Research Article

# A Demographic Study of Chronic Bronchitis: An Observational Study

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## I N F O

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## A B S T R A C T

*Background:* Chronic bronchitis is a global public health problem affecting those over the age of 40, and it will continue to be a challenge in the future. It is a leading cause of chronic morbidity and mortality around the world.

*Objective:* The purpose of this study is to determine the demographic status of chronic bronchitis patients.

*Materials and Methods:* It is an open-label clinical study conducted on 50 diagnosed patients who visited the Moalejat, Ajmal Khan Tibbiya College and Hospital, Aligarh Muslim University, selected for further inquiry regarding age, sex, occupation, temperament, seasonal variations, etiological factors.

*Results:* In the present study, among the patients selected for chronic bronchitis,it was observed that maximum participants 17(34.0%) belonged to the age group of 60-65 years and patients were also evaluated based on the history of risk factors. Among various risk factors, cigarette smoking is a vital risk factor, accounting for 94% of patients in our study.

*Conclusion:* In conclusion, every tool should be leveraged to raise CB awareness and implement an effective COPD/CB early detection programme in our community.

**Keywords:** Chronic Bronchitis, Incidence, Demographic Status

## Introduction

In chronic obstructive pulmonary disease (COPD), chronic bronchitis (CB) is a common but variable phenomenon.[1]Chronic bronchitis develops when the tracheobronchial tree is exposed to nonspecific irritants over an extended period of time. It is characterised by mucus hypersecretion along with structural changes in the bronchi, such as epithelial metaplasia, inflammation, and mucous gland hypertrophy. It is defined as cough and sputum on most days for at least 3 months of the year for a minimum of 2 years in a row for epidemiologic purposes.[2]

*Iltihab Shoab Muzmin* or *Warm-e-shoabatur riya muzmin* is term, the contemporary Unani physician has translated this into an effort to clarify the disease entity specific to existing etymology.[3] While going through Unani works of literature, the term *Warm-e-shoabatur riya muzmin* has not

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been mentioned as such, but the clinical features mentioned under the *Sual barid maddi*, *Sual ratab* and *Sual muzmin* as described by IbneSina, Jurjani, and Azam Khan are quite similar to the clinical feature found in *Warm-e-shoabatur riya muzmin*.[4,5,6]

It is occurring worldwide and public health problem over 40 years of age and will remain a challenge for the future. It is a leading cause of chronic morbidity and mortality around the world.[7] COPD/CB prevalence and impact are expected to rise in the future decades as a result of prolonged exposure to COPD risk factors and an ageing global population.[8,9] Cigarette smoking is the principal and major risk factor. Long-term cigarette smoking reduces ciliary movement and causes mucus-secreting gland enlargement and hyperplasia.[10,11,12] Contracting of this disease is inversely proportional to socioeconomic status. These could be due to indoor/outdoor air pollution, substandard housing, a poor diet, or other conditions linked to low socioeconomic position.[10]

In light of the foregoing, the purpose of this study is to determine the demographic status of chronic bronchitis patients.

## Material and Method

The current study was conducted on patients who visited the Moalejat, Ajmal Khan Tibbiya College and Hospital, Aligarh Muslim University, Aligarh OPDs and IPDs between March 2019 and March 2020 (one year). It was an open interventional clinical trial that lasted for three months.

### Sample Size

50

### Ethical Consideration

Before beginning the clinical trial, ethical clearance was obtained vide D.N0. 345/ FUM by the Ethical Committee of Institute, AKTC, A.M.U Aligarh, U.P.

### Inclusion Criteria

- Patients in the age group of 30-65 years
- Patients of either gender
- Patients who had cough and sputum forat least 3 months of 2 consecutive years
- Patients with harsh vesicular breathing with prolonged expiration and rhonchi on clinical examination
- Patients with $FEV_1 \geq 80\%$ and $\geq 50\text{-}80\%$, $FEV_1/FVC$ ratio<70% of the predicted value
- Patients who were clinically stable
- Patients who give written consent

### Exclusion Criteria

- Patients below 30 years and over 65 years
- Patients in acute exacerbation of the disease
- Patients with $FEV_1 \leq 30\text{-}50\%$

- Bronchial asthma
- Pneumonia
- Pulmonary tuberculosis
- Lung carcinoma
- Patients with diabetes mellitus
- Pregnant and lactating mothers
- Congestive heart failure
- Patients who fail to give consent
- Patients who fail to follow up
- Mentally retarded persons

## Statistical Analysis of the Study

Statistical analysis was done according to the type of data, paired t-test, and Wilcoxon matched pair rank test was applied to evaluate data'

## Results

### Distribution of Patients according to Age

According to age, patients were divided into five groups i.e. 35-40, 40-45, 45-50, 50-55, 55-60, and 60-65 years. Maximum number of patients (17) were seen in the age group 60-65 years, followed by 13, 9, 6, and 3 patients in age groups of 50-55, 55-60, 45-50 and 40-45 years respectively, while the minimum number of patients (2) was seen in the age group 35-40 of years as shown in Figure 1.
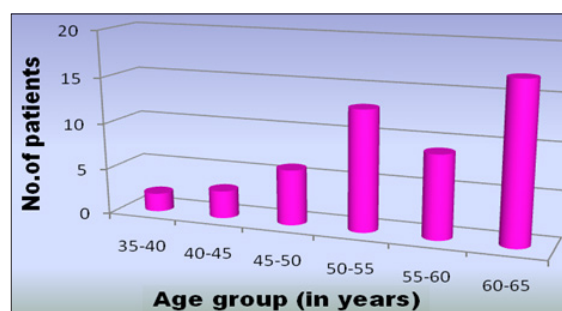


**Figure 1.Distribution of Patients according to Age**

### Distribution of Patients according to Gender

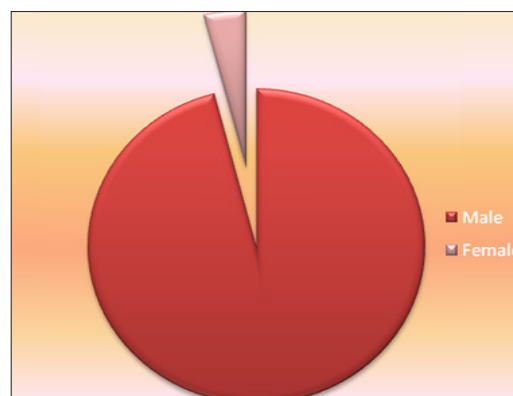According to gender, 48 (96.0%) patients were male and 2 (4.0%) patients were females, as shown in Figure 2.



**Figure 2.Distribution of Patients according to Gender**

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## Distribution of Patients According to Religion

According to religion, patients were categorised as Muslims and Non-muslims. Out of 50 patients, 12 (24.0%) were Non-muslims and 38 (76.0%) patients were Muslims as displayed in Figure 3.
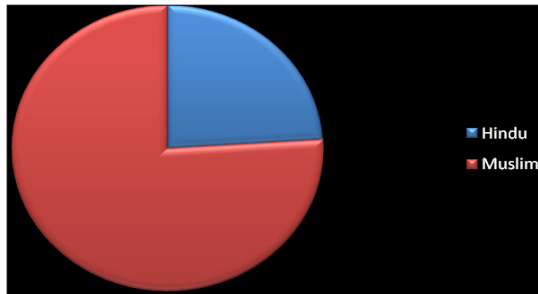


**Figure 1.Distribution of Patients according to Age**

## Distribution of Patients according to Occupation

According to the occupation, the patients were divided into five categories - employee, businessman, farmers, labour, and housewife. The maximum number of subjects were labourers 25 (50.0%) followed by farmers 15(30%), employee 4(8%), businessmen 4(8%) and housewives 2, (4%) as shown in Figure 4.
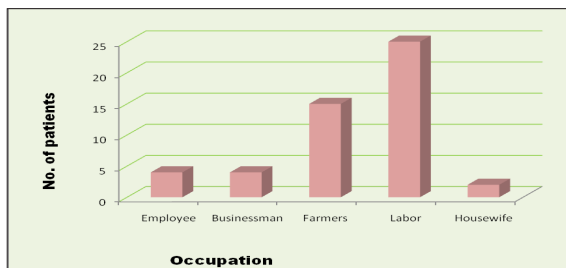


**Figure 4.Distribution of Patients according to Occupation**

## Distribution of Patients according to Socioeconomic Status (SES)

According to socioeconomic status, patients had been categorised into three groups, based on the Kuppuswamy Scale. Maximum patients 26(52.0%) belonged to lower-middle class, followed by 14 (28.0%) in upper-middle class, and 10 (20.0%) in upper-lower class as shown in Figure 5.
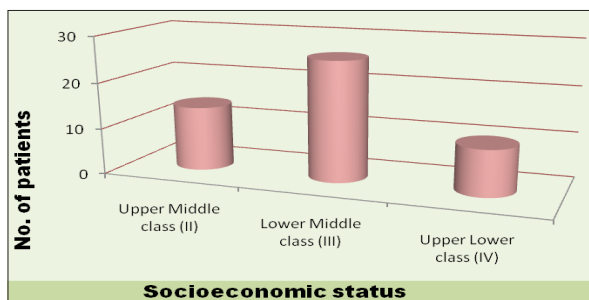


**Figure 5.Distribution of Patients according to Socioeconomic Status (SES)**

## Distribution of Patients according to Dietary Habits

According to dietary habits, it was found that 38 (76.0%) were taking a mixed type of diet and 12 (24.0%) were vegetarians as shown in Figure 6.
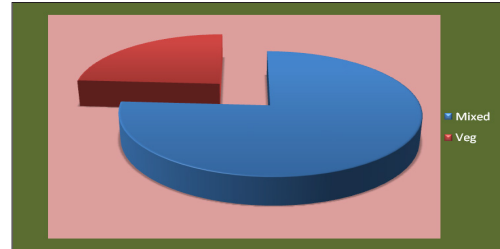


**Figure 6.Distribution of Patients according to Dietary Habits**

## Distribution of Patients according to History of Risk Factors

Patients were enquired about history of tobacco addiction and it was found that out of 50 patients, H/O active tobacco smoking was present in 47 (94.0%) patients, and 3 patients were non-smoker in which 1(2%) patient had a history of passive smoking and 2(4%) patients had H/O other risk factors. The distribution of patients according to the history of risks factor is given in Figure 7.
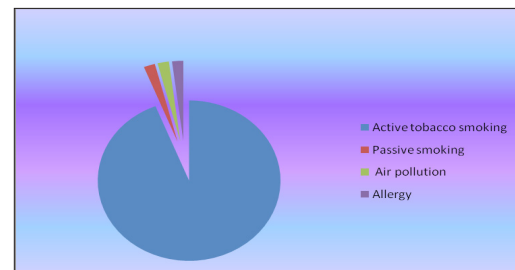


**Figure 7.Distribution of Patients according to History of Risk Factors**

## Distribution of Patients according to the Pack Year of Smoking

Maximum number of patients (20, 42.55%) had 20-30 pack-years of smoking, 18 (38.2%) had 10-20 pack-years of smoking while minimum number of patients (9,19.14%) had 1-10 pack-years of smoking (Figure 8).
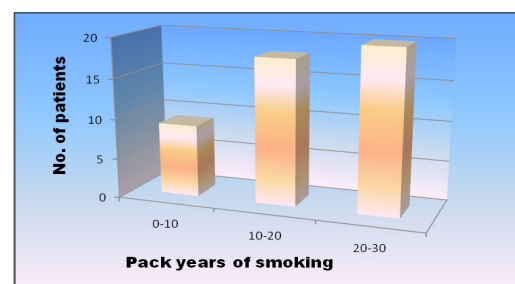


**Figure 8.Distribution of Patients according to the Pack-years of Smoking**

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## Distribution of Patients According to the Duration of Illness

According to the duration of illness, 5 (10.0%) patients suffered from CB for 1 to 5 years of duration 18(36.0%) patients for 5-10 years, 22 (44.0%) patients for 11-15 years, and 5 (10.0%) patients suffered for 15-20 years. Maximum numbers of patients suffered for 5-10 years while minimum numbers of patients suffered for 1-5 years and 15-20 years of duration of illness (Figure 9).
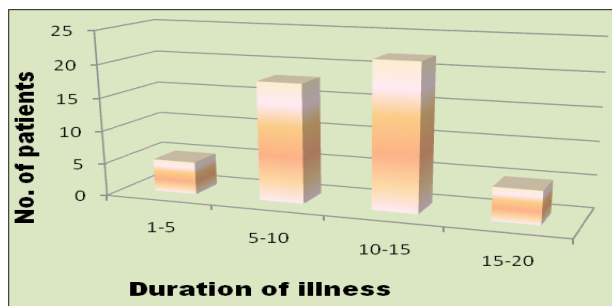


**Figure 9.Distribution of Patients according to the Duration of Illness**

## Distribution of Patients according to Temperament

A total of 30 (60.0%) patients were found to have balghamimizaj (phlegmatic temperament) followed by 8 (16.0%) of Damvi (Sanguineous), 6 (12.0%) of Saudavi (Melancholic) and Safravi Mizaj (Bilious temperament) as shown in Figure 10.



**Figure 10.Distribution of Patients according to Temperament**

## Discussion

The study was conducted on 50 patients, and the duration of the protocol was 90 days. The pre and post-treatment assessment was done for objective parameters. While the assessment for the subjective parameters was made at the 0th, 15th, 30th, 45th, 60th,75th, and 90th day, the patients were free to consult for any complaints in between. The response of the test drug formulation in the subjective parameters encouraged the patients to adhere to follow-up.

In the present study among the patients selected for chronic bronchitis, it was observed that maximum number of patients i.e 17 (34%) participants belonged to the age group of 60-65 years which shows an increase in CB incidence with increasing age. This is in accordance with the study done by Jindal SK et al. and other various clinical studies.[13] In the study, 48 (96.0%) patients were males, and 2 (4.0%) patients were females out of 50 patients. This gender difference may be due to a greater degree of bronchial lability in males, smoking habits, and more exposure to the environment. CB impacts men more than women, according to numerous research. This study aligns with the analysis done by Kim V et al. and other various studies.[14] On distributing the patients according to religion, observations suggested that Muslim patients outnumbered patients of other religions. Out of 50 patients, 12 (24.0%) were Non-muslims and 38 (76.0%) were Muslims. It may be due to a Muslim predominated area adjacent to the hospital. As such, no relevant prevalent studies are available to demonstrate this disease among different religious communities in society. Distribution, according to marital status, shows 100% married. This can be clearly understood, as the proposed age for the study was 35-65 years. There is no relation between marital status and the occurrence of CB. As far as the socioeconomic status is concerned, patients were divided into three groups based on Kuppuswamy Scale. maximum number patients i.e 26(52.0%)belonged to the lower middle class, followed by 14 (28.0%) in the upper-middle class, and 10 (20.0%) in the upper-lower class. This distribution may be seen because most of the studied population lies in the lower and middle classes. This study is in accordance with the study done by Kim V etal.[13,14] The present study has shown that the maximum number of cases were of *Balghami* (Phlegmatic) i.e., 30 (60.0%), followed by 8 (16.0%) of *Damvi* (Sanguineous), 6 (12.0%) of *Saudavi* (Melancholic) and *Safravi Mizaj* (Bilious temperament). According to this distribution maximum number of patients lies in the phlegmatic temperament and in Unani literature temperament has invaluable importance. So, the observed data is in accordance with Unani literature, and phlegmatic temperament should be considered as a predisposing factor for CB.[4,5]

In the current study, patients were also evaluated based on the history of risk factors. Among various risk factors, cigarette smoking is an important risk factor that accounted for 94% of patients, while 6% of patients had a history of other risk factors. There is strong evidence in the literature that tobacco smoking increases the chances of CB, whether by active smoking or passive exposure to second hand smoke, and a similar observation was made in other studies.[9,15] Among smokers, the intensity of smoking is an important factor related to the disease and in the study, it was observed that the maximum number of patients was 20-30 pack-year of smoking constituted 20 (42.55%). More frequent exposure of bronchus and bronchi with specific

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intensity is important in developing the pathology of CB instead of merely smoking.[3,16]

The study recorded that seasonal variation in symptoms was present in 24% of patients. Symptoms in CB patients mainly flare-up in the winter season, and it is in consonance with the study done by Rabe FK etal.[17]

## Conclusion

Since COPD/CB is progressive, it's vital to recognise and ensure early treatment of patients to prevent further disease progression. The present study shows that CB is prevalent in older individuals in low and middle-income class individuals and cigarette smoking is a major preventable risk factor. Finally, every tool should be leveraged to raise CB awareness and implement an effective COPD/CB early detection programme in our community.

## Acknowledgements

**Conflict of Interest:** None

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