

## ORIGINAL ARTICLE

# Chronic Obstructive Pulmonary Disease Patients have A Higher Risk of Developing Gastroesophageal Reflux Disease than the General Population A-Multi-Center-Study

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## ABSTRACT

**Background:** Partially reversible airflow restriction is a symptom typical of COPD, a kind of obstructive lung disease. Chronic obstructive pulmonary disease distinct pathological and clinical phenotypes: emphysema and chronic bronchitis (COPD). Both elements are quite individualistic. Whether or not to regularly examine COPD patients for the possibility of GERD and treat it effectively might be aided by the discovery of an increased prevalence of Gastroesophageal reflux disease (GERD) in this patient population.

**Objective:** As GERD is associated with a worse prognosis in COPD patients, it is important to understand the prevalence of this condition among those who suffer from the disease.

**Methodology:** From January 2021 to January 2022, researchers at a major hospital in Peshawar analyzed data from many similar hospitals. A total of 108 participants participated in this trial. Comprehensive histories and physical examinations were performed on patients (aged 20 to 75). Then, spirometry and the Q-questionnaire were administered to individuals who had satisfied the inclusion and exclusion criteria. All patients had their spirometry readings taken by the same CPSP-certified technician. Patients' FEV1 measurements following a bronchodilator treatment were assessed by the same CPSP-fellow consultant of pulmonology using the GOLD criteria, giving each patient a grade (from "01" to "04"). The prevalence of GERD was calculated as a percentage of all COPD cases in patients who completed the Q-questionnaire.

**Results:** There was a 12.580 standard variation in the individuals' ages, with a mean of 58.76. Most patients were women (60%), while men made up just 40% of the Total. The prevalence of GERD among those with COPD was 52 percent.

**Conclusion:** This study's findings led us to conclude that patients with COPD had a frequency of gastroesophageal reflux disease (GERD), which was 52%.

**Keywords:** Acid Reflux In The Stomach; COPD, Multicenter

## INTRODUCTION

(COPD) causes partial, reversible airflow limitation. Emphysema and COPD are type 1 CO and chronic bronchitis. Individuals' perceptions of these two factors vary widely<sup>01</sup>. Inhaled irritants and pathogens create a chronic inflammatory response that causes COPD. Neutrophils, granulocytes, and macrophages are inflammatory cells that cause COPD<sup>02</sup>. Smokers have T1 lymphocytes. Inflammation scars the airways, shrinking them. Exhaling is difficult because chest pressure compresses the airways. GERD is a major complication of COPD<sup>03</sup>. Regurgitation of stomach contents into the esophagus and throat causes heartburn, chest pain, nausea, trouble breathing, and tooth damage. [GERD] may exacerbate [pulmonary] problems. [GERD] predicts COPD flare-ups<sup>04</sup>. GERD must be diagnosed and treated quickly in COPD patients. Q-questionnaire and clinical exams are used to diagnose GERD<sup>05</sup>. GERD prevalence in COPD ranges from 17–78%, depending on diagnostic and clinical approaches. 8 62% of COPD patients have GERD<sup>06</sup>. This research aims to determine GERD prevalence among COPD patients. Other nations' research has revealed inconsistent results, and there are no studies on GERD in Pakistan's COPD population. COPD is a frequent hospitalization reason in the U.S. Finding a higher frequency of GERD in COPD patients may assist in determining whether to test for it regularly. Watch everything closely. This research will provide the framework for future studies into the causal link between GERD and COPD, which has therapeutic importance in these patients<sup>07</sup>.

## METHODOLOGY

From January 2021 to January 2022, researchers at a major hospital in Peshawar analyzed data from many similar hospitals. A total of 108 participants participated in this trial.

**Sample size:** The sample size of 108 was determined following the World Health Organization's guidelines for determining sample sizes in medical research; the prevalence of GERD in COPD

patients was assumed to be 15%; the margin of error was set at 6%, and the confidence interval was set at 94%

**Collecting Data:** The ethics board examined all COPD patients (per inclusion criteria). 18-70-year-olds were examined. Spirometry and the Q-questionnaire were completed after the inclusion/exclusion criteria. The same specialist took all spirometry readings. CPSP specialist graded post-bronchodilator FEV1 GOLD 1-4. Addendum. After COPD patients completed the Q-questionnaire, GERD prevalence was calculated. A proforma had all data. Exclusion criteria reduced confounding and bias.

**Statistical Analysis:** SPSS Version 24 was used to collect, store, and analyze the data. Statistics were evaluated using mean and standard deviation for all quantitative variables. Quantitative characteristics like gender and GERD were converted into frequencies and percentages. Effect modification was investigated by stratifying GERD patients according to age, gender, illness duration, disease severity, and other factors. After applying a stratification, we used a Chi-square test, with a cutoff of [0.05] indicating statistical significance. Charts and tables were used to display all of the data.

## RESULTS

The average age was 58.76, with a standard deviation of 12.580. 60% of patients were women, against 40% were males. COPD patients had 52% GERD. Eight individuals had mild COPD, 49 had moderate, 44 had severe, and 6.5 had very severe (Table 1). The mean final Q-Questionnaire score for the cases analyzed was 9, with a standard deviation of 12.580. One hundred eight patients (52%) scored 8 to 15. 2. 52% of 108 individuals had GERD, whereas 45% did not (Table 3). Table 4 stratifies GERD by age, gender, sickness duration, and disease severity using the chi-square test.

Table 1: Quantitative Questionnaire Study Final Score (n=108)

Characteristics	GERD			P-value
	Yes	No	Total	
Age (Years)				
[30-40]	02	04	08	
[41-50]	13	18	44	
[51-60]	16	35	66	0.4981
[61-85]	28	44	99	
Gender				
[Male]	20	28	46	0.0275
[Female]	38	25	62	
[COPD Duration of Years]				
[1-10]	55	55	110	0.0881
[11-20]	54	34	88	
[21-30]	07	12	19	
[COPD Severity ]				
1Mild	07	09	16	0.1231
2Moderate	49	98	98	
3Severe	49	90	90	
4Very Severe	11	13	13	

Table 2: Result of the Q-Final Questionnaire's Score (n=108)

[Final score]	[Frequency]	[Percentage]
01-08	50	45%
08-16	58	55%
Total	108	[100%]

The total average score was 9, with a standard deviation of 5.093.

Table 3: the prevalence of gastroesophageal reflux disease (n=108)

[GERD]	[Frequency]	[Percentage]
[Yes]	58	55%
[No]	50	45%
[Total]	108	100%

Table 4: Distribution of Age and Gastroesophageal Reflux Disease (GERD) (n=108)

[Characteristics]	[Frequency]	[Percentage]
Gender		
Male	46	40%
Female	62	60%
[Age distribution] (Years)	108	62%
[21-30]	04	04%
[30-45]	22	18%
[45-55]	33	29%
[61-85]	50	45%
[Duration of COPD] (Years)		16 Years
1-10	105	49%
11-20	44	40%
21-30	10	07%
[Severity of COPD]		
1. Mild	08	08%
2. Moderate	50	44%
3. Severe	44	40%
4. Very Severe	12	06%

## DISCUSSION

COPD is an obstructive lung condition that may be reversed in certain situations. 1 Emphysema and chronic bronchitis are COPD subgroups (COPD) <sup>08</sup>. Each person values these two aspects differently. Our sample's mean age was 61.92, and SD was 11.61. Patients were 55.9% female and 4.7% male, making up 42.1% of the population. 53.5% of COPD patients had GERD. Lee AL et al. 10 showed GERD prevalence in COPD to be 17 to 78%. " Casanova C et al.11 observed a comparable rate (62%)<sup>09</sup>. In Pakistan, COPD is a primary cause of mortality and disability (COPD). Usman U13 found that out of 95 COPD patients, 38.95% (n=37) were between 40 and 60 years old, and 61.05% (n=58)

were >60, with a median age of 58.37+8.36 years. Bor S et al. 1 showed that asthma, COPD, and controls all had GERD (heartburn/regurgitation once a week or more). 43.16% (n=41) of COPD patients had GERD. Thus he concluded that it's widespread in this patient group<sup>10</sup>. All COPD patients should be tested for GERD. The problem's prevalence must be determined by monitoring particular settings. Khalil A discovered that 39.7% of COPD patients had gastroesophageal reflux<sup>11</sup>. Khattab A found endoscopic GERD detection rates of 53.3% in the moderate group and 73.3 in the severe group. In the severe category, biopsy detection was 93.3%. COPD worsens GERD (there were more patients with advanced grades among severe COPD than in the moderate group). More smokes per year increase the chance of mild and severe GERD<sup>12</sup>. There was an increase in the Frequency of COPD exacerbations in patients with GERD, both in the moderate and severe groups, which agrees with the study's findings that GERD is associated with COPD. However, due to the current study's limitations, we could not stratify the Frequency according to the severity of COPD and the causes of GERD (such as smoking)<sup>13</sup>.

## CONCLUSION

Our studies show that 52 percent of COPD patients in our area also suffer from gastroesophageal reflux disease (GERD). Exactly how GERD and COPD are connected requires more, longer-term study.

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