Compliance toward treatment among Adults with Chronic Obstructive Pulmonary Disease

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Abstract

Background: Chronic obstructive pulmonary disease is still defined as a disease state characterized by poorly reversible airflow limitation induced by cigarette smoke and/or other noxious particle and gases. **The aim** of this study was to assess the compliance toward treatment among adults with chronic obstructive pulmonary disease. **Research design**: descriptive analytical study was utilized to fulfill the aim of this study. **Setting**: This study was conducted at outpatient clinic of Menia Chest Hospital, Menia Governorate, Egypt. **Sample**: A purposeful sample of 115 COPD patients. **Interviewing questionnaire was used included six parts. (1** socio-demographic characteristics of COPD patients, **(2** medical history of COPD patients **(3** assessment of patients' knowledge about COPD, **(4)** assessment of adults 'compliance to treatment and **(5)** assessment of adults practices regarding compliance to treatment. **Results**: 60% of the studied sample had unsatisfactory total knowledge of COPD. Also 64.3% of the studied sample had poor compliance to COPD treatment, 5% of the studied sample had good practices regarding compliance to treatment. **Conclusion**: Less than two thirds of the studied sample had unsatisfactory total knowledge regarding COPD, less than two of the them had poor compliance to COPD treatment, the majority of them had poor practices regarding compliance to treatment and there were positive correlation between studied sample knowledge regarding COPD and their compliance to treatment. **Recommendation:** the study recommended that; continuous educational program for COPD patients with chronic obstructive pulmonary disease should be applied periodically in order to improve knowledge, practice and clinical outcomes for those patients.

Keywords: Compliance**,** Treatment, Chronic Obstructive Pulmonary Disease.

Introduction

Chronic diseases, such as cancer, cardiovascular diseases, and chronic obstructive pulmonary disease (COPD), are major causes of morbidity, disability, and mortality, with COPD now the third leading cause of death in the United States and across the world. COPD-related exacerbation is the leading cause of hospital admissions among adults and is the cause of an estimated 120,000 deaths annually in the United States **(Roversi & Fabbri, 2018)**.

Chronic obstructive pulmonary disease is still defined as a disease state characterized by poorly reversible airflow limitation induced by cigarette smoke and/or other noxious particle and gases. COPD is characterized by fixed airflow obstruction and limited reversibility. Exacerbations of COPD are believed to be one of the leading causes of morbidity and mortality worldwide. Although COPD is a major global health burden, adults lack knowledge of disease severity, predominantly in relation to acute exacerbations **(Hashimoto et al., 2016)**.

Cigarette smoking, the most important and best-established risk factor for COPD, is also a major risk factor for all other chronic diseases and cancer, not only because it damages the lung directly, but also because it may simultaneously cause systemic effects affecting all organs. The most common comorbidities of

COPD that are possibly related to the systemic effects of smoking are congestive heart failure, arrhythmias, hypertension, peripheral and coronary artery diseases, diabetes and metabolic syndrome, osteoporosis, cancer (particularly lung cancer), pulmonary vascular abnormalities, psychiatric disorders, cachexia, skeletal muscle abnormalities, and infections **(Sparks & Karlson, 2016)**.

Hospitalizations for severe exacerbations of chronic obstructive pulmonary disease are associated with significant physical and psychological consequences including an increase in symptom severity, severe reductions in physical activity, a deleterious effect on skeletal muscle, impaired exercise tolerance/ability to compliance to treatment, decline in quality of life, and increased anxiety and depression **(Robinson et al., 2018)**.

Compliance to treatment is the behavior that adults suffering from chronic diseases engage in to actively identify the challenges and problems associated with their health condition and to resolve these challenges and problems **(Hançerlioğlu et al., 2019)**.

Compliance to treatment is considered an integral component of the chronic care model of disease management, which also includes clinical information systems, delivery system redesign, decision support (guidelines), health care organization, and community resources. Compliance to treatment helps the adult acquire the knowledge and skills required to follow those medical therapies and health behavior changes required to achieve optimal outcomes **(Chen & Yao, 2018)**.

Community health nurse (CHN) can improve the health status of their adults and avert unnecessary COPD-related readmissions and life-threatening exacerbations using techniques that allow quick recognition of the triggers and symptoms of exacerbation **(Liang et al., 2017)**.

Significance of the study:

The World Health Organization (WHO) estimated that 300 million people had asthma and 210 million had COPD and many more suffered from other CRDs; in total, these cases accounted for 4% of global burden of disease. To date, CRDs affected more than one billion of people all over the world **(WHO, 2015).** In terms of mortality, chronic respiratory diseases (CRDs) were responsible for the four million deaths worldwide per year and for approximately 8% of death from non-communicable diseases (NCDs) occurring under the age of 70 years in 2012 **(WHO, 2014; WHO 2016).**

Galal et al., (2018) revealed in their study that most of the asthma and COPD adults in Egypt were non-adherent to their medications. Prevalence of (COPD) in Qena Governorate was 6.6% with high rates among smokers. In Mallawy Chest Hospital, Menia Government, Egypt the prevalence of COPD among high-risk adults in Egypt was estimated to be about 10% **(Badway et al., 2016)**.

Aim of the study

The aim of this study was to assess the compliance toward treatment among adults with chronic obstructive pulmonary disease through:-

1- Assessing health status of adults with chronic obstructive pulmonary disease
2- Assessing adults' knowledge regarding chronic obstructive pulmonary disease.
3- Assessing adults' practice regarding their compliance to treatment of chronic obstructive pulmonary disease.

Research question:

1. Is there a relationship between the studied sample knowledge level regarding COPD treatment and their socio-demographic data?
2. Is there a relationship between the studied sample practices level regarding COPD treatment and their socio-demographic data?
3. Is there a relationship between the studied sample knowledge level and their practices regarding COPD treatment?

Research design:

A descriptive analytical design was utilized to fulfill the aim of this study.

1-Technical Design:

Research Setting:

The study was conducted in the outpatient clinic of Menia Chest Hospital, Menia Governorate, Egypt. It's the only specialized hospital for treatment of chronic respiratory diseases in Menia Governorate. It is the main hospital that serves all patients with chronic respiratory disease in Menia city and its villages.

Sample:-

A purposive sample had used for choosing the study sample, the total number of the study sample were (115) plus (12) for pilot study of adult with COPD. It was representing 10% of the yearly average, from the total (1155) adults with COPD attending the study setting in chest outpatient clinics of Menia Chest Hospital from 1/7/2018 to 30/6/2019.

Inclusion Criteria:

Criteria of selection had included:-

1. Adult diagnosed with COPD.
2. Age ranged from 18 yrs. to 60 yrs.
3. Those who are free from physical or mental disability.

Data collection tool:

Interviewing questionnaire had been used to conduct this study that designed after reading related literature and taking expert's opinion; it had been written in Arabic language and contained five parts as follow**.**

Tool I:-

Part I:-Demographic data of the study sample. This part was composed of eight close-ended questions i.e, age, sex, marital status, residence, education level and occupation, type of family and income.

Part II:-Medical history of the studied sample. This part was composed of seven close-ended questions i.e, that include previous history (smoking, chronic disease, medication, hospitalization) and COPD medical history that include duration of disease, hospitalization related to the COPD, medication for COPD and COPD complication.

Part III:

Assessment of Patients' knowledge about COPD which was composed of twenty-three close-ended questions such as definition, causes, symptom, risk factors, complication, precaution measures, preventive measures and treatment.

Scoring system:-

The total optimal score = 23 point, this score ranged between (0) for incorrect answer, (1) for correct answer. The score ranged from (1-46) and represent 100% for all items for every question which categorized into two levels as unsatisfactory knowledge level for 0- 69% and satisfactory knowledge level for 70-100%.

Part IV:-Assessment of patients compliance to treatment which was composed of twenty three close-ended questions such as compliance to treatment, health nutrition, enough rest, exercise, health environment, correct use of inhaler and breathing exercise.

Scoring system;-

The optimal score were 46**,** the score range from 0-2 which is composed of three items, score (0) for never, (1) for some times, (2) for always and represent 100% for all items for every question which categorized into two levels as poor compliance levels for 0-69% and good compliance level for 70-100%.

Part V: Assessment of patients practices regarding compliance to treatment which composed of 8 close-ended questions such as correct use of inhaler and breathing exercise.

Scoring system: -

The optimal score was 8**,** the score ranges from 0-1 which is composed of two items, score (0) for not done, (1) for done and represent 100% for all items for every question which categorized into two levels as poor practices levels for 0-69% and good practices level for 70-100%.

Validity and Reliability:

Validity: -

The tool of the study was given to a group of five experts in nursing community field. The tool was examined for content coverage, clarity, relevance, applicability, wording, length, format, and overall appearance. Based on experts` comments and recommendations; minor

modifications had been made such as rephrasing and rearrangements of some sentences.

Reliability: -

Internal consistency of interview questionnaire was assessed with the Cronbach's alpha coefficient. Cronbach's alpha coefficient of 0.00 indicates no reliability and a coefficient of 1.00 indicates perfect reliability. However, a reliability coefficient of 0.70 is acceptable**.**

II. Operational Design:

The operational design included, pilot study, preparatory phase, implementation phase include fieldwork, methodology, limitations of the study and ethical considerations.

Pilot study:

A pilot study was carried out, 10% of the total subjects were recruited for the pilot study before conducting the actual study to determine the size and the method of selection of the sample, to test the feasibility, clarity and applicability of the study tool also to test relevancy and clarity of the content, to calculate the time needed for conducting the study and to estimate the needed time to be filled in the tool. Each sheet took from 30:45 minute according the response of the adult. The pilot study revealed that some items needed to be added which help in achieving the study aim and some items needed to be omitted. So, the needed modifications were carried out. The pilot study was excluded from the total study sample.

III.Administration Design: -

An official permission to carry out the study had been obtained from administrators of Menia Chest Hospital through an issued letter from the Dean of Faculty of Nursing/ Ain Shams University.

Fieldwork: -

- An official permission to conduct the study was obtained from directors of Menia chest hospital. The researchers explained to the patient their ethical rights and got their consent.
- Data were collected over a period of three months from May 2021to July 2021. Each patient was interviewed individually two times to collect the data.
- A review of recent current national and international related literature in various aspects of the disease was applied to design the study tool and to be acquainted with various aspects of the disease.
- Assessment the level of the demographic characteristics, health history, adults' knowledge regarding their disease, degree of compliance to treatment through assessment tool.

Ethical Consideration:

Approval was taken from the ethical commitment at the Faculty of Nursing, Ain Shames University. A written consent had been obtained from the patients with COPD. Confidentiality of data was given by assurance that no individual would be identifiable in any publication of the data. Individual anonymity was achieved by coding participant's information. Participants had been informed verbally about their right to withdraw from the study at any time.

IV. Statistical Design:

Data collected and coded. Then the collected data were organized, analyzed using appropriate statistical significance tests using the Computer Statistical Package for Social Science (SPSS), version 21. Data presented by using descriptive statistics in the form of percentages. The statistical analysis has included the arithmetic mean, standard deviation and X2 test. Degrees of significance of results were considered as follow:-

P-value > 0.05 not significant

P-value ≤ 0.05 Significant

P-value ≤ 0.01 Highly Significant

Results

Table (1): shows that the age of 50.4% of the studied sample is in between 51:60 years and 28.7 of them is in between 41:50, 69.6% of them are male, 78.3% of them are married, 72.2% live in extended family and 79.1% live in urban region. Regarding the educational level 57.4% of them had Secondary education and 28.7% had basic education. Regarding the occupation 47.0% of them had vocational work, and 84.3% of them were independent.

Figure (1): Clarified that 60% of the studied sample had unsatisfactory total knowledge regarding COPD.

Table (2): Show that 19%, 37%, 44%, 34% of the studied sample always compliance to treatment and vaccine, to health nutrition, to take enough rest practicing exercise, to be in health environment, respectively.

Figure (3): Shows that only 95% of the studied sample had poor practices regarding

compliance to treatment and 5% of them had good practices.

Table (3): Illustrate that there are highly statistical significance differences between the studied sample knowledge and age, residence, educational level and occupation of COPD adult.

Table (4): Illustrate that there is statistical significance differences between the studied sample compliance to treatment and age, residence and occupation of studied adult, but there no statistical significance differences between the studied sample compliance to treatment and their gender, marital status, educational level and income.

Table (5): show that there positive correlation between studied sample knowledge regarding COPD and their compliance to treatment.

Table (1): Number and Percentage Distribution of Adults with Chronic Obstructive Pulmonary Disease according to their socio-demographic characteristics (no.=115).

Characteristics	No	%
Age/years		
30:40	24	20.9
41:50	33	28.7
51:60	58	50.4
Mean ± SD		
Gender		
Male	80	69.6
Female	35	30.4
Marital Status		
Single		
Married	90	78.3
Divorced	7	6
Widowed	18	15.7
Residence		
Urban	91	79.1
Rural	24	20.9
Educational level		
Not read or write	12	10.4
Basic education	33	28.7
Secondary education	66	57.4
University education	4	3.5
Occupation		
Vocational	54	47.0
Employee	32	27.8
Housewife	29	25.2
Retired	0	0.0
Type of family		
Extended	83	72.2
Nuclear	32	27.8
Income		
Sufficient	23	20
Insufficient	92	80

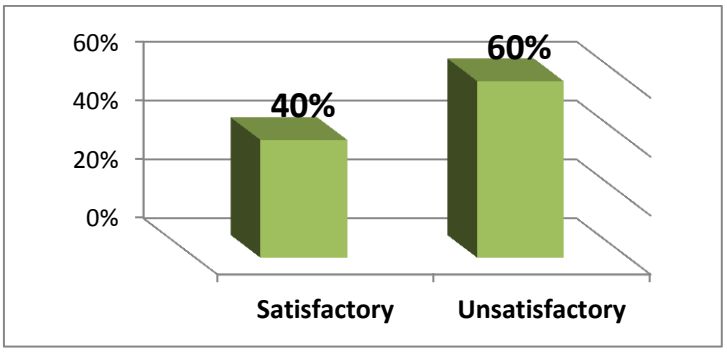

Figure (1): Distribution of Adult with Chronic Obstructive Pulmonary Disease according to their total knowledge regarding COPD (no.=115).

Table (2): Distribution of adult with chronic obstructive pulmonary disease according to their compliance to treatment (no.=115).

Compliance to treatment	Always		Sometimes		Never	
	No	%	No	%	No	%
Compliance to treatment and vaccine	22	19	30	26	63	55
Compliance to health nutrition	43	37	37	33	35	30
Compliance to take enough rest practicing exercise	51	44	24	21	40	35
Compliance to be in health environment	39	34	17	15	59	51

Percentage done by row ** highly statistically significance differences

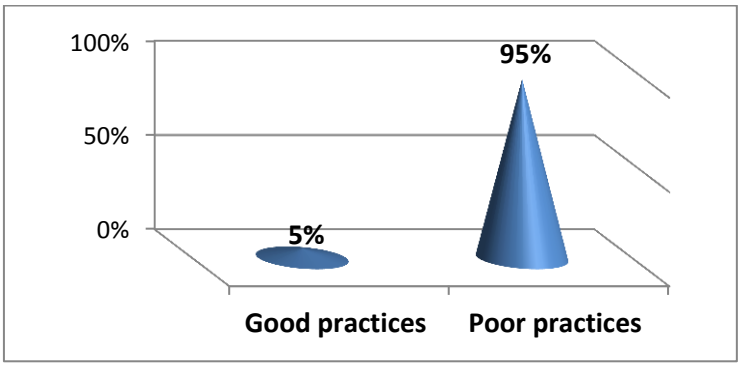

Figure (2): Distribution of Adult with Chronic Obstructive Pulmonary Disease According to their Total Practices Regarding Compliance to Treatment (no.=115).

Table (3): Relation between Demographic Characteristics of the Studied Sample and Total knowledge regarding COPD (n = 115)

Characteristics	No	Knowledge			
		Satisfactory (n = 35)		Unsatisfactory (n = 80)	
		No.	%	No.	%
Age/years					
30:40	24	12	50.0	12	50.0
41:50	33	10	30.3	23	69.7
51:60	58	13	22.4	45	77.6
Fisher / X^2 (P value)		6.102 (0.047)*			
Gender					
Male	80	25	31.3	55	68.8
Female	35	10	28.6	25	71.4
Fisher / X^2 (P value)		0.830 (0.774)			
Marital Status					
Married	90	30	33.3	60	66.7
Divorced	7	2	28.6	5	71.4
Widowed	18	3	16.7	15	83.3
Fisher / X^2 (P value)		1.908 (0.372)			
Residence					
Urban	91	22	24.2	69	75.8
Rural	24	13	54.2	11	45.8
Fisher / X^2 (P value)		8.068 (0.005)**			
Educational level					
Not read or write	12	7	58.3	5	41.7
Basic education	33	9	27.3	24	72.7
Secondary education	66	19	28.8	47	71.2
University education	4	0	0.0	4	100.0
Fisher / X^2 (P value)		6.402 (0.094)			
Occupation					
Vocational	54	2	3.7	52	96.3
Employee	32	29	90.6	3	9.4
Housewife	29	4	13.8	25	86.2
Fisher / X^2 (P value)		76.77 (0.001)**			
Income					
Sufficient	23	9	7.8	14	12.1
Insufficient	92	26	22.6	66	57.4
Fisher / X^2 (P value)		1.026 (0.310)			

Percentage done by row *statistically significant differences ** highly statistically significance differences

Table (4): Relation between Demographic Characteristics of the Studied Sample and Compliance to Treatment (n = 115)

Characteristics		Compliance			
		Poor (n = 74)		Good (n = 41)	
	No	No.	%	No.	%
Age/years					
30:40	24	11	45.8	13	54.2
41:50	33	20	60.6	13	39.4
51:60	58	43	74.1	15	25.9
Fisher / X^2 (P value)		6.211 (0.045)*			
Gender					
Male	80	49	61.3	31	38.8
Female	35	25	71.4	10	28.6
Fisher / X^2 (P value)		1.100 (0.294)			
Marital Status					
Married	90	56	62.2	34	37.8
Divorced	7	4	57.1	3	42.9
Widowed	18	14	77.8	4	22.2
Fisher / X^2 (P value)		1.751 (0.417)			
Residence					
Urban	91	64	70.3	27	29.7
Rural	24	10	41.7	14	58.3
Fisher / X^2 (P value)		6.801 (0.009)**			
Educational level					
Not read or write	12	5	41.7	7	58.3
Basic education	33	21	63.6	12	36.4
Secondary education	66	44	66.7	22	33.3
University education	4	4	100.0	0	0.
Fisher / X^2 (P value)		5.069 (0.167)			
Occupation					
Vocational	54	49	90.7	5	9.3
Employee	32	0	0.	32	100.0
Housewife	29	25	86.2	4	13.8
Fisher / X^2 (P value)		80.193 (0.001)**			
Income					
Sufficient	23	15	13	8	7
Insufficient	92	59	51.3	33	28.7
Fisher / X^2 (P value)		1.873 (0.922)			

Percentage done by row *statistically significant differences ** highly statistically significance differences

Table (5): Correlation between Knowledge Scores of the Studied Sample and Compliance to Treatment (n = 115).

		Knowledge
Compliance to treatment	r	0.860
	P – value	0.001**

Discussion

Chronic Obstructive Pulmonary Disease (COPD) is an increasing cause of mortality and chronic morbidity worldwide. COPD is characterized by persistent respiratory symptoms that include breathlessness, cough and/or sputum production. Self-management interventions in patients with COPD have the goals of motivating, engaging and supporting patients to positively adapt their behaviors and develop skills to better manage their disease **(Ogunbayo et al., 2017)**.

Regarding the studied sample total knowledge regarding COPD**,** the current study clarified that less than two thirds of the studied sample had unsatisfactory total knowledge of COPD. The deficient pre-program knowledge depicted among the studied sample in the present study might be attributed to the low level of education among some of them, lack of health literacy about COPD and inadequate health services

that to provide them with accurate knowledge, **Figure (1)**.

This result come in accordance with **(ShokryAbd–Allah & ElsayedElshora, 2021)** who studied "Knowledge and Practices Regarding Chronic Obstructive Pulmonary Disease among Elderly Patients at chest diseases department in cardiothoracic hospital at Sednawy Hospital in Zagazig city. (n=60)" and stated that very low percentages of adequate knowledge about anatomy of respiratory system, diet& fluid for COPD patient, dealing with &causes of dyspnea exacerbation and exercise for COPD among the studied elderly. Also this result come in the same line with **(Elesawy et al., 2018)** who studied "Effect of Nursing Intervention Program on Patients knowledge and Practice regarding Breathlessness in patients with Chronic Obstructive Pulmonary Disease in chest department at Aswan University Hospitals (n=40)" and reported that all of the studied sample had unsatisfactory knowledge regarding COPD.

In addition this result comes in accordance with **(Labieb, A Mohamed, M Abd El-Aziz, Hassan, & M Fahmy, 2020)** who stated that the vast majority of studied sample had poor knowledge regarding COPD. In addition this result was supported by **(Khadyer & Hassan, 2019)** who studied " Effectiveness of an Instructional Program on Knowledge for Patients with Chronic Obstructive Pulmonary Disease Toward Self-Care Management at Al- Hussein Teaching Hospital in Al- Nasiriyah City (n=60)" and reported that the instructional program regarding COPD had a positive effect in the patients' knowledge. More over this result come in agree with **(Wouters, van Dam van Isselt, & Achterberg, 2020)**, who studied " Information needs of older patients living with chronic obstructive pulmonary disease (COPD) indicated for a specific geriatric rehabilitation programme: a prospective cohort study in the Netherlands (n=158) " and stated that the in adequate knowledge regarding the disease, diet, smoking and medication.

Regarding the studied sample compliance to treatment, the current study showed that less than fifth them always compliance to treatment and vaccine, more than one third of them always to health nutrition, more than two fifth of them always to take enough rest practicing exercise and slightly more than one third of them always compliance to be in health environment in pre-educational program, **Table (2).**

This result come in the line with **(Guo et al., 2020)** who studied "Effects of Particulate Matter Education on Self-Care Knowledge Regarding Air Pollution, Symptom Changes, and Indoor Air Quality among Patients with Chronic Obstructive Pulmonary Disease in **Taiwan (n=63)** " and reported that the patients compliance to self-care management had improved after educational program.

Also this result was confirmed by **(Çevirme & Gökçay, 2020)** who studied "the impact of an Education-Based Intervention Program (EBIP) on dyspnea and chronic self-care management among chronic obstructive pulmonary disease patients: A randomized controlled study in Saudi Arabia" and mentioned

that the intervention program had a positive effect in patient compliance to self-care management. This result come in the same line with **(Galal, Mohammad, Nada, & Mohran, 2018)**Who studied "Medication adherence and treatment satisfaction in some Egyptian patients with chronic obstructive pulmonary disease and bronchial asthma" and reported that the most of the studied sample had low adherence to treatment.

More over the current study come in accordance with **(Lenferink et al., 2017)** who studied "Self-management interventions including action plans for exacerbations versus usual care in patients with chronic obstructive pulmonary disease in Netherlands" and reported that there was a statistically significant beneficial effect of self-management interventions among patients with COPD.

Regarding the total practices to compliance to treatment and showed that the minority of the studied sample had good practices regarding compliance to treatment, **Figure (3).** The inadequate practices was shown among the studied sample in the present study might be attributed to that the majority of studied sample had more than three chronic disease which take the priority in care rather than the breathing exercises regarding COPD. This success of the program might be attributed to the fact that the procedures were practiced under supervision and guidance of the researchers, with demonstration and re-demonstration, using real objects. This also may be due to the effective continuous practicing of breathing exercise which has a positive effect on improving respiratory muscles.

This result come in the same line with **(Labieb et al., 2020)** who reported that the majority of the studied sample had poor practices regarding self-care management. Also this result supported by **(Ibrahim & Abd El-Maksoud, 2018)** who stated that all the studied subjects had unsatisfied practice. This result come in accordance with **(Elesawy et al., 2018)** who revealed that the majority of the COPD patients had poor practices regarding COPD, and there highly statistically significant improvement in all items of practice after implementation of nursing intervention program.

Regarding the relation between the studied sample demographic characteristics and their total knowledge regarding COPD, the present study illustrated that there are highly statistical significance differences between the studied sample knowledge and age, residence, educational level, occupation and caregiver of COPD adult, **Table (2)**. This result come in agree with **(Ibrahim & Abd El-Maksoud, 2018)** who revealed that there were highly statistically significant differences between patients' education, residence, marital state and their knowledge regarding COPD.

Also the current study agreed with **(Yang et al., 2019)** who studied "Disease knowledge and self-management behavior of COPD patients in China (n=360) " and reports that there were statistically significant relations between patients educational level and COPD knowledge score ($p<0.05$). More over this result come in accordance with **(Amado et al., 2020)** who studied "Information needs in copd after an educational program: influence in exacerbations and admissions" and stated that there were statistical significance differences between the studied sample knowledge and their socio-demographic data. In addition this result supported by **(Subba & Subba, 2014)** who studied "Knowledge on self-care among COPD patients attending at Chitwan Medical College, Teaching Hospital, Bharatpur" and reported that there was significant relation to the level of overall knowledge and the educational status of the respondents. Also, **(Monteiro et al., 2015)** who studied "Knowledge about COPD among users of primary health care services" showed that there was association between COPD knowledge and level of education among the studied sample.

Regarding the relation between the studied sample demographic characteristics and their compliance to treatment the current study showed that there were statistical significance differences between the studied sample compliance to treatment and age, residence, occupation and caregiver of studied adult **Table**

(3). This result come in accordance with **(Song, Yong, & Hur, 2014)** who studied "Effectiveness of a brief self-care support intervention for pulmonary rehabilitation among the elderly patients with chronic obstructive pulmonary disease in Korea" and reported that that there were statistical significance differences between the studied sample compliance to treatment and their age, residence and occupation. Also this result was confirmed by **(Cho & Hwang, 2011)** who studied "Effects of the nurse-led discharge education on symptom experience and self-care compliance in patients with chronic obstructive pulmonary disease" and reported that the studied sample compliance to self-care management was affected by the studied sample age and there occupation

Regarding the correlation between the studied sample knowledge scores and their compliance to treatment, the present study showed that there highly positive correlation between studied sample knowledge regarding COPD and their compliance to treatment, **Table (4)**. This result come in accordance with **(van de Hei, Dierick, Aarts, Kocks, & van Boven, 2021)** who studied "Personalized medication adherence management in asthma and chronic obstructive pulmonary disease: a review of effective interventions and development of a practical adherence toolkit" and reported that there were a positive correlation between the studied sample knowledge and their compliance to self-care management. Also this result was supported by **(Çevirme & Gökçay, 2020)** who reported that the patients compliance to treatment were affected by the patients level of knowledge.

Conclusion

Based on the findings of the present study, it can be concluded that less than two third of the studied sample had unsatisfactory total knowledge regarding COPD, less than two third of the them had poor complience to COPD treatment, the majority of them had poor practices regarding compliance to treatment, there were highly statistical significance differences between the studied sample knowledge and age, residence, educational level, occupation and caregiver of COPD adult, there is statistical significance differences between the studied sample compliance to treatment and age, residence and occupation and there highly positive correlation between studied sample knowledge regarding COPD and their compliance to treatment.

Recommendations

The following recommendations were reached in the light of the results of this study:

1. Continuous educational program for COPD patients with chronic obstructive pulmonary disease should be applied in chest outpatient clinics periodically in order to improve knowledge, practice and clinical outcomes for those patients.
2. Further research to identify barriers that have been associated with poor compliance to compliance to treatment.
3. Further research is recommended to identify the support that will help people self-managing and adapting to life with COPD to reduce the impact of this slowly progressive condition.

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