

# Epidemiological Profile of Chronic Obstructive Pulmonary Disease in an Elderly Population in the Municipality of Caloto, Cauca

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## Abstract

According to the World Health Organization (WHO), Chronic Obstructive Pulmonary Disease (COPD) refers to a group of inflammatory lung diseases that reduce airflow to the lungs, affecting the small airways. This disease is a major health problem that causes airflow limitation and progressively advances. The main objective of this study was to determine the epidemiological profile in an elderly population from the municipality of Caloto, in the department of Cauca, Colombia in 2019. A quantitative, descriptive, cross-sectional study was carried out. The study population consisted of older adults diagnosed with COPD and attended at the Nina Maria hospital in Caloto. The sample was obtained from the review of 158 clinical histories included in the database of the patients included in the program, in which different epidemiological variables were reviewed, and in which a close relationship was found for the development of the disease and the geographic location of homes, in addition to other factors related to cooking methods, cigarette consumption and the appearance of other comorbidities. It is important that health professionals and governmental entities in charge establish strategies aimed at mitigating the impact and progression of the disease.

## Keywords

COPD • Elderly • Prevalence • Diagnosis

## Introduction

According to the World Health Organization (WHO), Chronic Obstructive Pulmonary Disease (COPD) belongs to the group of chronic pulmonary pathologies that reduce the flow of air to the lungs. The most frequent symptoms are shortness of breath, excessive expectoration, chronic cough and dyspnea that can be persistent and worsen at rest [1]. This group of symptoms also receives the names of chronic bronchitis and pulmonary emphysema, some of them appear due to the environmental contamination or by antecedents of daily activities carried out previously at home like cooking in firewood, smoking and the permanent exposure to diverse works where it is exposed to chemical factors, and the aging, where the pulmonary changes that carry the physiological processes associated with the pulmonary system must be considered [2].

The WHO also reports that 210 million people worldwide suffer from COPD. In 2005, more than three million people died from this disease, representing 5% of the deaths registered in the same year. Older adults have become a population at risk for triggering the

disease, making it advisable to establish public health strategies to help mitigate the damage caused and the complications associated with this pathology. As one of the objectives of the WHO is to prevent and control chronic diseases, it has been supported by the Global Alliance against Chronic Respiratory Diseases (GARD), which is a voluntary pact of national and international organizations, institutions and agencies that work together to improve lung health worldwide.

In Colombia, in the department of Cauca, the prevalence of COPD in 2013 was 3.1%, which largely evidences the need to seek tools to stimulate lifestyle changes in patients to reduce the risk in the number of crises that involve greater morbidity and mortality associated with this disease, which significantly affects the quality of life of patients who suffer it. For all of the above, this study provides relevant information about current data related to the prevalence and epidemiological profile of COPD in the older adult population in the municipality of Caloto, Cauca in the year 2019.

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Received: 02 December, 2021; Accepted: 10 December, 2021; Published: 22 December, 2021

## Literature Review

A descriptive, retrospective and cross-sectional study was carried out in the municipality of Caloto, Cauca, a territory characterized by several ecological and environmental conflicts generated by the sugar cane industries near the municipality. The data were collected from the review of 158 clinical histories of patients with COPD, which were in the database of the program of patients reported with the disease, in the IPS of the municipality of Caloto, Cauca in the year 2019. The inclusion criteria were adult patients over 65 years of age, with a diagnosis documented by clinical history, admitted to the COPD program and living in the municipality; and the exclusion criteria were those patients who were referred to the IPS from other neighboring villages or those with incomplete data in the clinical histories. The study was previously presented and approved by the ethics committee of the IPS, by means of act 100820.

## Statistical analysis

For this study, different sociodemographic variables were included: Age, gender, socioeconomic stratum, occupation, origin and type of health regime; within the clinical variables, the following were taken into account: consumption of cigarettes and/or psychoactive substances, exposure to wood smoke, comorbidities and nutritional status, the latter was established based on the parameters established by the WHO, with a value of 18 in Body Mass Index (BMI); other variables documented included pharmacological treatment. For the calculation of the frequency of the variables, the chi-square test was used and the statistical significance was assigned with values of  $p < 0.05$ , with a confidence level of 95% alpha and a beta error of 5%, using the SPSS statistical package.

## Results

The study found that the mean age was 69 years ( $SD=14.538$ ;  $min=15$ ;  $max=85$ ), with a higher prevalence in male patients and significant data ( $p=0.0018$ ). A large number of patients came from areas of low economic resources (79%), 34.5 had other comorbidities, in which hypertension (54.5%), ischemic heart disease (22.7%), diabetes (21.3%), hypothyroidism (8.9%), followed by other diseases such as lung cancer (6.5%), malnutrition (2.1%) and 1.7% had co-infection with HIV. In addition, it was found that 13.8% of these patients consumed alcohol; the highest percentage of patients (87%) did not belong to any type of health system and 92% of them live in close proximity to the sugarcane-producing industries and were active cigarette consumers. A total of 138 patients were receiving pharmacological treatment for COPD, 67 were receiving antihypertensive and myocardial antiremodeling medication, 45 oral antidiabetics and 14 substances that control hypothyroidism, 4 of them were receiving retrovirals; a large majority of them were not receiving regular treatment.

## Discussion

According to studies conducted in Colombia, Brazil and Argentina, the age group with the highest prevalence of COPD is adults over 45 years of age, which increases significantly with age and becomes a public health problem [4]. In Colombia, the PREPOCOL study carried

out for the year 2013-14 calculated the prevalence at 8.9% in individuals over 50 years of age and 10.6% in those over 65 years of age. When comparing the variable Age of the study with that of Folch called "Therapeutic education in patients with COPD", carried out in 2017, it can be observed that there is similarity, since the age at which the disease occurs more frequently in ages between 52 and 80 years of age [5]. In relation to the data obtained in this study and the results of Folch's work, in terms of gender, it was found that most of the patients reported were men over 69 years of age, which is related to the aging that is greater today and that is occurring worldwide. In general, these populations represent an enormous challenge for health authorities of various countries in which older adults are considered as vulnerable groups, and in which biological, physiological and social changes occur, in which the role of health caregivers are essential to improve life expectancy [6,7].

In relation to the technique used for cooking food, it was found that a large percentage of patients prepare their nutrients with wood fire, which is consistent with the study of Rojano, conducted in 2014, on the importance of local production of acute phase reactants with increased risk of complications from Chronic Obstructive Pulmonary Disease, where in addition, the pathology is related to poor access to basic health services, contributing to greater vulnerability of the population to suffer from the disease, in addition to the location of the houses in areas close to industries dedicated to the production of sugar cane and unhealthy habits, among which are smoking and alcohol consumption [8]. Another study that documents this study is that of Gomez and Hurtado on "Health expenses of patients diagnosed with COPD, included in a home care program of an IPS of Pereira in 2016", in which the disease was observed in a higher percentage in individuals of low economic income; a large part of them lived in marginal areas and very close to industrial areas, where pollution caused by pollutants usually produces greater probability for the appearance of respiratory diseases [9].

Many authors agree that factors related to environmental pollution, especially those containing sulfur dioxide and other agents that can be inhaled through the air have a close relationship with the appearance of COPD, bronchitis and bronchial emphysema [10]. Studies on comorbidities in respiratory diseases show that COPD patients, in general, are more likely to have cardiovascular disorders, which probably makes them more susceptible to ischemic heart disease. It should be clarified that, at present, there are few data that relate chronic pulmonary dysfunction with ischemic heart disease [11].

From the pathophysiological point of view, chronic obstructive pulmonary disease is usually preventable, so it is important to join in health interventions, from primary care, in order to intervene and/or prevent the populations of different risk groups, which contributes significantly to the rehabilitation and recovery of health in the different axes: physical, social and mental to avoid the occurrence of what was evidenced in the study. Health actions aimed at prevention, promotion and intervention are important to mitigate the risk of mortality related to the disease, including the launching of mass campaigns to help reduce cigarette consumption, because according to the latest prevalence data, there is an increasing trend related to this variable that apparently has not been given sufficient importance in the field of public health [14,15].

## Conclusion

The data found in the study indicate that COPD has become a growing public health problem, which especially affects, to a large extent, the older adult population, low-income males, in whom the quality of life and life expectancy deteriorate enormously, and in whom the most prevalent comorbidities are ischemic heart disease, arterial hypertension, diabetes, thyroid disorders, and in whom habits related to exaggerated cigarette consumption and food cooking techniques, in addition to exposure to pollutants, constitute the most prevalent comorbidities. The most prevalent comorbidities are ischemic heart disease, arterial hypertension, diabetes, thyroid disorders, and habits related to exaggerated cigarette smoking and food cooking techniques, in addition to exposure to contaminating agents, as the most relevant risk factors in the population studied. Health professionals should be committed to the control of the disease, since this population is at the highest risk of presenting complications and the implementation of preventive, intervention and research strategies are essential to reduce the risks.

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**How to cite this article:** Alghaberi, Jameel. "Epidemiological Profile of Chronic Obstructive Pulmonary Disease in an Elderly Population in the Municipality of Caloto, Cauca." *Clin Schizophr Relat Psychoses* 15 (2021) : 310.