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Knowledge regarding Chronic Obstructive Pulmonary Disease among Patients admitted in Tertiary Hospital

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Abstract:

Background: Chronic obstructive pulmonary disease (COPD) is a chronic inflammatory lung disease characterized by obstructed airflow from the lungs, leading to symptoms such as breathing difficulty, cough, mucus production, and wheezing. It is typically caused by long-term exposure to irritating gases or particulate matter, most commonly from cigarette smoke. Individuals with COPD are at increased risk for heart disease, lung cancer, and various other conditions. **Objective:** This study aimed to assess patients' knowledge of COPD, determine the association of knowledge scores with selected socio-demographic variables, and assess the association of knowledge scores with selected clinical variables. **Materials and Methods:** A quantitative research approach and descriptive research design were used. Convenience sampling selected 50 patients from the medicine and respiratory wards of a selected hospital. A structured knowledge questionnaire assessed patients' knowledge, and written informed consent was obtained prior to data collection. **Results:** The results indicated that 66% of COPD patients had an average level of knowledge about the disease, 24% had poor knowledge, and only 10% had good knowledge. A significant association was found between knowledge levels and the age of the patients (Chi-value = 20.362, df = 6, p-value = 0.002), but no association was observed between knowledge levels and clinical variables. **Conclusion:** The study

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concluded that COPD patients generally have low knowledge about their condition. Therefore, educational interventions are necessary to improve their understanding, which can be effectively delivered by healthcare professionals, particularly nurses.

Keywords: Knowledge, Chronic Obstructive Pulmonary Disease, Patient

Introduction:

COPD is a major global health issue, with a substantial economic and social impact. It is a leading cause of morbidity and mortality worldwide, particularly in older adults. The World Health Organization (WHO) estimates that by 2030, COPD will become the third leading cause of death globally. COPD is a chronic respiratory disease characterized by a waning in lung function over a while, along with respiratory symptoms, primarily dyspnoea, cough, and sputum production. Consequently, COPD impacts on patient's everyday life, it is linked with a significant economic burden which includes the cost of hospitalization, wage loss due to work absence, and restricted physical ability[1]. Beyond its physical impact, COPD can profoundly affect mental health and daily functioning. Living with a chronic respiratory condition often entails lifestyle adjustments, emotional challenges, and a higher risk of comorbidities such as cardiovascular diseases and osteoporosis[1].

COPD patients are also confronted with daily life limitations, and reduced health -related quality of life caused by complaints such as dyspnea, skeletal muscle dysfunction, and comorbidities[2]. Chronic obstructive pulmonary disease (COPD) is a chronic inflammatory lung disease that causes obstructed airflow from the lungs. Symptoms include breathing difficulty, cough, mucus (sputum) production and wheezing. It's typically caused by long-term exposure to irritating gases or particulate matter, most often from cigarette smoke. People with COPD are at increased risk of developing heart disease, lung cancer and a variety of other conditions[3].

Emphysema and chronic bronchitis are the two most common conditions that contribute to COPD. These two conditions usually occur together and can vary in severity among individuals with COPD. Emphysema is a condition in which the alveoli at the end of the smallest air passages (bronchioles) of the lungs are destroyed as a result of damaging exposure to cigarette smoke and other irritating gases and particulate matter. Chronic bronchitis is defined clinically as a persistent cough with expectoration on most days for at least three months of the year for two or more consecutive years. Chronic bronchitis is inflammation of the lining of the bronchial

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tubes, which carry air to and from the air sacs (alveoli) of the lungs. It's characterized by daily cough and mucus (sputum) production. COPD is a common condition that mainly affects middle-aged or older adults who smoke. Many people do not realise they have it[4]. COPD is often underdiagnosed, and awareness campaigns aim to educate both healthcare professionals and the general public about the symptoms, risk factors, and importance of early detection[5].

COPD management requires a collaborative effort between healthcare providers and patients, emphasizing self-management strategies, regular monitoring, and adherence to prescribed treatments. Support groups and patient education programs play a vital role in empowering individuals with COPD to actively manage their condition and enhance their quality of life[6].Lastly, as with many chronic conditions, mental health is a crucial aspect of COPD care. Living with a chronic illness can lead to anxiety and depression, and addressing these psychological aspects is integral to comprehensive COPD management[7].

To reduce the heavy disease burden associated with COPD, joint efforts are required from all sides, including patients, relatives, and health care workers. The knowledge level of patients regarding COPD is an important factor affecting disease progression. However, the overall disease knowledge level in COPD patients is poor. Most subjects claimed to understand their disease and available treatments, but less than half actually understood the symptoms and causes of COPD. Another study showed that patients' knowledge of COPD was poor in several domains including the causes of COPD, the consequences of inadequate therapy and the management of exacerbations. Patient education is known to improve the levels of disease knowledge and quality of life[8].

Methodology:

In the present study, a Quantitative approach a descriptive survey research design was used in this study to assess the knowledge of COPD patients. The study was conducted in respiratory and medical wards in Parul Sevashram Hospital, Waghodia, Vadodara with a sample size of 50. A convenience sampling technique was used in the study. Only those patients diagnosed with COPD were included in the study whereas, those patients having neurological impairments and not available at the time of data collection were excluded. Tools for data collection consisted of Structured Interview schedule which consisted of 2 parts that is, socio-demographic variables such as Age, Gender, Education, Place of residence, Physical activity performed,

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Dietary pattern, Monthly family income, Occupation, Marital status and clinical data consisting of time of diagnosis of COPD, previous hospitalization, smoking habits, alcohol history, medicine taken and counselling taken. The third part consisted of Knowledge questionnaire to assess the knowledge of patients regarding COPD which had 21 questions. The reliability of the knowledge questionnaire was r=0.71 which showed that the tool was reliable for conducting the study. After obtaining formal administrative approval from the concerning authorities and informed consent from the samples the investigators collected the data from the patients using the mentioned validated tools.

Results:

The data obtained were analyzed with respect to the objectives of the study by using the descriptive and inferential statistics

Table 1: Frequency and percentage distribution of COPD patients according to their demographic variables

n = 50

Sr. No	Demographic variable	Category	Frequency (F)	Percentage (%)
1	**Age in Years**	19-30 Year	0	0
		31-40 Year	2	4
		41-50 Year	23	46
		51-60 Year	17	34
		> 60 Year	8	16
2	**Gender**	Male	31	62
		Female	19	38
		Others	0	0
3	**Education**	Primary	17	34
		Secondary	7	14
		Higher secondary	15	30
		Diploma	6	12
		Graduation & above	5	10
4	**Place of residence**	Rural	26	52

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		Urban	13	26
		Semi urban	11	22
5	**Do you stay in industrial area**	Yes	21	42
		No	29	58
6	**How often do you perform physical activity**	Once daily	7	14
		Once a week	8	16
		Three /four times a day	1	2
		No physical activity and exercise	34	68
7	**Dietary pattern**	Vegetarían	28	56
		Non vegetarían	20	40
		Vegan	2	4
8	**Monthly Family Income (In Rupees)**	<5000	3	6
		5000 – 10000	9	18
		10000 - 20000	14	28
		20000 – 30,000	21	42
		>30,000	3	6
9	**Occupation**	Agriculture	19	38
		Private job	12	24
		Government job	5	10
		Self-employed / business	9	18
		Labour	5	10
		Student	0	0
10	**Marital Status**	Married	43	86
		Unmarried	2	4
		Divorcee	3	6

Table 1 provides a comprehensive overview of the demographic characteristics of patients with Chronic Obstructive Pulmonary Disease (COPD), presenting the frequency and percentage distribution of various demographic variables. The majority of COPD patients are aged 41-50

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years (46%), followed by those aged 51-60 years (34%). Smaller percentages fall within the age ranges of 31-40 years (4%) and over 60 years (16%). In terms of gender, males constitute the majority at 62%, while females represent 38%.

Regarding education, 34% of patients had completed primary education, 30% had higher secondary education, 14% had secondary education, 12% had a diploma, and 10% were graduates or higher. Over half of the patients (52%) resided in rural areas, 26% in urban areas, and 22% in semi-urban areas. Additionally, 42% of patients lived in industrial areas, while 58% did not.

In terms of physical activity, 68% of patients reported no physical activity or exercise. Others engaged in physical activity once daily (14%), once a week (16%), or three to four times a day (2%). Dietary patterns revealed that 56% were vegetarian, 40% were non-vegetarian, and 4% followed a vegan diet.

Monthly family income varied, with 6% earning less than 5000, 18% earning between 5000 and 10000, 28% earning between 10000 and 20000, 42% earning between 20000 and 30000, and 6% earning more than 30000. Occupationally, 38% were involved in agriculture, 24% held private jobs, 18% were self-employed or in business, 10% were in government jobs, and 10% were laborers.

Marital status showed that the majority of COPD patients were married (86%), while 6% were divorced, 4% were unmarried, and 4% were widowed.

Table 2: Frequency & percentage distribution of COPD patients according to their Clinical variables

n = 50

Clinical Variables	Category	Frequency f	Percentage %
How long you have been diagnosed with COPD	6 Month- 1 Year	17	34
	1 year- 3 years	25	50
	3 years -10 years	7	14
	more than 10 years	1	2

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Are you a current smoker	Yes	20	40
	No	30	60
If Yes the number of cigarettes smoked per day	1 cigarette a day	10	20
	5 cigarette a day	7	14
	1 pack of cigarette a day	2	4
	More than 1 pack of cigarette a week	1	2
History of hospitalization regarding COPD in past	Yes	29	58
	No	21	42
Number of hospitalizations due to COPD	1	9	18
	2	15	30
	3	4	8
	4	1	2
	more than 5	0	0
Ever received counseling regarding management of COPD	Yes	28	56
	No	22	44
Information/Counselling source	Hospital/doctors	15	30
	family / friends	5	10
	Mass media	5	10
	NGO	3	6
Any comorbid condition the patient is suffering from	Yes	34	68
	No	16	32
Which comorbid condition	Hypertension	10	20

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	Diabètes	15	30
	TB	6	12
	Thyroid disorders	1	2
	Others	3	6
Hours of sleep per day	<4 hours	1	2
	4-5 hours	24	48
	6 -8 hours	25	50
	> 8 hours	0	0
Do you sleep during daytime	Yes	12	24
	No	38	76
Do you have the habit of alcoholism	Yes	13	26
	No	37	74
Frequency of taking alcohol	Daily	1	2
	3-4 times a week	4	8
	Weekly once	5	10
	Occasionally	1	2
	Rarely	3	6
Symptoms the patient experience due to COPD	Cough	10	20
	Chest pain	17	34
	Sputum production	16	32
	Dyspnoea	6	12
	Others	1	2

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Table 2 presents the frequency and percentage distribution of clinical variables of COPD patients such as the duration of COPD diagnosis, smoking habits, hospitalization history, counselling received, current medication, comorbid conditions, sleep patterns, daytime sleep, alcoholism, and specific symptoms experienced. As per the findings, the majority of patients have been diagnosed with COPD for 1 to 3 years (50%), followed by 6 months to 1 year (34%), 3 to 10 years (14%), and more than 10 years (2%).40% of patients are current smokers, while 60% are not.58% of patients have a history of hospitalization regarding COPD, while 42% do not. As per the findings, 18% of patients had been hospitalized only once,30% had been hospitalized twice and 8% had been hospitalized three times.56% of patients have received information regarding COPD and its management mainly from their hospitals/doctors. Out of the COPD patients around 68% of patients had other comorbid conditions such as hypertension, diabetes, TB, and thyroid problems.25 patients had sleeping hours of approximately 6-8 hours and 24% slept during the day time.26% of patients had the habit of alcoholism. The major symptoms experienced by COPD patients included cough (20%), chest pain (34%), sputum production (32%), dyspnoea (12%), and other symptoms (2%).

Table 3: Knowledge levels of COPD patients according to their knowledge scores

n = 50

Level of knowledge	Frequency (F)	Percentage (%)
Poor knowledge	12	24
Average Knowledge	33	66
Good Knowledge	5	10

As per the data presented in Table 3, 24% of COPD patients were having poor knowledge, with 12 individuals falling into this group. The majority of patients, constituting 66%, demonstrated an average level of knowledge about COPD whereas only 10% of patients exhibited good knowledge of COPD.

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Table 4: Association between the knowledge of patients regarding COPD with selected socio-demographic variables

n = 50

Demographic variable	Category	Level of Knowledge			Chi-Value	df	p-Value
		Poor	Average	Good			
Age in Years	19-30 Year	0	0	0	20.362	6	0.002*
	31-40 Year	0	0	2			
	41-50 Year	6	15	2			
	51-60 Year	3	13	1			
	> 60 Year	3	5	0			
Gender	Male	6	22	3	1.047	2	0.592
	Female	6	11	2			
	Others	0	0	0			
Education	Primary	6	11	0	19.321	8	0.013*
	Secondary	1	5	1			
	Higher secondary	2	12	1			
	Diploma	2	4	0			
	Graduation & above	1	1	3			
Place of residence	Rural	8	17	1	3.182	4	0.528
	Urban	2	9	2			
	Semi urban	2	7	2			
Do you stay in industrial area	Yes	3	14	4	4.390	2	0.111
	No	9	19	1			
How often do you perform physical activity	Once daily	0	7	0	13.293	8	0.102
	Once a week	1	4	3			
	Three/four times a day	0	1	0			

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	No physical activity and exercise	11	21	2			
Dietary pattern	Vegetarían	5	21	2	4.327	4	0.364
	Non vegetarían	7	10	3			
	Vegan	0	2	0			
Monthly Family Income (In Rupees)	<5000	0	3	0	15.260	8	0.054
	5000 – 10000	6	2	0			
	10000 - 20000	2	11	1			
	20000 – 30,000	3	15	3			
	>30,000	1	1	1			
Occupation	Agriculture	3	16	0	26.631	8	0.001*
	Private job	2	10	0			
	Government job	0	2	3			
	Self-employed / business	4	4	1			
	Labour	3	1	1			
	Student	0	0	0			
Marital Status	Married	10	29	4	4.080	6	0.6666
	Unmarried	1	1	0			
	Divorcee	0	2	1			
	widower/widow	1	1	0			

Table 4 presents the association between the knowledge scores of COPD patients with their socio-demographic variables which shows that a significant association was observed between variables such as age, education, and occupation with the levels of knowledge regarding COPD.

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Table 5: Association between the knowledge of patients regarding COPD with selected Clinical variables

n = 50

Clinical variable	Category	Level of Knowledge			Chi-Value	df	p-Value
		Poor	Average	Good			
Duration of COPD diagnosis	6 Month- 1 Year	5	10	2	3.411	6	0.756
	1 year- 3 years	7	16	2			
	3 years -10 years	0	6	1			
	more than 10 years	0	1	0			
Are you a current smoker	Yes	5	13	2	0.019	2	0.991
	No	7	20	3			
If yes the number of cigarettes smoked per day	1 cigarette a day	7	20	3	2.030	8	0.980
	5 cigarette a day	3	6	1			
	1 pack of cigarette a day	0	2	2			
	More than 1 pack of cigarette a week	0	1	0			
History of hospitalization regarding COPD in past	Yes	5	21	3	1.753	2	0.416
	No	7	12	2			
If yes number of	1	2	7	0	5.581	6	0.472
	2	3	9	3			
	3	0	4	0			

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hospitalization due to COPD	4	0	0	0			
	more than 5	0	0	0			
Any counselling/information received regarding management of COPD	Yes	8	17	3	0.856	2	0.652
	No	4	16	2			
If yes source of information	Hospital/doctors	6	16	2	8.751	8	0.364
	Family / friends	1	4	0			
	Mass media	1	4	0			
	NGO	0	3	0			
Any comorbid condition the patient is suffering	Yes	9	23	2	2.115	2	0.347
	No	3	10	3			
If yes, which comorbid condition	Hypertension	4	5	1	5.457	10	0.859
	Diabetes	3	11	1			
	TB	1	5	0			
	Thyroid disorders	0	1	0			
	Others	1	2	0			
Hours of regular sleep per day	<4 hours	0	1	0	1.175	4	0.882
	4-5 hours	7	15	2			
	6 -8 hours	5	17	3			

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	> 8 hours	0	0	0			
Do you sleep during the daytime	Yes	3	9	0	1.779	2	0.411
	No	9	24	5			
Do you have the habit of alcoholism	Yes	3	10	0	2.081	2	0.353
	No	9	23	5			
If yes, frequency of using alcohol	Daily	0	1	0	4.777	10	0.906
	3-4 times a week	1	3	0			
	Weekly once	2	3	0			
	Occasionally	0	1	0			
	Rarely	0	3	0			
Symptoms experienced due to COPD	Cough	2	8	0	14.079	8	0.080
	Chest pain	2	13	2			
	Sputum production	7	8	1			
	Dyspnoea	0	4	2			
	Others	1	0	0			

Table 5 presents the association between the knowledge of patients regarding Chronic Obstructive Pulmonary Disease (COPD) and selected clinical variables. The results showed that no significant association was found between the knowledge levels of COPD patients and their clinical variables.

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Discussion:

The present study explored the knowledge of COPD patients regarding their disease and its management. The study findings showed that only a small percentage, that is 10%, had exhibited good knowledge about COPD whereas the majority of patients, constituting 66%, demonstrated an average level of knowledge and 24% of patients belonged to the category of poor knowledge. Concerning the association of COPD knowledge levels with selected socio-demographic and clinical variables, there was a significant association found between the knowledge level of COPD patients with variables such as age, education, and occupation. Whereas no significant association was there with any of the clinical variables.

The study findings are supported by those conducted by Dimitrios G Raptis et al in Greece to find out the level of Knowledge about COPD among patients and caregivers, which found that the mean total knowledge score of patients with COPD was 24.27 ± 8.44 and of caregivers of patients with COPD was 21.80 ± 5.32. Hence the researchers concluded that there is a lack of knowledge of COPD among patients and their caregivers and hence emphasized the need for education programs[9].

Another study was done in Tamil Nadu by K. Radha, Rajeswari Vaithiyanathan and N. Vijaya Narayanan to assess the knowledge on COPD and its self-management among COPD patients in a selected hospital. The study findings showed that, there was association with demographic variables such as age, residence and occupation with knowledge on COPD which is consistent with the current study findings[10].

Conclusion:

The present study concluded that there is a lack of knowledge related to COPD in patients admitted in the tertiary care hospital. Hence healthcare workers including nurses have to emphasize providing quality educational sessions to improve the overall knowledge levels of patients with COPD so that the disease burden and relapses can be controlled in the future.

Consent and Ethical Approval:

Approval from the institutional research and ethical committee (PUIECHR/PIMSR/00/081734/5902) was obtained, along with specific informed consent from the patients, before conducting the study.

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Conflict of Interests:

The authors have affirmed that they have no competing interests to declare.

Authors Contribution:

Author 1- Approval and finalization of the study's conception and design, as well as manuscript drafting.

Author 2- Collection and analysis of data, as well as interpretation of results.

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