

## Home Health Care Intervention regarding Quality of Life for Elderly Patients with Chronic Obstructive Pulmonary Disease

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### ABSTRACT

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**Background:** Chronic obstructive pulmonary disease represents an important public health challenge and it's a major cause of chronic morbidity and mortality in the elderly people throughout the world. **The aim** of this study was to evaluate home health care intervention regarding quality of life for elderly patients with chronic obstructive pulmonary disease in Benha City. **Research design:** A quasi experimental design was utilized in carrying out this study. **Setting:** This study was conducted in Outpatient Clinics of Chest Hospital in Benha City. **The sample:** Purposive sample of ۲۵% (۱۰۰ elderly patients) from ۴۰۰ elderly patients with chronic obstructive pulmonary disease. **Tools: Three tools are used I):** A structured interviewing questionnaire which consists of four parts to assess **a):** Demographic characteristics of the studied sample, **B):** Medical history of elderly people with COPD, **C):** Knowledge and **D):** Reported practices of elderly patients regarding chronic obstructive pulmonary disease, **II):** Scale to measure quality of life of elderly patients with chronic obstructive pulmonary disease., **III): Observational checklist:** Was used to observe the studied patients home and practices of the studied patients. **Results:** ۵۶% of the studied patients had poor knowledge pre intervention, and then this percentage decreased to ۱۲% during post intervention, ۲۷% of the studied elderly patients were satisfactory practices pre intervention then this percentage increased to ۸۱% of the studied patients had satisfactory practices post intervention, ۲۹% of the studied the elderly patients had good total scores of quality of life pre intervention and then increased to ۷۲% post intervention. **Conclusion:** The home health care intervention succeeded to improve knowledge, practices and quality of life of the studied patients. **Recommendations:** Continuous home health care intervention for elderly patients with chronic obstructive pulmonary disease to increase their knowledge and improve their practices.

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**Key words:** Elderly people, COPD, Quality of life, Home health care intervention

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## **Introduction**

Chronic Obstructive Pulmonary Disease (COPD) is a global health concern. It is a leading cause of morbidity and mortality worldwide. By 2030 it is predicted to become the third leading cause of death and the sixth cause of disability worldwide (Woo et al., 2019). Chronic obstructive pulmonary disease is a major chronic disease, highly prevalent in the ageing population exposed to tobacco smoke and airborne pollutants. Accounting for around 3 million deaths globally (Ho et al., 2019).

Aging as a natural process of gradual changes in the respiratory system are maximum function gradually declines. Age-related changes in the lungs include decreases in peak airflow and gas exchange, decreases in measures of lung function such as vital capacity (the maximum amount of air that can be breathed out following a maximum inhalation), weakening of the respiratory muscles and decline in the effectiveness of lung defense mechanisms. These changes in lung function with age that develops of COPD (Dezube, 2019).

Quality of life is an important domain for measuring chronic disease impact. Health related quality of life may be assessed using either generic or disease specific questionnaires including physical, psychological and social factors. Elderly patients with

COPD have an impaired quality of life on physical component of health compared with psychological and social health component because of limitations on physical activities and frequent symptoms. Hence, physical health improving and other factors affecting quality of life need to be put in consideration while planning interventions to improve quality of life of patients with COPD. Moreover, improving psychological and social functioning which is also associated with the impairment of overall quality of life (Mohamed, 2018).

Home health care intervention is an important aspect of management program for patients with chronic obstructive pulmonary disease. It is recommended to provide education at the time of diagnosis and to continue through end-of-life care. Home health care intervention aimed to teaching specific disease related skills that emphasize disease control through behaviour change. Its goal is increased adherence to treatment, as well as improved clinical outcomes and increased patient knowledge and reduction of health care service utilization (Thomas, 2018).

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

Chronic obstructive pulmonary disease is considered to be a major public health problem and an important cause of morbidity and mortality in worldwide (Franssen et al., 2018). In Egypt showed that 3 million from the Egyptian population

have COPD. In different studies the prevalence was from 3.3% up to 10%, prevalence rate in men 6.7% while it was 1.5% in women (*Elesway, 2014*). Prevalence of chronic obstructive pulmonary disease among the elderly patient is estimated at 14.2% in contrast with 9.9% in those aged 40 years). COPD morbidity, mortality rate, and the prevalence are expected to increase related to a rapidly aging population. In Egypt, COPD is a rising significant health problem; however, information on its prevalence, morbidity, and mortality is still lacking (*Ibrahim and Abd El-Maksoud, 2014*).

Chronic obstructive pulmonary disease is an increasing cause of morbidity and mortality, accounting for 7% of global deaths, the majority of which are from low- and middle income countries. It is a preventable disease projected to rank third among all the medical causes of death by 2030. The condition also affects about 10% of older people than 40 years of age (*Ojuawo et al., 2014*). COPD prevalence was about 3.6%. In Egypt, it was estimated that COPD prevalence among high risk groups was 10% (*Mohsen et al., 2014*).

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

This study aims to evaluate home health care intervention regarding quality of life for elderly patients with chronic obstructive pulmonary disease in Benha City through:

- Assessing knowledge of elderly patients about chronic obstructive pulmonary disease.
- Assessing practices of elderly patients about chronic obstructive pulmonary disease.
- Assessing quality of life among elderly patients with chronic obstructive pulmonary disease (physical, psychological, and social domains).
- Designing and implementing home health care intervention for elderly patients about chronic obstructive pulmonary disease.
- Evaluating the degree of improvement of elderly patient's quality of life pre/ immediate post intervention.

### ***Research hypothesis***

Home health care intervention will improve quality of life among elderly patients with chronic obstructive pulmonary disease.

### **Subjects and method:**

#### **Research design:**

A quasi experimental design was used in carrying out this study.

#### **Setting:-**

The study was conducted at Outpatient Clinics of Chest Hospital in Benha City to collect information about the elderly patients followed by home visits to conduct the intervention.

## Sampling:

Purposive sample of 70% (100 elderly patients) from 143 elderly patients with chronic obstructive pulmonary disease attended to Benha Chest Hospital Out Patient Clinics throughout one year from the beginning of the study

**Tools for Data Collection:** Three tools were used to collect the data:

**Tool (I): A structured interviewing questionnaire Appendix (I):** It was developed by the researcher based on literature review of the current and past available national and international references related literature about chronic obstructive pulmonary disease by using a journal, textbooks and internet search, approved by supervisors and it was written in simple clear Arabic language: It comprised of four parts to assess:

**First part:** Demographic characteristics of elderly patients involved in the study. It included 8 items such as; age, gender, marital status, level of education, occupation, place of residence, monthly income, and type of family.

**Second part:** Medical history of elderly patients with chronic obstructive pulmonary disease:

**A- Past medical history which included 4 items such as;** onset the elderly patients diagnosed with COPD, previous hospital admission due to COPD, predisposing factors for COPD,

and complain from any other health problems. **B- Current medical history which included 7 items such as;** the current symptoms complain, smoker and living with a smoker person.

**Third part:** Knowledge of elderly patients about chronic obstructive pulmonary disease which included 9 items e.g; the meaning of chronic obstructive pulmonary disease, causes, signs and symptoms, risk factors, methods of diagnosis, methods of management, methods of medical treatment, complication and methods of prevention.

## Scoring system:

The scoring system for elderly patients knowledge was calculated as follows (7) score for complete correct answer, while (1) score for incomplete correct answer, and (0) for don't know answer.

The total knowledge score = (18 point) was considered good if the score of the total knowledge  $>70\%$  equal and more (14) point, while considered average if it equals  $50-70\%$  (9-14) point, and considered poor if it is  $<50\%$  equal or less (9) point.

**Fourth part:** Reported practices of elderly patients regarding chronic obstructive pulmonary disease to prevent complications and improve general health status adapted from (*Maarouf, 2017*), which included 12 items that divided into 1): **Nutrition** which included (8) items; drinking a lot of warm fluids, drinking natural herbs that relieve coughing, eat vegetables and fresh fruits frequently, eating fatty

or high-fat foods (such as fatty meat, butter, cream) are low in quantity, eating small, frequent meals during the day (٦ snacks instead of ٧ meals), avoiding eating foods that cause bloating like cabbage–cauliflower, avoiding drinking coffee; tea or soft drinks, and avoiding foods rich in salts and spices. ٢): **Exercise** which included (٤) items; practicing sports exercises such as walking daily a regular basis, exercise in a warm place and avoid cold air as much as possible, avoid exercise in air accompanied by dust and smoke, and relaxation exercises (e.g. guided imagery, yoga).

#### **Scoring system:**

The scoring system for elderly patients practices were calculated as follows (١) score for done and (٠) for don't done practicing.

The total practices score=(١٧ point) was considered satisfactory if the score of the total practices  $\geq ٦٠\%$  ( $\geq ١٠$  point), while considered unsatisfactory if it is  $< ٦٠\%$  ( $< ١٠$  point).

**Tool (II):** Scale to measure quality of life of elderly patients with chronic obstructive pulmonary disease

**Appendix (II):** which included (٢٠) items adapted from (Ninot *et al.*, ٢٠١٣). The questionnaire was measured on a Likert type scale of (always, sometimes and never) which was modified by researcher to assess the impact physical, psychological and social on quality of life of elderly patients. It was translated into Arabic by the researcher and divided into three domains:

١- **Physical status which included (٨) items:** Health status hinders self caring, avoid activities that require exertion, finding difficulty to do daily living activities and personal, finding difficulty to engage in physical activities such as climbing stairs, sports work, changing nutritional habits as a result of chronic obstructive pulmonary disease, health status preventing home care, suffering difficulty breathing because of chronic obstructive pulmonary disease, and changing in the rate of sleep due to chronic cough.

٢- **Psychological status which included (٨) items:** Feeling unable to adapt with disease, feeling dissatisfied life and physical health, feeling of depression, feeling nervous and worried about future, present problems in concentration, feeling need for psychological support from family, feeling become a load on family after getting disease, and worry about the cost of treatment.

٣- **Social status which included (٤) items:** Chronic obstructive pulmonary disease affects the relationships with others, illness prevents doing exercise and hobbies with others, avoid talking about health status with the friends and neighbors, and illness cause isolation from others.

#### **Scoring system:**

Quality of Life scale score was calculated as (٣) scores for always, (١) scores for sometimes and (٠) for never.

The total quality of life score (Σ) was considered good if the score > 70% (> 30) points, while considered average if its 50- 70% (10- 30) points, and considered poor if it < 50 (< 10) points.

**Tool (III): Observational checklist (Appendix III):** Was concerned on two parts:

**First part:** Was observing and assessing chronic obstructive pulmonary disease elderly patients home adopted from (*Fouad et al., 2017*). It included (10 items) level of ventilation, adequate lighting, curtains on the windows, a healthy source of drinking water, cleanness and tidiness, equipped kitchen and a separate food preparation, presence of a repellent smoke and heat device, presence of oven for baking, burning fuel for warming and cooking, There are a few rooms, and presence of carpets or moquette with lint covering the floors.

The scoring system for elderly patients home environment was calculated as follows (3) score for good and, while (1) score for average, and (0) for poor.

**Second part:** It was concerned with observational practices of elderly patients regarding chronic obstructive pulmonary disease adopted from (*Perry et al., 2014*). Which included 12 items that divided into 1): **Deep breathing and coughing exercise technique** which include (6) steps about e.g.; sit comfortably (sitting or half sitting), putting one hand on the

chest and the other on the abdomen makes that more comfortable, take a deep breath from the nose and hold it up by 1 to 3 and then slowly pull it out of the mouth, cough out twice while keeping your mouth open, spit mucus in a handkerchief and dispose of it properly, repeat steps (0: 2) once or twice as necessary. 2): **Using inhaler technique** which include (6) steps e.g.; remove the cover and hold the inhaler, shake the inhaler well, take breathing and exhale completely, place the inhaler in the mouth and close the lips tightly around it, take the same to slowly inside and squeeze the package tightly, hold the air inside the lung for seconds and then breathe out properly.

**Scoring system:**

The scoring system for elderly patients practices were calculated as follows (1) score for done and (0) for don't done practicing.

The total practices score=(12 point) was considered satisfactory if the score of the total practices ≥ 60% (≥ 7 point), while considered unsatisfactory if it is < 60% (< 7 point).

**Content validity of the tools:**

Content validity of the tools was done by five of Faculty's Staff Nursing experts from the Community Health Nursing Specialties who reviewed the tools for clarity, relevance, comprehensiveness, and applicability and give their opinion.

### **. Reliability of the tools:**

Reliability of the tool was applied by the researcher for testing the internal consistency of the tool, by administration of the same tools to the same subjects under similar condition on one or more occasion. Answers from repeated testing were compared (test-re-test reliability). The reliability was done by Cronbachs Alpha coefficient test which revealed that each of the three tools consisted of relatively homogenous items as indicated by the moderate to high reliability of each tool. The internal consistency of the knowledge was 0.89, while practices were 0.90, and quality of life was 0.82.

### **Administrative design:**

Official permission took from the Dean of Faculty of Nursing- Benha University to the administrator of the Benha Chest Hospital and oral consent from the elderly patients to conduct the study. The title, objectives, tools and the study technique were illustrated for cooperation, as well as to allow the researcher to prepare a regular arrangement with the elderly patients for the attendance of the researcher at their homes.

### **Preparatory phase:**

Preparation of the study design and data collection tools was based on extensive review of the current and past available national and international references related literature about chronic obstructive pulmonary disease by using a journal, textbooks and internet search to contrast the tools and

the home health care intervention. This was necessary for the researcher to be acquainted with and oriented about aspects of the research problem as well as to assist in the development of data collection tools, this takes time for preparing the tools about two months.

### **Ethical considerations:**

All ethical issues were assured, oral consent has been obtained from each elderly patient before conducting the interview and given them a brief orientation to the purpose of the study. They were also reassured that all information gathered would be confidentially and used only for the purpose of the study. The elderly patients had right to withdraw from the study at any time without giving any reasons.

### **Pilot study:**

The pilot study was conducted on (10) elderly patients which represented 10% of the studied sample. The pilot study was aimed to test the content, clarity, applicability and simplicity of the tool using the interviewing questionnaire and the observational checklist as a pre-test sheet. The estimation of the time needed to fill the questionnaire time needed to fill each sheet consumed about 30 minutes. No modifications were done, so the pilot study sample was included in the total sample.

### **Field work:**

Data were collected over 12 months from the start of May 2018 to



end of the May ٢٠١٩. The study was conducted by the researcher for the studied sample in the selected setting of the Outpatient Clinic at Benha Chest Hospital and their home through home visits. The researcher visited the Outpatient Clinic at Benha Chest Hospital two days per week (Saturday and Tuesday) from ٩:٠٠ am to ١٢:٠٠ am, and other two days of the week (Wednesday and Thursday) to accomplish home visits to previously selected cases. The average time needed for the sheet was around ٣٠/minutes, the average number interviewed at the outpatient clinics were ٣-٥ elderly patients/day depending on their responses of the elderly patients.

### **Home health care intervention development included three phases:**

#### **Phase (I): Home health care intervention preparation:**

Based on the results obtained from the interviewing questionnaire and observational checklists, as well literature review, the home health care intervention developed by researcher. It was implemented immediately after pre-test.

**General objective:** Apply the home health care intervention for elderly patients with chronic obstructive pulmonary disease to improve their knowledge, practices regarding chronic obstructive pulmonary disease and quality of life of elderly patients.

**Content of home health care intervention:** the content of home health care intervention was designed to meet elderly patients with chronic obstructive pulmonary disease needs and to fit into their interest and levels of understanding. Its content were:

- Meaning, risk factors, symptoms and signs, high risk people, methods of diagnosis, methods of treatment, complications, and prevention methods of chronic obstructive pulmonary disease.

- Practices of the elderly patients with chronic obstructive pulmonary disease such as nutrition, exercise, coughing, and deep breathing exercise and inhaler used technique.

- Quality of life (physical, psychological and social status).

#### **Teaching methods:**

All elderly patients received the same intervention content using the same teaching methods, there were:

- Lectures / discussion.
- Demonstration and re-demonstration.
- Presentation.
- Real materials.
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#### **Teaching aids:**

Suitable teaching aids were specially prepared for intervention, as follows: booklets, pictures and handout.

#### **Phase (II): Implementation of the home health care intervention:**

The researcher visited the Outpatient Clinic at Benha Chest Hospital two days per week (Saturday and Tuesday) from 9:00 am to 12:00 am, and other two days of the week (Wednesday and Thursday) to accomplish home visits to previously selected cases. The number of sessions was 6 sessions of 3 hours (2 theoretical sessions and 4 practical sessions; 2 hours theoretical and 1 hour practical). The duration of each session was 30 minutes, including periods of discussion, and the average number implementation of the home health care intervention were 3-6 elderly patients/day.

The elderly patients with chronic obstructive pulmonary disease were present all time of the intervention sessions. The duration of each session was variable, according to its contents as well as the elderly patients.

The home health care intervention was implemented for the elderly patients at the suitable time for them. To insure that they were exposed to the same learning experience, they received the same of the first session, an orientation to the intervention and its process were presented. Each session started with a summary about what had been given through the previous session, then the objectives of the new topics, taking into consideration the use of simple language to suite the level of the elderly patients.

Discussion, motivation and reinforcement during intervention

session were used to enhance learning. Direct reinforcement in the form, a copy of the intervention was given as a gift for each elderly patients to use it as future reference. All the participants were cooperative with the researcher. At the end of each session, elderly patients participated in a discussion to correct any misunderstanding. Also, they were informed about the time of next session.

### **Phase (III): Evaluation of the home health care intervention:**

Evaluation of the intervention was done by using the post-test questionnaire which was the same formats of pre - test in order to compare the change in the elderly patients knowledge and practices immediately after implementation of the intervention to assess gained knowledge.

### **Statistical design:**

Statistical presentation and analysis of the present study data were carried out, using mean and standard deviation, Chi- square and linear correlation coefficient (r) by using the statistical package for Social Science (SPSS version 11).

### **Significance levels were considered as follows:**

Highly statistically significant	$P < 0.001^{**}$
Statistically significant	$P < 0.05^{*}$
Not significant	$P > 0.05$

**Result:**

**Table (1):** Frequency distribution of the studied elderly patients regarding their demographic characteristics (n=100).

Demographic characteristics	No.	%
<b>Age</b>		
<60	37	37.0
60-	29	29.0
70+	34	34.0
<b>Mean ± SD</b>	67.8±7.12	
<b>Sex</b>		
Male	58	58.0
Female	42	42.0
<b>Marital status</b>		
Married	60	60.0
Widowed	38	38.0
Absolute	2	2.0
<b>Education level</b>		
Can't read and write	61	61.0
Basic education / reading and writing	23	23.0
Secondary education	11	11.0
University education	5	5.0
<b>Occupation</b>		
Working	20	20.0
Not working	37	37.0
Retirement	43	43.0
<b>Residence</b>		
Urban	24	24.0
Rural	76	76.0
<b>Income/ month</b>		
Sufficient for medication cost	83	83.0
Not sufficient for medication cost	17	17.0
<b>Living with</b>		
Alone	20	20.0
With family	80	80.0

**Table (1):** Shows the demographic characteristics of the studied elderly patients. It was clear that; 37% of the studied elderly patients aged from 60 to less than 60 years old with the mean age 67.8±7.12. 58% of them were males, and 60% of them were married. Regarding to educational level; 61% of the studied elderly patients were can't read and write. This table shows that; 43% of the studied elderly patients were retirement, while 76% of them lived in rural areas. 83% of the studied elderly patients were sufficient income for medication cost and 80% of them lived with family.

**Table (٧):** Frequency distribution of the studied elderly patients regarding their medical history (n=١٠٠).

Medical history	No.	%
<b>A-Past medical history</b>		
<b>Onset of the COPD:</b>		
Less than < ١ year	١٠	١٠.٠
١ < ٣ years	١٠	١٠.٠
٣ < ٥ years	٢٠	٢٠.٠
> ٥ years	٦٠	٦٠.٠
<b>Previous hospital admission due to COPD:</b>		
Non	١٠	١٠.٠
Once	١٠	١٠.٠
Twice	١٠	١٠.٠
Three and more	٦٠	٦٠.٠
<b>*Predisposing factors for COPD:</b>		
Smoking	٥٨	٥٨.٠
Exposure to second-hand smoke	٥٠	٥٠.٠
Exposure to dusts	٦٠	٦٠.٠
Bronchial asthma in childhood period	٦٤	٦٤.٠
Chest diseases such as pulmonary tuberculosis	١١	١١.٠
Sensitivity of some foods or medicines	٢٨	٢٨.٠
Family history of COPD	٣٠	٣٠.٠
<b>*Complain from other health problems:</b>		
Diseases of the digestive system	١٣	١٣.٠
Heart disease /blood vessels such as hypertension	٦٤	٦٤.٠
Endocrine diseases such as diabetes mellitus	٢٨	٢٨.٠
Kidney disease	٧	٧.٠
Rheumatism	٤	٤.٠
Oncology	٢	٢.٠
<b>B- Current medical history</b>		
<b>*The current complain:</b>		
Dyspnea	١٠٠	١٠٠.٠
Chronic cough	٨٥	٨٥.٠
Low body weight	١١	١١.٠
Swelling of ankles	٢١	٢١.٠
<b>Living with smokers</b>	٥٢	٥٢.٠

\*Answers are not mutually exclusive

**Table (٢):** Shows that; ٦٠% of the onset studied elderly patients diagnosed with chronic obstructive pulmonary disease since five years or more, ٦٠% of them had previous hospital admission due to COPD more than three times, ٦٤% of them suffered from bronchial asthma in childhood period, while ٦٤% of them complain from heart disease/blood vessels such as hypertension, and all the studied elderly patients complain from dyspnea, and ٥٢% of studied elderly patients live with smokers.

**Table (٣):** Frequency distribution of the studied elderly male patients with COPD regarding their smoking (n=٥٨).

Smoking	No.	%
<b>Smoking:</b>		
Yes	٥٢	٨٩.٦
Quit smoking	٦	١٠.٤
<b>*Type of smoking:</b>		
N= ٥٢		
Cigarette	٥٢	١٠٠.٠
Hookah (Shisha)	٢٤	٤٦.١
<b>Number of cigarette packs smoking per/day</b>		
Less than one pack	٢٢	٤٢.٨
One packs or more	٣٠	٥٧.٢
<b>Duration of smoking:</b>		
<٥ years	٢	٣.٨
٥-١٠ years	٣	٥.٧
>١٠ years	٤٧	٩٠.٥

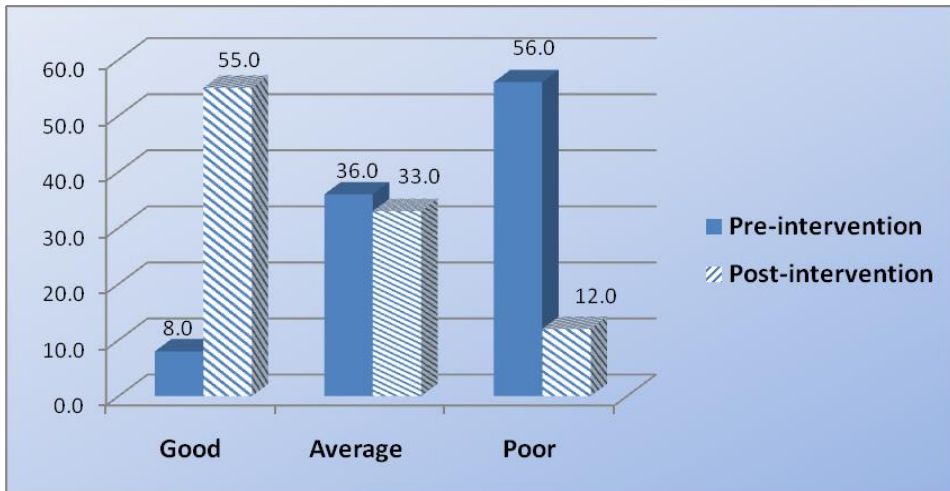
**\*Answers are not mutually exclusive**

**Table (٣):** Reveals that; ٨٩.٦% of the studied elderly patients were smokers, most of them were cigarette smoking. While ٥٧.٢% of them cigarette smoking more one packs per day. Relation to duration of smoking ٩٠.٥% of the studied elderly patients were smoking more than ten years.

**Table (٤):** Percentage distribution of the studied elderly patients regarding their home environmental condition (n=١٠٠).

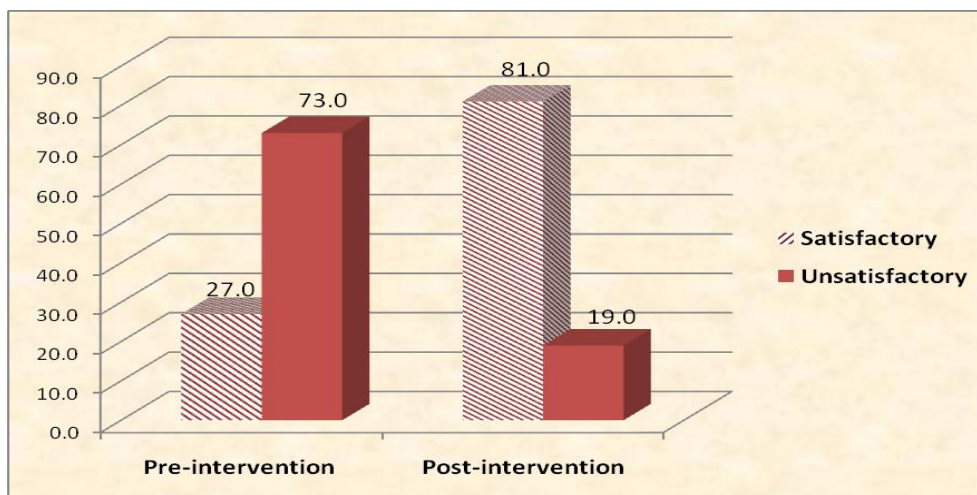
Home environment	Good	Average	Poor
	%	%	%
Ventilation in the house	٨٠.٠	١٣.٠	٧.٠
Existence of adequate lighting at home	٧٦.٠	٢٣.٠	١.٠
Presence of curtains on the windows	٢١.٠	٥٠.٠	٢٩.٠
a satisfactory source of water for drinking	٧٦.٠	٢١.٠	٣.٠
Clean and tidy home	٨٠.٠	٢٠.٠	٠.٠
Equipped kitchen and a separate food preparation	٨٤.٠	١٦.٠	٠.٠
Presence of a repellent smoke and heat source at home	٢٤.٠	٣٥.٠	٤١.٠
Not presence of oven for baking	٢٢.٠	٢١.٠	٥٧.٠
Don't used fuel burning for warming and cooking	١٦.٠	٤٤.٠	٤٠.٠
There are a few rooms	٦٣.٠	٣٧.٠	٠.٠
Not presence of carpets or moquette with lint covering the floors.	٤٨.٠	٣٣.٠	١٩.٠

**Table (٤):** Reveals that; ٨٤% of the studied elderly patients live in an environment with good equipped kitchen and a separate food preparation, ٨٠% of them live in a clean and tidy home and ٧٦% of them live in a good source of water for drinking, and ٨٠% of them live in good level of ventilation in the house.



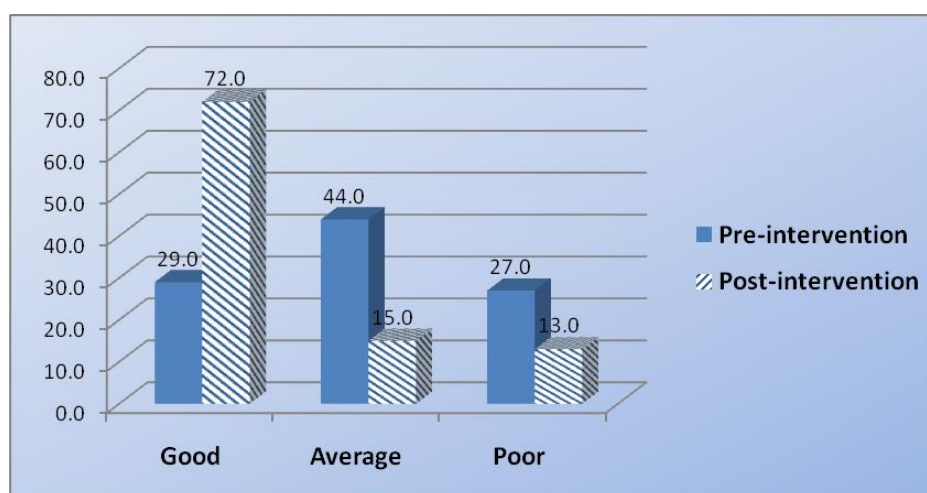
**Figure (1):** Percentage distribution of the studied elderly patients regarding their total knowledge score about COPD pre and post intervention.

**Figure (1):** Illustrate that; 8% of studied elderly patients had good knowledge pre intervention increased to 55% at post intervention. While 56% of them had poor knowledge at pre intervention, and then this percentage decreased to 12% had poor knowledge post intervention. There was statistically significant difference between pre and post total knowledge score.



**Figure (٧):** percentage distribution of the studied elderly patients regarding their total practices score pre and post intervention.

**Figure (٧):** Illustrates that; ٧٣% of the studied elderly patients were unsatisfactory practices pre intervention and ٨١% of them were satisfactory practices post intervention.



**Figure (٨):** Percentage distribution of the studied elderly patients regarding total quality of life score pre and post intervention (n=١٠٠)

**Figure (٨):** Shows that; ٢٩% of the studied the elderly patients had good total scores of quality of life pre intervention and then increased to ٧٢% post intervention.



**Table (16):** Correlation between studied elderly patients total practices and total knowledge pre and post intervention (n=100).

Items	Total practices			
	Pre		Post	
	r	p-value	R	p-value
Total knowledge	0.79	0.04*	0.74	0.02*

\*A statistically significant ( $P \leq 0.05$ )

**Table (16):** Shows that; there was a positive statistically significant correlation between the studied elderly patients total practices and total knowledge pre and post intervention ( $p=0.04$ ).

**Table (17):** Correlation between the studied elderly patients total knowledge, total practices and total quality of life score pre and post intervention (n=100).

Items	Total quality of life			
	Pre		Post	
	R	p-value	r	p-value
Total practices	0.79	0.04*	0.71	0.02*
Total knowledge	0.56	0.00*	0.41	0.04*

\*A statistically significant ( $P \leq 0.05$ )

**Table (17):** Shows that; there were a positive statistically significant correlation between the studied elderly patient's total quality of life and total practices and total knowledge pre intervention and post intervention ( $P \leq 0.05$ )

**Discussion:**

Chronic obstructive pulmonary disease is a leading cause of mortality and morbidity. It's a chronic respiratory disease characterized by a limitation in lung function over a period of time, along with respiratory symptoms,

primarily dyspnea, cough, and sputum production. Consequently, COPD impacts on patients' everyday life; it is linked with a significant economic burden which includes cost of hospitalization, and restricted physical ability. Moreover, COPD being a chronic debilitating disease, patients are

also confronted with daily life limitations, reduced daily activities, and reduced health-related quality of life caused by complaints such as dyspnea, skeletal muscle dysfunction, and comorbidities (*Pati et al.*, 2019).

According to demographic characteristics of the studied patients, the current study revealed that; more than one third of the studied patients were aged from 60 to less than 65 years old with mean age of present study  $64.8 \pm 6.12$  (table 1). This might be due to ageing is a most common risk factor for developing COPD a result of the natural decline in lung function with increasing age which may be associated with airflow limitation and the criteria of the studied samples age above 60 years. This finding was in the same line with *Mohamed* (2019), who conducted study on assessment lifestyle for patients with chronic obstructive pulmonary disease in Egypt and reported that 50% of studied patients were more than 60 years old. But this finding disagreement with *Suthar et al.* (2018), they conducted study on awareness of chronic obstructive pulmonary disease (COPD) among smokers in seven areas of west zone of Ahmedabad in India, and they reported that the mean age of participants study were  $39.0 \pm 19.0$  years.

The current study revealed that; more than half of the studied patients were males (Table 1). This might be due to the fact that males are more exposed to risk factors, mainly cigarette smoking than females. This finding was in the same line with study done by *Franssen*

*et al.* (2014), they conducted study on the physical, mental, and social impact of COPD in a population-based sample: results from the longitudinal aging study in Amsterdam, and they found that 50.5% of studied sample were male. Also this finding was congruent with. On the other hand, this finding was disagreement with *Ojuawo et al.* (2019), they conducted study on profile of patients with chronic obstructive pulmonary disease in Ilorin who were never smokers, and they reported that 52.6% of studied sample with COPD were female.

Concerning the marital status of the studied patients. The present study revealed that; three fifths of the studied patients were married (table 1). This finding was in agreement with *Jokhdar et al.* (2017), they conducted study on early detection of chronic obstructive pulmonary disease (COPD) in family practice, they studied carried out at the family health center of Al-Shohadaa City, Menoufia governorate, Egypt, and they founded that 53% of the studied sample were married.

As regards past medical history, the current study revealed that; three fifths of the studied patients had diagnosed with chronic obstructive pulmonary disease five years or more (table 2). This might be due to elderly patients suffered from COPD from long period of time and become chronic disease. This finding was in the same line with study done by *Mohsen et al.* (2019), they founded that 52.6 % of studied sample duration of COPD five years or more. On other hand this finding was incongruent with *Pinto et al.* (2019),

they conducted study on management of COPD within the Brazilian unified health care system in the state of Bahia: an analysis of real-life medication use patterns in the City of Salvador, Brazil, and they reported that 91.7% duration COPD, years of studied patients less than 5 years.

As regard past medical history, the current study revealed that; more than three fifths of the studied patients had suffered from bronchial asthma in childhood period (table 2). This finding was disagreement with *Osman* (2014), who conducted study on the prevalence and risk factor of COPD in Khartoum State, Sudan and who reported that 10% of patient suffering from COPD has positive past history of asthma. Also this finding was disagreement with *Elesway* (2014), they reported that 10% of the patients suffer from bronchial asthma.

Concerning present medical history, the present study results showed that; the majority of the studied patients complain from chronic cough (table 2). This might be due to the chronicity of the disease, most of patients were smokers, exposed to irritant, and suffered from dyspnea, and chronic cough, and because of acute exacerbations that may progress to respiratory failure. This finding was consistent with *Sobeh et al.* (2014), they conducted study on the effect of nursing care protocol on health outcomes of patients with chronic obstructive pulmonary disease

(COPD) in Port Said University, Egypt and they reported 100% of patients suffered from chronic cough

The current study results revealed that; majority of the studied patients had smokers and the most of them had cigarette smoking (table 3). This might be due to more than half of the studied patients were males and higher prevalence of smoking among this gender. This finding in the same line with *Mohamed* (2014), reported that 80% of the studied patients had cigarette smoking. Also this finding was consistent with *Sharma & Joshi* (2015), they reported that 90.0% of the patients showed a history of cigarette smoking.

Considering the studied patients environment, the present study revealed that; majority of the studied patients live in good level of ventilation in the house and more than three quarters of them live in a good source of water for drinking (table 4). This finding was in agreement with *Mohamed* (2014), who reported that 100% of the studied patients lived in good ventilation and 86% of the studied patients had water and sanitation availability.

Regarding total knowledge score of the studied patients the present study revealed that; more than half of the studied patients had poor knowledge pre intervention and more than half of the studied patients had good knowledge post intervention (figure 1). This might be due to three fifths of the studied patients were can't read and write and more than one third of the elderly

patients with COPD aged from 60 to less than 65 years old. This finding supported by *Bourbeau et al.* (2014), they conducted study on integrating a model of self-management education in COPD primary care in Canada, and they reported that COPD-specific knowledge of studied patients significantly improved after the intervention. Also this finding was in the same line with *El-Gendy* (2019), who conducted study on controlling dyspnea in chronic obstructive pulmonary disease patients in King Abdul-Aziz University Hospital, Jeddah, and who reported that 50% of patients had insufficient knowledge before the educational intervention. Also this finding was in the same line with *Ana et al.* (2017), they conducted study on educational programs for patients with chronic obstructive pulmonary disease integrative review in Hospital Clinic, Barcelona, Spain, and they reported that 66.5% of studied patients improved knowledge of COPD post educational program. According to *Sobeh et al.* (2019), they reported that improvement in patients' total knowledge scores post nursing care implementation whereas 86.67% of the studied were good knowledge compared 66.67% of them pre nursing care with highly statistically significance whereas  $p \leq 0.001$ .

Regarding to total practices of the studied patients the current study revealed that; more than two thirds of them were unsatisfactory practices before intervention (figure 2). This might be due to inadequate, irregular education and increased age of the

studied patients had an effect on their practices. This finding was in agreement with *Ibrahima & El-Maksoud* (2019), they reported that all the studied participants had unsatisfied practice at pretest.

Regarding to total practices of the studied patients more than quarter of the studied patients were satisfactory practices before intervention increased to majority satisfactory practices after the intervention (figure 2). This might be due to the continuous practicing of breathing exercise, coughing exercise which affect positively on their performance by making their breathing more controlled and they become more efficient in removing sputum. This finding was in the same line with *Mohamed et al.* (2017), they conducted study on effect of care protocol on the knowledge, practice and clinical outcomes of patients with chronic obstructive pulmonary disease in Ain Shams University Hospitals, Egypt and they reported that regarding patients' total practice, there were highly statistically significant differences between mean score of total patients' practice pre and post implementation of COPD care protocol. Also this finding was in agreement with *Sobeh et al.* (2019), they reported that improvement in all practices post nursing care protocol implementation compared to pre nursing care protocol with highly statistically significance whereas  $p < 0.001$ .

Regarding to total score of quality of life, the present study revealed that; more than two thirds of the studied

patients had good total scores of quality of life post intervention (figure 3). This finding was in the same line with *Kim & wang* (2019), they conducted study on chronic obstructive pulmonary disease action plan: a self-management tool in they conducted study on chronic obstructive pulmonary disease action plan: a self-management tool in Oahu, University of Hawaii at Manoa, and they reported that 42.7% of participants improved the quality of life post intervention.

Concerning correlation between the studied elderly patients total practices and total knowledge. The present study revealed that there were a positive statistically significant correlation between the studied elderly patients total practices and total knowledge pre and post intervention (table 2). This might be due to attributed to the fact that the knowledge was the baseline of practices and which affect positively on their practices. This findings were in agreement with *Sreekala & Mathai* (2016), they conducted study on assess the knowledge and practice of breathing exercises among patients with COPD in tertiary care hospitals, and they reported that highly statistically significant correlation between knowledge and practice score ( $p < 0.0001$ ). Also this finding was in agreement with *Khalil* (2016), who reported that positive correlation between total knowledge and total practices. Also these findings were in the same line with *Elesway* (2016), who reported that significant positive correlation between total practices score

and total knowledge score of the studied patients in post phase.

Concerning correlation between the studied patients total quality of life, total practices and total knowledge. The present study revealed that there were a positive statistically significant correlation between the studied elderly patient's total quality of life and total practices and total knowledge pre intervention and post intervention (table 3). This finding might be due to the studied patients had poor knowledge and unsatisfactory practices which a strong influence on their quality of life.

## **Conclusion**

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**Based on the results of the present study and research hypothesis, the study concluded that:**

More than one third of the studied patients aged from 70 to less than 80 years old with mean age  $77.8 \pm 6.12$ , more than half of the studied patients were males and three fifths of the studied patients were can't read and write. The home health care intervention succeeded to improve knowledge, practices and quality of life of the studied patients. There was a positive statistically significant correlation between the studied elderly patient's total quality of life and total practices and total knowledge pre intervention and post intervention.

## Recommendations:

**In the light of the results of the present study, the following recommendations are suggested:**

- ١- Continuous home health care intervention for elderly patients with chronic obstructive pulmonary disease to increase their knowledge and improve their practices.
- ٢- Emphasize the importance of providing support and appropriate follow up care for patients with chronic obstructive pulmonary disease in all outpatient clinics in chest hospitals by a specialized team in order to prevent COPD complication.
- ٣- Further research is proposed to explore the effect of home health care intervention on the prevention of chronic obstructive pulmonary disease among large sample size.

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