

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

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### **ABSTRACT**

**Background:** Chronic obstructive pulmonary disease represents an important public health challenge and it's a major cause of chronic morbidity and mortality of 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 this study. **Setting:** This study was conducted in Outpatient Clinics of Chest Hospital in Benha City. **The sample:** Purposive sample 100 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 elderly patients, B): Medical history of the studied elderly patients with COPD, C): Knowledge of the studied elderly patients regarding chronic obstructive pulmonary disease D): Reported practices of the studied elderly patients regarding COPD, **II):** Scale to measure quality of life of the studied elderly patients with chronic obstructive pulmonary disease, **III): Observational checklist:** A- was used to observe practices of the studied elderly patients, B- was used to observe home of the studied elderly patients. **Results:** 55% of the studied elderly patients had good knowledge post intervention, 81% of the studied elderly patients were satisfactory practices post intervention, 72% of the studied elderly patients had good total scores of quality of life post intervention. **Conclusion:** The home health care intervention succeeded to improve knowledge, practices and quality of life of the studied elderly patients. **Recommendations:** Continuous home health care intervention for the elderly patients with chronic obstructive pulmonary disease to increase their knowledge and improve their practices.

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

## **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, and 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 is 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. The 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 elderly 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 emphasize disease control through behavior 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, 2017*). 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 & El-Maksoud, 2019*).

Chronic obstructive pulmonary disease is an increasing cause of morbidity and mortality, accounting for 6% 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., 2019*). COPD prevalence was about 3.6%. In Egypt, it was estimated that COPD prevalence among high risk groups was 10% (*Mohsen et al., 2019*).

## **Aim of the study:**

This study aimed 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.

## **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 was used in this study. 25% of elderly patients attended to Benha Chest Hospital

Outpatient Clinics which includes (100 patients) from 400 patients.

**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 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, sex, 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 of the COPD, previous hospital admission due

to COPD, predisposing factors for COPD, and complain from any other health problems. **B- Current medical history which included 4 items such as;** the current symptoms which the patients complain, stages of COPD, living with a smoker person, and smoking.

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

### **Scoring system:**

The scoring system for elderly patients knowledge was calculated as follows (2) score for complete correct answer, while (1) score for incomplete correct answer, and (0) for don't know answer. For each section of knowledge, the score of the items was summed- up and the total divided by the number of the items, giving a mean score for the part. These scores were converted into a percent score.

The total knowledge score = (18 point) was considered good if the score of the total knowledge >75 % equal

and more (14) point, while considered average if it equals 50-75% (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, 2016*), 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 (6 snacks instead of 3 meals), avoiding eat foods that cause bloating like cabbage–cauliflower, avoiding drink coffee; tea or soft drinks, and avoiding foods which rich in salts and spices. **2) Exercise:** which included (4) items; practicing sports exercises such as walking daily as regular basis, exercising in warm place and avoid cold air as much as possible, avoiding exercise in air accompanied by dust and smoke, and practicing relaxation exercises.

**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 score of the items was summed- up and the total divided by the number of the items, giving a mean score. These scores were converted into a percent score. The total practices score = (12 point) was considered satisfactory if the score of the total practices  $\geq 60\%$  ( $\geq 7$ point), while considered unsatisfactory if it is < 60% (< 7point).

**Tool (II):** Scale to measure quality of life of elderly patients with chronic obstructive pulmonary disease **Appendix (II):** which included (20) items adapted from (*Ninot et al., 2013*). 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 status on quality of life of elderly patients. It was translated into Arabic by the researcher and divided into three domains:

**1- Physical status which included (8) items:** health status hinders self caring, avoiding activities that require exertion, finding difficulty to do daily living activities, 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 difficult breathing because of chronic obstructive pulmonary disease, and

changing in the rate of sleep due to chronic cough.

## **2-Psychological status which included**

**(8) items:** Feeling unable to adapt with disease, feeling dissatisfied with life and physical health, feeling of depression, feeling nervous and worried about future, finding problems in concentration, feeling need for psychological support from family, feeling a load on family after getting disease, and feeling worry about the cost of treatment.

## **3- Social status which included**

**(4) items:** Chronic obstructive pulmonary disease affects the relationships with others, illness prevents doing exercise and hobbies with others, avoiding talk about health status with the friends and neighbors, and illness cause isolation from others.

### **Scoring system:**

Quality of Life scale score was calculated as (2) scores for always, (1) scores for sometimes and (0) for never. The score of the items was summed- up and the total divided by the number of the items, giving a mean score. These scores were converted into a percent score. The total quality of life score (40) was considered good if the score >75% (>30) points, while considered average if its 50- 75% (20-30) points, and considered poor if it <50 (<20) points.

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

**First part:** It was concerned with observational practices of elderly patients regarding chronic obstructive pulmonary disease adopted from (*Perry et al., 2018*). Which included 12 items that divided into **1): Deep breathing and coughing exercise technique** which include (6) steps about e.g; sitting at comfortable position (sitting or half sitting), putting one hand on the chest and the other on the abdomen makes that more comfortable, taking a deep breath from the nose and hold it up by 1 to 3 and then slowly pull it out of the mouth, coughing out twice with keeping the mouth open, spitting mucus in a handkerchief and dispose of it properly, repeating steps (5: 2) once or twice as necessary. **2): Using inhaler technique** which include (6) steps e.g; removing the cover and hold the inhaler, shaking the inhaler well, taking breathing and exhale completely, placing the inhaler in the mouth and close the lips tightly around it, taking the breath slowly and pressure on the inhaler tightly, holding 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 score of the

items was summed- up and the total divided by the number of the items, giving a mean score. These scores were converted into a percent score.

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

**Second part:** Was observing and assessing home of elderly patients with chronic obstructive pulmonary disease adapted from (*Fouad et al., 2016*). It included (**10 items**) level of ventilation, adequate lighting, curtains on the windows, healthy source of drinking water, cleanness and tidiness, equipped kitchen and a separate food preparation, presence of a repellent smoke and heat device, absence of oven for baking, avoidance burning fuel for warming and cooking, presence suitable number of rooms for family member, and absence of carpets or moquette with lint covering the floors.

The scoring system for elderly patients home environment was calculated as follows (2) score for good and, while (1) score for average, and (0) for poor.

### **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.

### **Operational Design:-**

#### **Administrative approval:**

Approvals to conduct the study and implementation of the home health care intervention was obtained by submission of an official letter issued 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. Also prepared handout for studied patients which included all items about COPD, 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 April 2019. 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 9:00 am to 12:00 mid- day, and other two days of the week (Wednesday and Thursday) to accomplish home visits to previously selected cases. The researcher chose these days because increase the frequency of patients in these days and these days appropriate for researcher.

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The average time needed for the sheet



was around 30/minutes, the average number interviewed at the outpatient clinics were 3-5 elderly patients/day depending on their responses of the elderly patients.

### **Home health care intervention**

**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.

#### **Specific objectives:-**

- Define chronic obstructive pulmonary disease.
- Mention risk factors of chronic obstructive pulmonary disease.
- Enumerate signs and symptoms of chronic obstructive pulmonary disease.
- Enumerate high risk people for chronic obstructive pulmonary disease.
- Identify methods of diagnosis of chronic obstructive pulmonary disease.
- Discuss methods of management of chronic obstructive pulmonary disease.

- Identify medications use in treatment of chronic obstructive pulmonary disease.
- Discuss complications of chronic obstructive pulmonary disease.
- Explain methods of preventing chronic obstructive pulmonary disease.
- Identify the appropriate diet for chronic obstructive pulmonary disease.
- Identify importance of exercise for chronic obstructive pulmonary disease.
- Explain how the patients improvement of quality of life.
- Apply deep breathing exercise.
- Apply inhaler use steps.

**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).

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

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. The researcher implemented the home health care intervention through 4 phases as the following:

**(I) Assessment phase:** In this phase of the home health care intervention, assessed knowledge, practices and quality of life of the studied patients through collection and analysis of baseline data from the filled tools. In this phase the researcher did the pre-test.

**(II) Planning phase:** The researcher identified the important needs for target group, set priorities of needs, goals and objectives were developed.

**(III) Implementation phase:** In this phase the researcher implemented the

home health care intervention for the elderly patients at the suitable time for them. To insure that they were exposed to the same learning experience. The researcher implemented the home health care intervention through six sessions of 3 hours (4 theoretical sessions and 2 practical sessions; 2 hours theoretical and 1 hour practical), each session lasted 30 minutes including periods of discussion, and the average number implementation of the home health care intervention were 3-5 elderly patients/day, and immediately did the post-test.

**First session:** At the beginning of the first session, the researcher welcomes and introduce herself to the elderly patients, an orientation to the intervention and its process were presented, meaning, risk factors, and signs and symptoms of chronic obstructive pulmonary disease, taking into consideration the use of simple language according to the educational level.

**Second session:** Covered high risk individuals, methods of diagnosis, methods of treatment, and medication use in treatment of chronic obstructive pulmonary disease.

**Third session:** Covered complications, methods of preventing, the appropriate diet, and importance of exercise for chronic obstructive pulmonary disease.

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**Fourth session:** Covered quality of life for chronic obstructive pulmonary disease.

**Fifth session:** Covered deep breathing exercise technique

**Six sessions:** Covered inhaler use technique

Discussion, motivation and reinforcement during session were used to enhance learning. Each session started by summary about the previous session and objectives of new topics. 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.

### **Teaching methods:**

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

- Lectures / discussions.
- Demonstration and re-demonstration.
- Presentation.
- Real materials.

### **Teaching aids:**

Suitable teaching aids were specially prepared for intervention, as

follows: booklets, pictures and handout.

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

After implementation the home health care intervention, the researcher applied the post test immediately to evaluate the knowledge acquired. 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, practices, and quality of life immediately after implementation of the intervention.

### **Statistical design:**

All data collected were organized, tabulated and analyzed using appropriate statistical test. The data were analyzed by using the Statistical Package for Social Science (SPSS) version 21 which was applied to calculate frequencies and percentage, mean and standard deviation, as well as test statistical significance and associations by using Chi- square test ( $\chi^2$ ) and linear correlation coefficient (r), and matrix correlation to detect the relation between the variables (p value).

### **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<65	37	37.0
65-	29	29.0
70+	34	34.0
<b>Mean <math>\pm</math> SD</b>	67.8 $\pm$ 6.12	
<b>Sex</b>		
Male	58	58.0
Female	42	42.0
<b>Marital status</b>		
Married	60	60.0
Widowed	38	38.0
Divorced	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 that;37% of the studied elderly patients there age ranged from 60 to less than 65 years old with the mean age 67.8 $\pm$ 6.12.58% of them were males, and 60% of them were married. Regarding to educational level; 61% of the studied elderly patients couldn't read and write, 43% of the studied elderly patients were retired, while 76% of them lived in rural areas, 83%of the studied elderly patients had sufficient income for medication cost and 80 % of them lived with family.

**Table (2):** Frequency distribution of the studied elderly patients regarding their past medical history (n=100).

Past medical history	No.	%
<b>Onset of the COPD:</b>		
Less than < 1year	10	10.0
1 <3 years	10	10.0
3 < 5 years	20	20.0
> 5 years	60	60.0
<b>Previous hospital admission due to COPD:</b>		
Non	10	10.0
Once	10	10.0
Twice	20	20.0
Three and more	60	60.0
<b>*Predisposing factors for COPD:</b>		
Smoking	58	58.0
Exposure to second-hand smoke	50	50.0
Exposure to dusts	60	60.0
Bronchial asthma in childhood period	64	64.0
Chest diseases such as pulmonary tuberculosis	11	11.0
Sensitivity of some foods or medicines	28	28.0
Family history of COPD	30	30.0
<b>*Complain from other health problems:</b>		
Diseases of the digestive system	13	13.0
Heart disease /blood vessels such as hypertension	64	64.0
Endocrine diseases such as diabetes mellitus	28	28.0
Kidney disease	7	7.0
Rheumatism	4	4.0
Oncology	2	2.0

**\*Answers are not mutually exclusive**

**Table (2):** Shows that; 60% of the studied elderly patients first diagnosed of chronic obstructive pulmonary disease since five years or more, 60% of them had previous hospital admission due to COPD more than three times, 64% of them suffered from bronchial asthma in childhood period, and 64% of them complained from heart disease/blood vessels such as hypertension.

**Table (3):** Frequency distribution of the studied elderly patients regarding their current medical history (n=100).

Current medical history	No.	%
<b>*The current symptoms which the patients complain:</b>		
Dyspnea	100	100.0
Chronic cough	85	85.0
Low body weight	11	11.0
Swelling of ankles	21	21.0
<b>Stage of COPD:</b>		
I: Mild	31	31.0
II: Moderate	56	56.0
III: Sever	13	13.0
<b>Living with smokers</b>	52	52.0

**\*Answers are not mutually exclusive**

**Table (3):** Shows that; all the studied elderly patients complained from dyspnea, 56% of the studied patients during II stage of COPD, and 52% of studied elderly patients lived with smokers.

**Table (4):** Frequency distribution of the studied elderly male patients with COPD regarding their smoking (n=58).

Smoking	No.	%
<b>Smoking:</b>		
Smoker	52	89.6
Quit smoking	6	10.4
<b>*Type of smoking: N= 52</b>		
Cigarette	52	100.0
Hookah (Shisha)	24	46.1
<b>Number of cigarette packs smoking per/day</b>		
Less than one pack	22	42.8
One packs or more	30	57.2
<b>Duration of smoking:</b>		
<5years	2	3.8
5-10 years	3	5.7
>10 years	47	90.5

**\*Answers are not mutually exclusive**

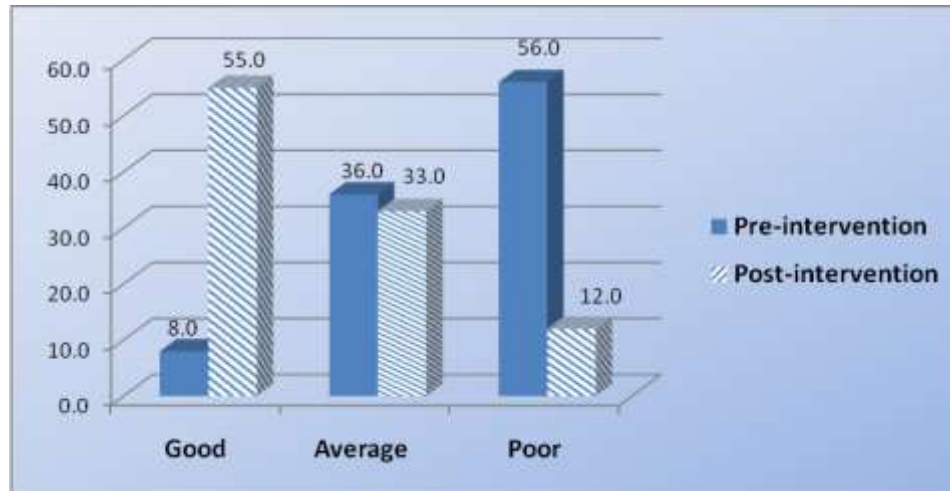
**Table (4):** Reveals that; 89.6% of the studied elderly patients were smokers, all of them were cigarette smoking. While 57.2% of them smoked one pack or more of cigarette per day. Relation to duration of smoking 90.5% of the studied elderly patients were smoking more than ten years.

**Table (5):** Percentage distribution of the studied elderly patients regarding their home environmental condition (n=100).

Home environment	Good	Average	Poor
	%	%	%
Ventilation in the house	80.0	13.0	7.0
Existence of adequate lighting at home	76.0	23.0	1.0
Presence of curtains on the windows	21.0	50.0	29.0
Satisfactory source of water for drinking	76.0	21.0	3.0
Clean and tidy home	80.0	20.0	0.0
Equipped kitchen and a separate food preparation	84.0	16.0	0.0
Presence of a repellent smoke and heat source at home	24.0	35.0	41.0
Absence of oven for baking	22.0	21.0	57.0
Avoidance fuel burning for warming and cooking	16.0	44.0	40.0
presence of suitable number of rooms for family member	63.0	37.0	0.0
Absences of carpets with lint covering the floors.	48.0	33.0	19.0

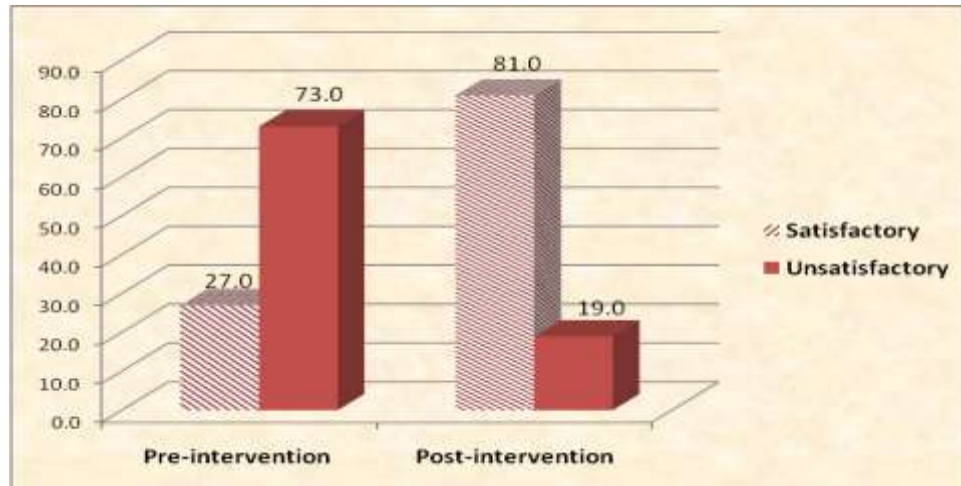
**Table (5):** Reveals that; 84% of the studied elderly patients lived in environment with good equipped kitchen and a separate food preparation, 80% of them lived in a clean and tidy home and 76% of them had a good source of water for drinking, and 80% of them had a good level of ventilation in the house.





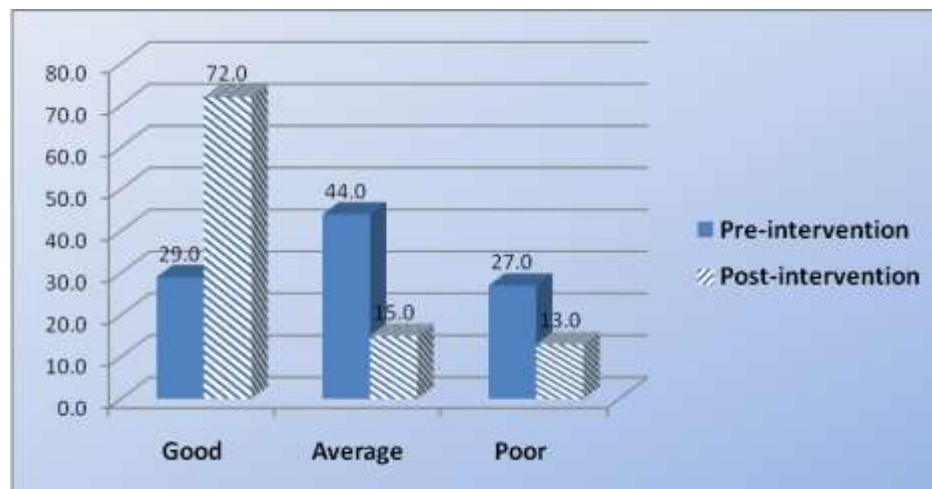
**Figure (1):** Percentage distribution of the studied elderly patients regarding their total knowledge score about COPD pre and post intervention (n= 100).

This figure illustrates that; 8% of studied elderly patients had good knowledge pre intervention which 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.



**Figure (2):** Percentage distribution of the studied elderly patients regarding their total practices score pre and post intervention (=100)

This figure illustrates that; 27% of the studied elderly patients had satisfactory practices pre intervention, and then this percentage increased to 81% post intervention.



**Figure (3):** Percentage distribution of the studied elderly patients regarding total quality of life score pre and post intervention (n=100).

This figure shows that; 29% of the studied the elderly patients had good total scores of quality of life pre intervention which increased to 72% post intervention.

**Table (6):** Correlation between studied elderly patients total practices score and total knowledge score pre and post intervention (n=100).

Items	Total practices			
	Pre		Post	
	r	p-value	r	p-value
Total knowledge	0.69	0.04*	0.74	0.02*

**\*Statistically significant ( $P \leq 0.05$ )**

**Table (6):** Shows that; there were a positive statistically significant correlation between the studied elderly patients total practices score and total knowledge score pre and post intervention ( $p=0.04$ ).

**Table (7):** Correlation between the studied elderly patients total knowledge score, total practices score 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	0.19	0.04*	0.61	0.02*
Total knowledge	0.56	0.05*	0.41	0.04*

**\* Statistically significant ( $P \leq 0.05$ )**

**Table (7):** Shows that; there were a positive statistically significant correlation between the studied elderly patient's total quality of life score and total practices score and total knowledge score pre intervention and post intervention ( $P < 0.05$ ).

## **Discussion:**

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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*).

This study aimed to evaluate home health care intervention regarding quality of life for elderly patients with chronic obstructive pulmonary disease. Home health care intervention was expected to be

effective methods for improve quality of life among elderly patients with chronic obstructive pulmonary disease evidenced by significant improvement in the elderly patients knowledge, practices, and significant improvement in quality of life of elderly patients (physical, psychological, and social domains).

According to demographic characteristics of the studied elderly patients, the current study revealed that; more than one third of the studied elderly patients were age ranged from 60 to less than 65 years old with mean age of present study  $67.8 \pm 6.12$  (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 agreement with *Mohamed (2019)*, who conducted study on "assessment lifestyle for patients with chronic obstructive pulmonary disease in

Egypt" and who reported that 50% of studied patients were more than 60 years old. Also this finding was in agreement with **Ng & Smith (2017)**, they conducted study on "effects of a self-management education program on self-efficacy in patients with COPD: A mixed-methods sequential explanatory designed in China study" and they reported that the mean age of the participants were 67.9 years. But this finding disagreement with **Suthar et al. (2015)**, 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  $39.5 \pm 19.5$  years.

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

**(2018)**, 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 **Khalil et al. (2019)**, they conducted study on "sleep quality among patients with chronic obstructive pulmonary disease in Egypt" and they founded that 60% of COPD patients were male. 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 elderly 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 elderly patients first diagnosed with chronic obstructive pulmonary disease since 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 51.7% of studied patients had COPD at less than 5 years.

As regard past medical history, the current study revealed that; more than three fifths of the studied elderly patients suffered from bronchial asthma in childhood period (table2). This finding was disagreement with *Osman (2014)*, who conducted study on "the prevalence and risk factor of COPD in Khartoum State, Sudan" and reported that 15% of patient suffering from COPD has positive past history of asthma. Also this finding was disagreement with *Elesway (2017)*, who reported that 15% of the patients suffer from bronchial asthma.

Concerning current medical history, the present study results showed that; the majority of the studied elderly patients complained from chronic cough (table 3). 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. (2019)*, 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 that 100% of patients suffered from chronic cough.

The current study results revealed that; majority of the studied elderly patients were smokers and the most of them had cigarette smoking (table 4). This might be due to more than half of the studied patients were males and higher prevalence of smoking among this sex. This finding in the same line with *Mohamed (2019)*, who reported that 85% of the studied patients had cigarette smoking. Also this finding was consistent with *Sharma & Joshi (2015)*, they reported that 95.0% of the patients showed a history of cigarette smoking.

Considering the studied patients environment, the present study revealed that; majority of the studied elderly patients lived in good level of ventilation

in the house and more than three quarters of them had a good source of water for drinking (table 5). This finding was in agreement with *Mohamed (2019)*, 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 elderly 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 (figure1). This finding supported by *Bourbeau et al. (2018)*, 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 (2015)*, 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 62.5% 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 elderly patients, the present study revealed that; more than quarter of the studied elderly patients had satisfactory practices before intervention, and then this percentage 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 elderly 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 Oahu, University of Hawai at Manoa" and they reported that 72.7% of participants improved the quality of life post intervention.

Concerning correlation between the studied elderly patients total practices score and total knowledge score. The present study revealed that there were positive statistically significant correlations between the studied elderly patients total practices score and total knowledge score pre and post intervention (table 17). 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 in India" and they reported that highly statistically significant correlation between knowledge and practice score ( $p < 0.0001$ ). Also this finding was in agreement with **Khalil (2017)**, who reported that positive correlation between total knowledge and total practices. Also these findings were in the same line with **Elesway (2017)**, 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 elderly patients total quality of life score, total practices score and total knowledge score. The present study revealed that there were positive statistically significant correlations between the studied elderly patient's total quality of life score and total practices score and total knowledge score pre intervention and post intervention (table

18). This finding might be due to the studied elderly 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 elderly patients aged from 60 to less than 65 years old with mean age  $67.8 \pm 6.12$ , more than half of the studied elderly patients were males and three fifths of the studied elderly patients were couldn't read and write. The home health care intervention succeeded to improve knowledge, practices and quality of life of the studied elderly patients. More than half of the studied elderly patients had good knowledge post intervention, majority of the studied elderly patients had satisfactory practices, and more than two thirds of the studied elderly patients had good quality of life post intervention. There

were a positive statistically significant correlation between the studied elderly patients' total quality of life score and total practices score and total knowledge score pre intervention and post intervention.

## **Recommendations:**

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

- 1-** Continuous home health care intervention for elderly patients with chronic obstructive pulmonary disease to increase their knowledge and improve their practices at outpatient clinics of chest hospital.
- 2-** 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.
- 3-** 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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