge Questionnaire (BCKQ) was used to assess patients' knowledge regarding COPD and its management to identify the educational needs of patients. The researcher filled in these tools for about 30 - 45 minutes depending on each patient's health condition.
- Patients were observed before implementation of nursing care protocol by using observational checklists to assess pursed lip breathing, diaphragmatic breathing, deep breathing and coughing exercise, a metered dose inhaler and dry powder inhaler. It took every patient 50 minutes.
- The researcher has filled in the tools for evaluating health outcomes. It took each patient 60 minutes.
- The content of instructional booklet was written in a simple Arabic language and consistent with the related

literature based on their level of understanding and nursing care protocol included different elements; basic respiratory physiology, COPD definition, causes, risk factors, triggers, signs and symptoms, medication, complications, diagnostic procedures, nutrition, physical exercise, the use of inhalers, the use of nebulizer, Energy conservation, breathing difficulties control, mood improvement, disease exacerbation prevention, problem management of dyspnea, fatigue, and sleep disturbance.

- Sessions were conducted exclusively for each patient. For each understanding, the booklet was given and the booklet substance was clarified for each session in four sessions with 30 minutes. The first session of instruction included the nature of the disease. The second was about control of dyspnea and the third was nearly sparing vitality and decreasing seriousness of weariness. Fourth session related disease exacerbation prevention and control of sleep disturbance. In the event of misunderstanding, patients were allowed to ask questions while listening and expressing interest in them.
- Final session highlighted the importance of taking after visits and educated patients that they will be evaluated after three months of post - sessions after visits.
- Information collection and educating session were conducted in morning move beginning at November 2018 till the conclusion of January 2019.

**Evaluation phase:**

Post implementation of nursing care protocol, the Bristol COPD Knowledge Questionnaire (BCKQ), observational checklists, and health outcomes assessment tools were refilled in again. By utilizing the same information collection instruments after 3 months.

**Dataanalysis:**

All data collected have been organized, categorized, tabulated, entered and analyzed using SPSS (Statistical Package for Social Sciences), software program version 20, which has been applied to frequency tables, statistical significance and associations, to detect the relationship between variables

**RESULTS**

**Table 1** clarifies 33.33% of studied patients were at age group 40- <50 and 50- <60 years old, while 11.11 % of them were at age group < 40, as regard to gender, 86.67% of patients were male, regarding educational level, 33.33% of studied patients were read & write and diplom educational level, for marital status, 88.89% of studied patients were married, for occupation, 55.56% of patients were irritating work, and related smoking, 77.78% of patients were smoker.

**Table 2** illustrates that, regarding duration of COPD, 44.44% of patients had COPD disease duration more than or equal five years, all of patients suffered from dyspnea and chronic cough, and 60 % of patients were hospitalized 2 times/ year.

**Table 3** represents that, there was improvement in patients' total knowledge scores post nursing care protocol implementation whereas 86. 67% of the studied patients

were satisfactory compared 66.67% of them pre nursing care protocol with highly statistically significance whereas  $p \leq 0.001$ .

**Table 4** shows that, there was improvement in all practices post nursing care protocol implementation compared to pre nursing care protocol with highly statistically significance whereas  $p \leq 0.001$

**Table 5** illustrates there was a statistically significant difference between mean scores of total mood disturbance, sleep quality and fatigue for COPD pre- and post - implementation nursing protocol patients, with decline in mean score compared to  $p \leq 0.001$

**Table 6** clarifies that, there were improvement in level 4 of dyspnea (sever dyspnea) post implementation of nursing care protocol compared to pre nursing care protocol and There was a statistically significant difference between pre- and post - implementation levels of dyspnea and the protocol for nursing, whereas  $p \leq 0.001$

**Table1.Demographic characteristics**

Patients' Characteristics	No	%
<b>Age</b>		
< 40	5	11.11
40- <50	15	33.33
50- <60	15	33.33
60- ≤70	10	22.22
<b>Gender</b>		
Male	39	86.67
Female	6	13.33
<b>Educational level</b>		
Read & write	15	33.33
Diplom	15	33.33
Bachelor	10	22.22
other	5	11.11
<b>Marital status</b>		
Married	40	88.89
Unmarried	5	11.11
<b>Occupation</b>		
Office work	3	6.67
Literal work	2	4.44
Irritating work	25	55.56
Unemployed	15	33.33
<b>Smoking</b>		
Yes	35	77.78
No	10	22.22

**Table2.Past and Present Health History of the studied patients (n=45). of the studied patients (n=45)**

Past and Present Health History	No.	%
<b>Duration of COPD</b>		
• Less than < 1year	6	13.33
• From 1 -3 years	9	20.00
• From 3 - 5 years	10	22.22
• ≥ 5 years	20	44.44
<b>Signs and symptoms:</b>		
• Dyspnea	45	100
• Chronic cough	45	100
• Excessive sputum	43	95.56
• Wheezing	30	66.67
• Weight Loss	12	26.67
• Fatigue	15	33.33
• Cyanosis	18	40.00
<b>Previous hospitalization during last year:</b>		
• Once/ year	5	11.11
• 2 times/ year	27	60.00
• More than 2 times/ year	13	28.89

Table 3. Comparison of total knowledge of patients with COPD (n=45).

Item	Total knowledge				Paired t test	p value
	Satisfactory		Unsatisfactory			
	No	%	No	%		
Pre nursing care protocol	30	66.67	15	33.33	10.231	<0.001*
Post nursing care protocol	39	86.67	6	13.33		

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

Table 4. Comparison between patients' total practices related to COPD pre and post implementation of nursing care protocol (n = 45)

Practices	Pre				Post				Paired t test	p value
	Inadequately done		Adequately done		Inadequately done		Adequately done			
	No	%	No	%	No	%	No	%		
Pursed lip breathing	23	51.11	22	48.89	5	11.11	40	88.89	9.167	.000*
Diaphragmatic breathing	30	66.67	15	33.33	16	35.56	29	64.44	7.425	.000*
Deep breathing and coughing exercise	16	35.56	29	64.44	5	11.11	40	88.89	4.636	.000*
A metered dose inhaler	9	20.00	36	80.00	1	2.22	44	97.78	13.802	.000*
Dry powder inhaler	3	6.67	42	93.33	2	4.44	43	95.56	14.401	.000*

Table 5. Difference between mean health outcome scores for pre- and post - implementation COPD patients with nursing protocol (N=45)

Clinical outcomes	Pre		Post		Paired t test	p value
	Mean	SD	Mean	SD		
1- Total mood disturbance	94.86	14.622	81.46	8.180	5.797	.000*
2- Sleep quality	15.34	1.493	10.42	2.391	13.53	.000*
3- Fatigue	47.10	3.547	41.28	2.090	13.38	.000*

\*p ≤ .001 highly significant

Table 6. distribution of COPD patients according to levels of dyspnea and post implementation of nursing care protocol (N=45)

levels of dyspnea	Pretest		Posttest		Chi- square test	p value
	No	%	No	%		
Level 2	5	11.11	12	26.67	21.01	.001*
Level 3	15	33.33	28	62.22		
Level 4	25	55.56	5	11.11		

\*p ≤ .001 highly significant

## DISCUSSION

Worldwide, chronic obstructive pulmonary disease (COPD) is within the highlight since of its dreariness, mortality and tall predominance. In Egypt is highlighted as a major public health problem (*World Health Organization, 2016*).

The results of this study revealed that socio -demographic characteristics for the patients studied two thirds of patients were at age group from forty years to less than sixty years old, the majority of them were males, two thirds of them ranged from read and write and diplom degree, the majority of them were married, more than half of them were worked an irritating work, and more than three quarters of them were smokers.

Regarding patients' age, from the point view of the researcher; COPD is the most common disease among older adults considered to be a progressive disease that takes several years to develop. The longer you have some risk factors for COPD, the more likely you are as an older adult to develop the disease. Reported by *Lewis et al. (2014)*. That there's continuous misfortune of the flexible draw back of the lung and the lungs gotten to be more adjusted and littler by age. The number of useful alveoli diminishes as fringe aviation routes lose supporting tissues. The thoracic cage gets to be firm and inflexible And the ribs are less polyvalent. Changes in lung elasticity reduce the ventilation reserve and decreases with age the ability to clear secretions.

These facts support this study's age finding. This result was also consistent with the results of the Egyptian study *Mohamed, Ahmed, Mohamed & Abdel Rahman (2017)* who expressed That over half of COPD patients were of age more than 50 years, while, the result of the present study was inconsistent with *Tel, Bilgiç&Zorlu (2012)* who reported that the age of the COPD patients in their study was more than 66 years.

For sexual orientation, this finding may be due to higher smoking prevalence and male exposures associated with the visit word for irritating work. *WHO (2017)* It was reported that COPD was more common in men previously, but due to comparatively high level of consumption of tobacco smoking and indoor air pollution among women the disease now affects men and women almost equally. The result of the study was also agreement with *Salah, Hamdi&Shehata (2013)* who reported that the majority of the studied patients were men.

As regard to educational level, this may be due to decreased level of education contributed to decrease awareness and understanding of disease nature, progress, management, and coping with complication.

As far as the conjugal status of patients is concerned, this may reflect the stack, as well as the higher level of discomfort and misery experienced by patients in caring for their families. The hitched since they were a burden on their

accomplices. Patients are enduring the barriers to their relatives in their anticipated parts. For work, people who have jobs in workplaces with polluted and irritating air have a higher risk of getting COPD from the researcher's point of view. For COPD to develop, it usually takes many years of exposure to potent irritants. However it is important to be aware of air quality in a workplace.

Related smoking, the result of the study is due to smoking and COPD often goes hand in hand and is the most risk factor for developing COPD. Smoke contains harmful toxins that affect lung function. Smoking contains harmful toxins that have an effect on respiratory organ practicality. Toxins that square measure indrawn directly into the lungs over prolonged periods of smoking. Cigarette smoke contains harmful toxins that affect lung functionality. Toxins that are inhaled directly into the lungs over prolonged periods of time can lead to severe lung irritation and lungs damaged. *National Heart, Lung and Blood Institute (2018)* reported that patient with a history of smoking had COPD. In another study conducted in Spain by *Leiva-Fernández et al. (2014)* reported that Tobacco was high prevalence in the male sex.

Concerning duration of COPD, more than two fifths of the studied patients had more than five years; this reflects the chronicity of the disease and may be due to the nature of patients whereas most of them were male, smoker, middle educational level, and exposed to irritant work.

Related signs and symptoms of COPD, all of patients suffered from dyspnea and chronic cough, and the majority of them complained excessive sputum. *GOLD (2018)* reported that cough, dyspnea, and sputum are common manifestations of COPD. Moreover, these findings were consistent with the previous study, which mentioned the classic symptoms of COPD such as coughing, wheezing, and shortness of breath and limitation in performing many general activities (*Desikan, Mason, Rupp & Skehan, 2012*). This was in agreement with *Badway, Hamed & Yousef (2016)* who found that the majority of COPD patients had dyspnea, cough, and wheezing chest.

For previous hospitalization during last year, three fifths of patients were 2 times per year. This may be due to the chronicity of the disease, most of patients were smokers, exposed to irritant work, and suffered from dyspnea, chronic cough, and excessive sputum and because of acute exacerbations that may progress to respiratory failure. The results were supported by the study done by *Subba & Subba, (2015)* who stated that 83.2% were hospitalized 1-2 times in last year.

Regarding patients' knowledge about COPD, there was improvement in patients' total knowledge scores post nursing care protocol implementation whereas the majority of studied patients were satisfactory compared two thirds of them pre nursing care protocol with highly statistically significance whereas  $p \leq 0.001$ . This is due to the fact that few patients have been sufficiently educated to enable them to commit to and follow the instructions in the nursing protocol to decrease the disease's exacerbation. Moreover, this result may reflect the positive effect of the nursing care

protocol and this might be becauseun existence of this information through the health care team within the hospital.

The current study results are in accordance with (*Paneroni, Cline, Crisafulli, Guffanti, Fumagalli, Bernasconi, Cabiaglia, Nicolini, Brogi, Ambrosino, Peroni, Bianchi, & Vitacca, 2013*) who reported an educational and intervention protocol improve knowledge, rehabilitation, and healthy lifestyles of (COPD) Patients Also, this result was congruent with previous studies done by *Cleary and Serisier (2012)*, *Salah et al. (2013)*, and *Sharma, Atul Kumar & Venkateshan (2016)* who found a highly statistically significant improvement in all items of knowledge post intervention, reflecting the positive effect of the educational program, and the need for its application for COPD patients.

The result of the study about outlined that there was advancement in all hones post nursing care convention usage compared to pre nursing care convention with profoundly measurably importance while  $p \leq 0.001$ . From the point view of the researcher, continuous practicing of pursed lip breathing, diaphragmatic breathing and deep breathing exercise which influence emphatically their execution by practicing their breathing was more effective in removing sputum. These results agree with *Salah et al. (2013)* and *Mohamed et al. (2017)* who nitty gritty that there was exceedingly significant alter post rules utilization in their consider roughly making strides breathlessness and shortcoming in tireless with COPD. Besides, this finding was assention with *Ibrahim and Abd El-Maksoud (2018)* who found that after intercession, the study about appeared the nearness of factually noteworthy change in add up to score hone, where the most of them share of patients had fulfilled and great hones at quick and 2 months post program.

The result of study illustrated that, there was highly significant difference between mean scores of total mood disturbance, sleep quality and fatigue for patients with COPD pre and post implementation of protocol of nursing care, with significant decrease in mean score whereas  $p \leq .001$ . From the point view of the researcher, the nursing care protocol implementation had positive effect on improving their sleep quality and fatigue which subsequently improved their mood. This finding was the same results of *Mohamed et al. (2017)*, and agree in line with *Lamers, Jonkers, Bosma, and Chavannes (2010)* and *Maurer, Rebbapragada and Borson (2010)* who reported that patients who had little psychological teaching had fewer depressive symptoms & anxiety at nine months than patients taking simple care

*Lan, Huang, Yang, Lee and Huang (2014)* detailed that pneumonic recovery brought about advancement in rest quality, which diminished from  $9.41 \pm 4.33$  to  $7.82 \pm 3.90$ . Whereas, *McDonnell, Hogg, McDonnell and White (2014)* detailed that aspiratory restoration did not move delayed rest quality in COPD as shown by the scores of (PSQI). The present study indicated that over half of the patients had extreme dyspnea; this could be because dyspnea could be a cardinal indication of constant obstructive aspiratory illness (COPD), and its seriousness and greatness increments as the infection advances, driving

to significant inability and a negative impact on quality of life. Also, the long duration and severity of the disease and not practicing breathing exercise accurately and regularly. Moreover, more than three quarters of patients were smokers.

The result of the study clarified that, there were improvement in level 4 of dyspnea (severe dyspnea) and highly statistically significant difference post implementation of nursing care protocol compared to pre nursing care protocol whereas  $p \leq .001$ . From the point view of the researcher, continuous practicing of pursed lip breathing, diaphragmatic breathing and deep breathing will improve their performance which is positively affected by changing their breath to be more controlled and more efficient and improving respiratory muscles. This finding is supported by **Damaris (2012)** who study the impact of respiratory recovery of COPD patient's symptoms and change their life; the findings refer to diminish dyspnea seriousness after recovery. **Müllerová, Lu, Li & Tabberer (2014)** detailed that there were enhancement in level 3 and 4 of dyspnea after the application of guidelines for patients with COPD.

## CONCLUSION

Based on the present study, it is concluded That the application of the convention on nursing for COPD patients has a positive effect on the progress of their information around COPD and its administration, hones related to pressed together lip breathing, diaphragmatic breathing, profound breathing work out, a metered measurements inhaler and dry powder inhaler and progressing their wellbeing results with respect to disposition, weariness, rest quality and dyspnea.

## RECOMMENDATION

- Continuous educational program for patients with chronic obstructive pulmonary disease should be applied periodically to improve knowledge, practice and health outcomes for those patients.
- Modern approaches within the zone of administration of patients with persistent obstructive aspiratory infection and assess its impact on patients' wellbeing outcomes.

## REFERENCES

- [1]. **Adams, R. J. (2010)**. Improving health outcomes with better patient understanding and education. *Risk management and healthcare policy*, 3, 61.
- [2]. **Badway, M. S., Hamed, A. F., & Yousef, F. M. (2016)**. Prevalence of chronic obstructive pulmonary disease (COPD) in Qena Governorate. *Egyptian Journal of Chest Diseases and Tuberculosis*, 65(1), 29-34.
- [3]. **Bourbeau, J., ...& Frith, P. (2017)**. Global strategy for the diagnosis, management,
- [4]. **Buysse, D. J., Reynolds III, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989)**. The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. *Psychiatry research*, 28(2), 193-213.
- [5]. **Cleary, M. & Serisier, D. (2012)**. Better Living with Chronic Obstructive Pulmonary Disease: Patients with chronic obstructive pulmonary disease: guide. 2nd ed. Queensland: Queensland Health and Energy Conservation and Techniques.
- [6]. **Cosgrove, D., MacMahon, J., Bourbeau, J., Bradley, J. M., & O'Neill, B. (2013)**. Facilitating education in pulmonary rehabilitation using the living well with COPD programme for pulmonary rehabilitation: a process evaluation. *BMC pulmonary medicine*, 13(1), 1.
- [7]. **Damaris A. (2012)**. Respiratory rehabilitation in chronic obstructive bronchopneumonia [phD thesis]. University of Medicine and Pharmacy of Craiova. Faculty of Medicine. 1-19 p. Available from: <http://www.umfcv.ro/files/r/e/Respiratory%20rehabilitation%20in%20chronic%20obstructive%20bronchopneumonia.pdf>
- [8]. **Desikan, R., Mason, H. L., Rupp, M. T., & Skehan, M. (2002)**. Health-related quality of life and healthcare resource utilization by COPD patients: a comparison of three instruments. *Quality of Life Research*, 11(8), 739-751.
- [9]. **Ghattas, C., Dai, A., Gemmel, D. J., & Awad, M. H. (2013)**. Over diagnosis of chronic Global Initiative for Chronic Obstructive Lung Disease (GOLD). Available at: <https://goldcopd.org/>. Accessed July 17, 2018
- [10]. **Global initiative for chronic obstructive lung disease, GOLD (2016)**. Global strategy for the diagnosis, management and prevention of COPD. Available from <http://goldcopd.org/gold-2017-global-strategy-diagnosis-management-prevention-copd/> [last accessed 18 August 2017].
- [11]. **GOLD (2018)**. Global Strategy for the Diagnosis, Management and Prevention of COPD
- [12]. **Hartz, A., Bentler, S., & Watson, D. (2003)**. Measuring fatigue severity in primary care patients. *Journal of psychosomatic research*, 54(6), 515-521.
- [13]. **Ibrahim, R. A., & El-Maksoud, M. M. A. (2018)**. Effect of educational programs on knowledge and self-management of patients with chronic obstructive pulmonary disease. *Egyptian Nursing Journal*, 15(3), 246.
- [14]. **Jacob, A., Rekha, R., & Tarachand, J. (2010)**. Clinical Nursing Procedures: The Art of Nursing Practice. (2<sup>nd</sup> ed.). McGraw-Hill.
- [15]. **Lamers, F., Jonkers, C. C., Bosma, H., Chavannes, N. H., Knottnerus, J. A., & van Eijk, J. T. (2010)**. Improving quality of life in depressed COPD patients: effectiveness of a minimal psychological intervention. *COPD: journal of chronic obstructive pulmonary disease*, 7(5), 315-322.
- [16]. **Lan, C. C., Huang, H. C., Yang, M. C., Lee, C. H., Huang, C. Y., & Wu, Y. K. (2014)**. Pulmonary rehabilitation improves subjective sleep quality in COPD. *Respiratory care*, 59(10), 1569-1576.
- [17]. **Leiva-Fernández, J., Leiva-Fernández, F., García-Ruiz, A., Prados-Torres, D., & Barnestein-Fonseca, P. (2014)**. Efficacy of a multifactorial intervention on therapeutic adherence in patients with chronic obstructive pulmonary disease (COPD): a randomized controlled trial. *BMC pulmonary medicine*, 14(1), 70.

- [18]. **Lenferink, A., Brusse- Keizer, M., van der Valk, P. D., Frith, P. A., Zwerink, M., Monninkhof, E. M., ... & Effing, T. W. (2017).**Self- management interventions including action plans for exacerbations versus usual care in patients with chronic obstructive pulmonary disease. *Cochrane database of systematic reviews*, (8).
- [19]. **Lewis S, Dirksen S, Heitkemper M, et al. (2014).** Medical surgical nursing: assessment and management of clinical problems. United State of America: Elsevier Mosby; 610-630 p.
- [20]. **Lynn, P. (2015).**Taylor's handbook of clinical nursing skills / Pamela Lynn. — Second edition. Wolters Kluwer.
- [21]. **Mahler, D. A., Weinberg, D. H., Wells, C. K., & Feinstein, A. R. (1984).** The measurement of dyspnea: contents, interobserver agreement, and physiologic correlates of two new clinical indexes. *Chest*, 85(6), 751-758.
- [22]. **Maurer, J., Rebbapragada, V., Borson, S., Goldstein, R., Kunik, M. E., Yohannes, A. M., & Hanania, N. A. (2008).** Anxiety and depression in COPD: current understanding, unanswered questions, and research needs. *Chest*, 134(4), 43S-56S.
- [23]. **McDonnell, L. M., Hogg, L., McDonnell, L., & White, P. (2014).** Pulmonary rehabilitation and sleep quality: a before and after controlled study of patients with chronic obstructive pulmonary disease. *NPJ primary care respiratory medicine*, 24, 14028.
- [24]. **Mohamed, D., Ahmed, S., Mohamed, A., & Abdel Rahman, A. (2017).**Effect of care protocol on the knowledge, practice and clinical outcomes of patients with chronic obstructive pulmonary disease. *Journal of Nursing Education and Practice*, 7(2).
- [25]. **Müllerová, H., Lu, C., Li, H., & Tabberer, M. (2014).**Prevalence and burden of breathlessness in patients with chronic obstructive pulmonary disease managed in primary care. *PloS one*, 9(1), e85540.
- [26]. **National Center for Health Statistics (2015).**Healthy People 2020. Available at: <http://www.cdc.gov/nchs/fastats/lcod.htm>
- [27]. **National Heart, Lung and Blood Institute (2018).**COPD. Available at: <https://www.nhlbi.nih.gov/health-topics/copd>
- [28]. **O'brien, P. G. (2004).** *Medical-surgical nursing: Assessment and management of clinical problems* (Vol. 2, No. 6, p. 43). S. M. Lewis, M. M. Heitkemper, & S. R. Dirksen (Eds.). St. Louis: Mosby.
- [29]. **Paneroni, M., Clini, E., Crisafulli, E., Guffanti, E., Fumagalli, A., Bernasconi, A., ...&Peroni, R. (2013).** Feasibility and effectiveness of an educational program in Italian COPD patients undergoing rehabilitation. *Respiratory care*, 58(2), 327-333.
- [30]. **Said, A. F., Ewis, A. A., Omran, A. A., Magdy, M. E., & Saleeb, M. F. (2015).**Prevalence and predictors of chronic obstructive pulmonary disease among high-risk Egyptians. *Egyptian Journal of Bronchology*, 9(1), 27.
- [31]. **Salah, M., Hamdi, A., & Shehata, H. (2013).** Improving breathlessness and fatigue in patient with COPD. *Journal of American Science*, 9(12), 470-482.
- [32]. **Sharma, M. K., Kumar, A., & Venkateshan, M. (2016).**Effectiveness of self-instructional module on knowledge of self-care management of chronic obstructive pulmonary disease among patients with chronic obstructive pulmonary disease. *IJRMS*, 4(5), 1604-8.
- [33]. **Shelly C, Michael A, Jamie S. Short Form of the Profile of Mood States (POMS-SF) (1995).** American Psychological Association; [cited 2013 Nov. 5]. 7(1): 80-83. <http://dx.doi.org/10.1037/1040-3590.7.1.80>.
- [34]. **Subba, H. K., & Subba, R. (2014).**Knowledge on self care among COPD patients attending at Chitwan Medical College Teaching Hospital, Bharatpur. *Journal of Chitwan Medical College*, 4(3), 34-37.
- [35]. **Tel, H., Bilgiç, Z., & Zorlu, Z. (2012).**Evaluation of dyspnea and fatigue among the COPD patients. In *Chronic Obstructive Pulmonary Disease-Current Concepts and Practice*. Intech Open.
- [36]. **The National Board of Health and Welfare .(2015).**Nationell riktlinje för vård vid astma och kroniskt obstruktiv lungsjukdom [National Guidelines for asthma and Chronic Obstructive Pulmonary Disease Care]. Available from <http://www.socialstyrelsen.se/riktlinjer/nationellariktlinjer/nationella-riktlinjer-astma-kol>
- [37]. **Toraldo, D. M., Nuccio, F. D., & Scoditti, E. (2013).** Systemic inflammation in chronic obstructive pulmonary disease: may diet play a therapeutic role. *J AllerTher S*, 2, 2.
- [38]. **Vestbo, J., Hurd, S. S., Agustí, A. G., Jones, P. W., Vogelmeier, C., Anzueto, A., ... & Stockley, R. A. (2013).** Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease: GOLD executive summary. *American journal of respiratory and critical care medicine*, 187(4), 347-365.
- [39]. **Vogelmeier, C. F., Criner, G. J., Martinez, F. J., Anzueto, A., Barnes, P. J., ... journal of chronic obstructive pulmonary disease**, 8, 545.
- [40]. **White, R., Walker, P., Roberts, S., Kalisky, S., & White, P. (2006).** Bristol COPD Knowledge Questionnaire (BCKQ): testing what we teach patients about COPD. *Chronic respiratory disease*, 3(3), 123-131.
- [41]. **WHO (2017).**COPD. Available at: <https://www.who.int/news-room/fact-sheets/detail/chronic-obstructive-pulmonary-disease-copd>. Accessed on 23 Feb 2019
- [42]. **World Health Organization (2016).** COPD: Definition. Retrieved April 24, 2014 from: [http://www.who.int/respiratory/copd/ definition/en/](http://www.who.int/respiratory/copd/definition/en/)
- [43]. **Zwerink, M., Brusse- Keizer, M., van der Valk, P. D., Zielhuis, G. A., Monninkhof, E. M., van der Palen, J., ... & Effing, T. (2014).**Self management for patients with chronic obstructive pulmonary disease. *Cochrane Database of Systematic Reviews*, (3).