



Original Article

Spectrum and Demographic Profile of Respiratory Diseases among Hospitalized Patients in a Tertiary Care Centre

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ABSTRACT

Background: Respiratory diseases remain one of the leading causes of morbidity and mortality worldwide particularly in low and middle- income countries. In India, tuberculosis (TB) and chronic obstructive pulmonary disease (COPD) contribute significantly to hospital admissions and healthcare burden. The burden is amplified by environment pollution occupational exposure, smoking, and socioeconomic disparities. Understanding the demographic profile and disease spectrum is essential for designing effective public health strategies.

Methods: A hospital-based observational study was conducted including 587 patients admitted to the Department of Respiratory Medicine over a period of one year. Data regarding age, gender, residence, socioeconomic status, and diagnosis were collected and analyzed using descriptive statistical methods.

Results: Out of 587 patients, 423 (72.06%) were males and 164 (27.94%) females, indicating a marked male predominance. The highest disease burden was observed in the 45–59 year age group (33.90%), followed by 30–44 years. A majority of patients were from rural areas (79.72%) and belonged to lower socioeconomic classes (~80%). Tuberculosis was the most common diagnosis (43.10%), followed by COPD (31.68%) and silicosis (14.31%).

Conclusion: Respiratory diseases predominantly affect middle-aged males from rural and economically disadvantaged backgrounds. Environmental exposure, occupational hazards, and socioeconomic determinants play a significant role in disease burden.

Keywords: Respiratory diseases, Tuberculosis, COPD, Rural population, Socioeconomic status.

INTRODUCTION

Respiratory diseases constitute a major global health challenge and are among the leading causes of death and disability worldwide^{1,2}. According to global health estimates, chronic respiratory diseases and infectious conditions such as tuberculosis account for a substantial proportion of disease burden, particularly in developing nations^{3,4}.

India bears a disproportionately high burden of respiratory illnesses due to a combination of factors including rapid urbanization, industrialization, environmental pollution, and widespread use of biomass fuels for cooking and heating. Chronic obstructive pulmonary disease (COPD) and tuberculosis (TB) remain the most significant contributors to respiratory morbidity and mortality in the country.^{3,4}

In addition to environmental factors, socioeconomic determinants such as poverty, overcrowding, poor nutrition, and limited access to healthcare services further exacerbate the burden of respiratory diseases^{5,6}. Rural populations are especially vulnerable due to prolonged exposure to biomass fuel smoke, occupational hazards such as mining and construction work, and delayed healthcare-seeking behavior⁷.

Despite the magnitude of the problem, there is a paucity of comprehensive data describing the demographic and clinical profile of respiratory diseases in specific regions. This study was undertaken to evaluate the spectrum of respiratory

diseases and their demographic distribution in patients admitted to a tertiary care hospital, thereby providing insights for improved healthcare planning and targeted interventions.

MATERIALS AND METHODS

This was a **hospital-based observational study** conducted in the Department of Respiratory Medicine at a tertiary care center.

Study Design and Duration:

- Observational descriptive study
- Conducted over a period of one year (January 2017 to December 2017)

Study Population:

- Total of **587 patients** admitted with respiratory illnesses

Inclusion Criteria:

- All patients admitted with confirmed respiratory diseases
- Patients of age ≥ 18 years

Exclusion Criteria:

- Patients with incomplete or missing clinical data

Data Collection:

Data were collected from patient records and included:

- Age and gender
- Residential status (urban/rural)
- Socioeconomic status (based on Kuppuswamy classification)
- Final clinical diagnosis

Statistical Analysis:

- The collected data were analyzed using descriptive statistical methods. Results were expressed in terms of frequencies and percentages and presented in tabular and graphical formats.

RESULTS

A total of 587 patients were included in the study. The demographic and clinical profile revealed several important patterns. Males constituted a significant majority (**72.06%**) compared to females (**27.94%**), indicating a clear gender disparity in hospital admissions for respiratory diseases.

Table 1. Gender distribution of study population (n = 587)

Gender	Number (n)	Percentage (%)
Male	423	72.06
Female	164	27.94
Total	587	100.00

Values are expressed as frequency and percentage.

The highest number of cases was observed in the **45–59 year age group**, followed by the 30–44 year group. Younger individuals (18–29 years) contributed the least number of cases. This suggests that respiratory diseases are more prevalent in middle-aged and older individuals.

Table 2. Age-wise distribution of patients (n = 587)

Age group (years)	Number (n)	Percentage (%)
18–29	88	14.99
30–44	181	30.83
45–59	199	33.90
≥ 60	119	20.27
Total	587	100.00

Values are expressed as frequency and percentage.

A large proportion of patients (**79.72%**) were from rural areas, highlighting the higher burden of respiratory diseases in rural populations compared to urban settings.

Table 3. Distribution based on residence (n = 587)

Residence	Number (n)	Percentage (%)
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Rural	468	79.72
Urban	119	20.28
Total	587	100.00

- Values are expressed as frequency and percentage.

The majority of patients belonged to lower and upper-lower socioeconomic classes, indicating a strong association between low socioeconomic status and respiratory disease burden.

Table 4. Socioeconomic status of patients (Kuppuswamy classification) (n = 587)

Socioeconomic class	Number (n)	Percentage (%)
Upper	7	1.20
Upper middle	30	5.11
Lower middle	81	13.80
Upper lower	153	26.06
Lower	316	53.83
Total	587	100.00

Values are expressed as frequency and percentage.

Tuberculosis was the most frequently diagnosed condition, accounting for the largest proportion of cases. COPD was the second most common disease, followed by silicosis.

Other conditions included pleural effusion, lung malignancy, community-acquired pneumonia, pneumothorax, and asthma.

Table 5. Spectrum of respiratory diseases among study population (n = 587)

Disease	Number (n)	Percentage (%)
Tuberculosis	253	43.10
Chronic obstructive pulmonary disease (COPD)	186	31.68
Silicosis	84	14.31
Pleural effusion	72	12.26
Lung malignancy	65	11.07
Community-acquired pneumonia (CAP)	64	10.90
Pneumothorax	56	9.54
Asthma	35	5.96

- Values are expressed as frequency and percentage.

DISCUSSION

The present study provides valuable insights into the demographic and clinical profile of respiratory diseases in a tertiary care setting.

The marked male predominance observed in this study is consistent with findings from previous research. This can be attributed to higher exposure to risk factors such as smoking, occupational hazards, and environmental pollutants among males^{3,8}. Additionally, sociocultural factors may contribute to differences in healthcare-seeking behavior between males and females.

The higher prevalence of respiratory diseases in the middle-aged population reflects the cumulative effect of long-term exposure to risk factors such as tobacco smoke, biomass fuel, and occupational dust⁹. This age group represents the economically productive segment of the population, and the high disease burden has significant socioeconomic implications.

The predominance of rural patients in this study highlights the role of environmental and socioeconomic factors. Rural populations are more likely to be exposed to biomass fuel smoke, poor housing conditions, and occupational hazards. Limited access to healthcare facilities may also lead to delayed diagnosis and treatment^{5,6}.

Tuberculosis being the most common diagnosis underscores its continued public health importance^{1,10}. Despite ongoing national control programs, TB remains highly prevalent, particularly in economically disadvantaged populations. COPD also contributes significantly to disease burden and is closely associated with smoking and indoor air pollution^{2,4}.

The presence of silicosis cases reflects occupational exposure to silica dust, particularly in industries such as mining and construction. This emphasizes the need for improved workplace safety measures and regular health screening of workers in high-risk occupations¹¹.

Overall, the findings of this study highlight the multifactorial nature of respiratory diseases and the need for integrated approaches to prevention and management.

CONCLUSION

Respiratory diseases in this study predominantly affected middle-aged males from rural and lower socioeconomic backgrounds. Tuberculosis and COPD were the leading contributors to disease burden.

There is a need for:

- Strengthening early detection and treatment programs
- Reducing exposure to environmental and occupational hazards
- Improving healthcare accessibility in rural areas
- Enhancing public awareness regarding respiratory health

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