

Knowledge and awareness of chronic bronchitis and its oral manifestation among dental students and practitioners

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ABSTRACT

Chronic bronchitis (CB) is an inflammatory disease and is characterized by bronchial tube irritation. The bronchial tube irritation can result in the accumulation of mucus. CB is a part of chronic obstructive pulmonary disease, causing blockage of airflow and thereby problems in breathing. Cigarette smoking is of utmost importance in causing CB. Besides pollution of air and the working environment can also play a key role. The study aimed to assess and create the awareness about CB among dental students and practitioners. A cross-sectional questionnaire survey was conducted among dental students utilizing an online review entry called "Google forms." A total of 100 people were assessed using a structured questionnaire comprising 15 questions. The analysis of the result was done using the SPSS software of version 23. It has been shown that 78% of them are aware of CB. 75% of them responded that passive smokers were mostly affected by CB. Within the study limits, it was found that males who participated had increased awareness when compared to the females. The survey results showed that most of the participants were aware about CB but not its clinical features, oral manifestations, diagnosis, and treatment.

Key words: Awareness, chronic bronchitis, innovative technique, knowledge, novel method, occupational hazards, smokers

INTRODUCTION

Worldwide, chronic obstructive pulmonary disease (COPD) is the fourth leading cause of death, and it was expected to overtake diabetes by 2021. According to the WHO, worldwide, COPD causes 2.74 million deaths worldwide,

which is 5% of all deaths. Smoking is responsible for about 90% of all deaths in this population.^[1] This indicates that smokers have a high chance of developing COPD over the course of their lives.^[2] The primary cause of this much higher mortality rate is a global ignorance of the disease. COPD is a disease that progresses progressively and is normally quiet initially, so by the time people realize the magnitude of the disease's risk, they have lost 50% of their lung capacity.^[3] People who are aware of the disease ahead of time will take precautions and improve their lives by avoiding diseases such as COPD. As a result, it is important to track COPD disease awareness among the people and educate them about the disease.^[4]

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Furthermore, it is important to understand the causes that cause people to smoke or that prevent people from quitting smoking.^[5] As a result, taking preventive measures against these factors will help to minimize the smoking consumption in the future.^[6] It includes several clinical complications characterized by fast lung function decline, elevated airflow obstruction risk in smokers, susceptibility to decrease infection of respiratory tract, greater frequency of exacerbation, and mortality.^[7] In chronic bronchitis (CB), goblet cells increasingly produce and secrete mucus, which worsen the obstruction of airflow by luminal obstruction of small airways and alteration of airway surface tension predisposing to collapse and remodeling of the epithelium.^[8]

In spite of its clinical importance, the knowledge about the pathophysiology of CB and hyperplasia of goblet cells in COPD is limited, also there are less treatment options. Moreover, it is increasingly becoming evident that the classic COPD spectrum associated with emphysema on one end and CB on the other end, the majority of the patients lie in the middle.^[9] It is now apparent that several patients with chronic emphysema may develop CB, and pathology of small airways can worsen clinical outcomes, leading to greater mortality as well as lower regaining of lung function after a lung volume reduction surgery.^[10] However, recently, an increased understanding about the importance of CB as a phenotype to recognize patients with a positive response to therapy has been explained.^[11] Our research and knowledge have resulted in high-quality publications from our team.^[12-26]

The study aimed to assess and create the awareness of CB and its oral manifestations among dental students and practitioners.

MATERIALS AND METHODS

Sample selection

A sum of 100 students were selected randomly as the participants from the university. The age of the participants ranges between 18 and 70 years of age. The survey was among dental students and practitioners.

Inclusion and exclusion criteria

Inclusion criterion set was the age group of 18–70 years who are dental college students and practitioners. Exclusion criterion: Students except dental profession all are excluded from the study. Random sampling method was used for the study.

Data collection and tabulation

The questionnaire was designed and circulated using the Google forms. It consisted of about 15 questions based on the awareness of CB and its oral manifestations among dental students. The responses of the questionnaire were represented in Excel sheets and then tabulated and

the question comparison was done. The results were represented as bar graphs.

Statistical analysis

The statistical software used was IBM SPSS Version 23 (IBM, India). The test used is Chi-square test (*P* value) and descriptive analysis was done.

RESULTS

Fifty-three percent of the participants were undergraduate dental students, 25% were postgraduate dental students, and 22% were the practitioners [Figure 1]. Nearly 78% of the dental students were aware of CB, whereas 22% were unaware [Figure 2]. About 75% of them answered that most of the people affected with CB were passive smokers and 25% of them answered that active smokers are the most affected [Figure 3]. About 71% of them responded that exposure to tobacco smoke, occupational hazards, and environmental pollutants are the most significant risk factors, 15% of them answered that tobacco chewing are the risk factors, 7% of them answered that consumption of alcohol is the most significant risk factor, and 7% of them answered that eating unhealthy food [Figure 4]. 71% of them answered that forced expiratory volume in 1 s/forced vital capacity (FEV1/FVC) <70% is the diagnostic criteria for test for obstruction in respiratory function for CB, 16% of them answered that all the three methods such as FEV1 <70%, FVC <70% and FEV1/FVC <70% are the diagnostic criteria, 7% of them answered that FEV1 <70% is the diagnostic criteria and 6% of them answered that FVC <70% is the diagnostic criteria for the test for obstruction in respiratory function for CB [Figure 5]. About 77% of the participants answered that bronchodilator reversibility test was

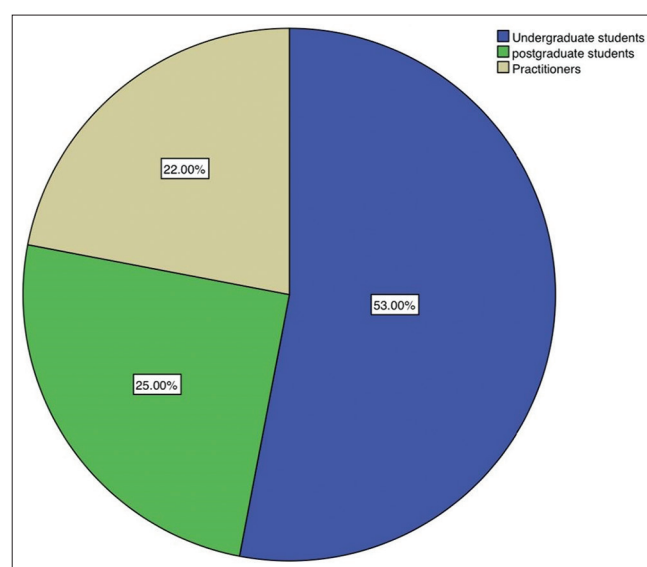


Figure 1: Shows that 53% of the participants were undergraduate dental students (blue), 25% were postgraduate dental students (green) and 22% were the practitioners (cream)

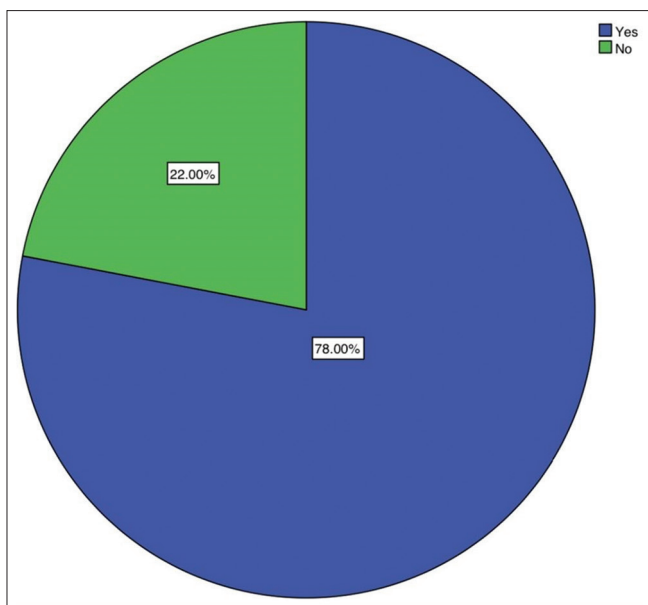


Figure 2: Shows that 78% (blue) of the dental students were aware of chronic bronchitis whereas 22% (green) were unaware

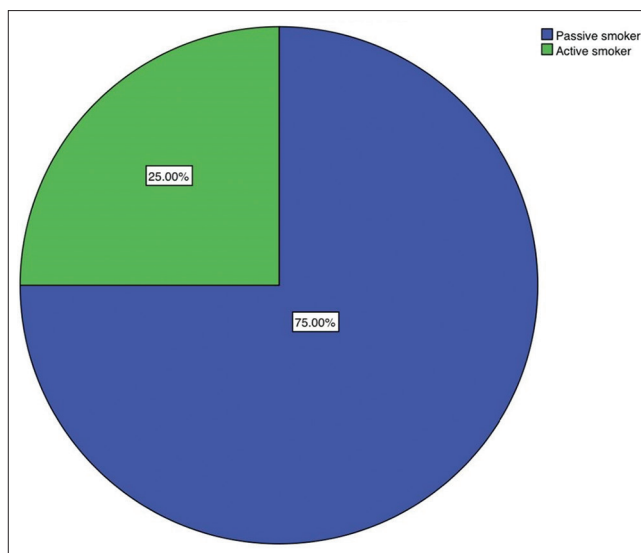


Figure 3: Shows whether passive or active smokers are affected with chronic bronchitis

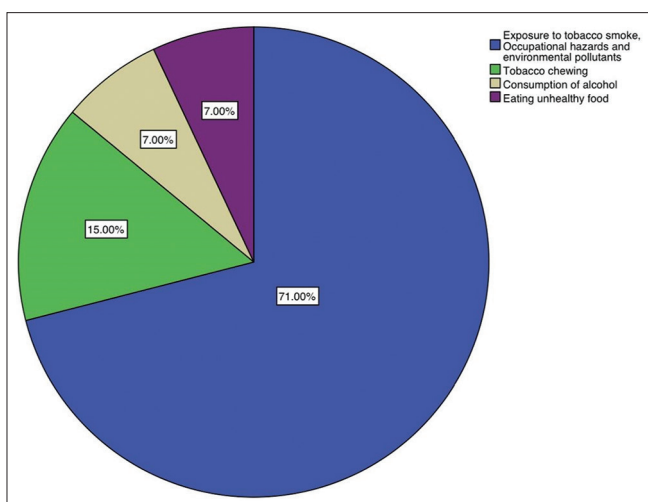


Figure 4: Shows the most significant risk factors for CD

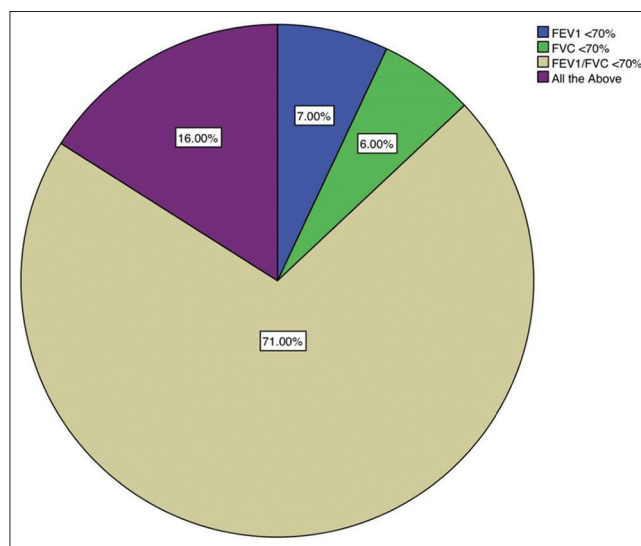


Figure 5: Shows which is the diagnostic criteria for test for obstruction in respiratory function for CB. CB: Chronic bronchitis

performed first after finding an obstruction in pulmonary function test, 13% of them answered that the bronchial provocation test, 6% of them answered that chest X-ray were the test, and 4% of them answered that complete blood analysis is performed first after finding an obstruction in pulmonary function test [Figure 6]. 55% of the respondents answered that quitting smoking and avoiding risk factors is the main intervention for CB, 16% of them answered that giving basic information of the disease and oxygen treatment and 13% of them answered that prevention and early recognition [Figure 7]. 44%, 25%, and 9% of the undergraduate students, postgraduate students, and practitioners, respectively, are aware of the disease, whereas 9% and 13% of undergraduates and practitioners were unaware, but it is statistically insignificant [Figure 8]. 36%,

13%, and 22% of undergraduate students, postgraduate students, and practitioners, respectively, answered that exposure to tobacco smoke, occupational hazards, and environmental pollutants are the most significant risk factor but 15% of the undergraduate students answered that tobacco chewing, 2% and 5% of undergraduates, and post-graduates, respectively, answered that consumption of alcohol is the risk factor, whereas 7% of the postgraduate students answered that eating unhealthy food can be the risk factor for CB, but it is statistically insignificant [Figure 9]. 28%, 15%, and 12% of undergraduate students, postgraduate students, and practitioners, respectively, answered that quitting smoking and to avoid risk factors is the best intervention for CB, 6%, 10% of undergraduate students, and postgraduate students, respectively, responded that giving

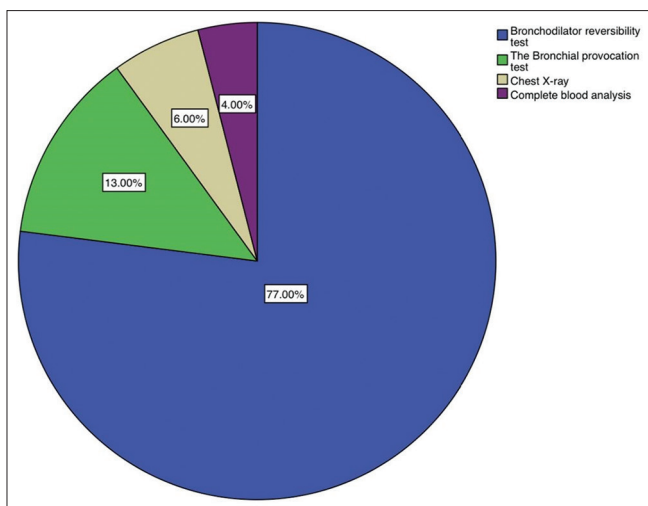


Figure 6: Shows which test was performed first after finding an obstruction in pulmonary function

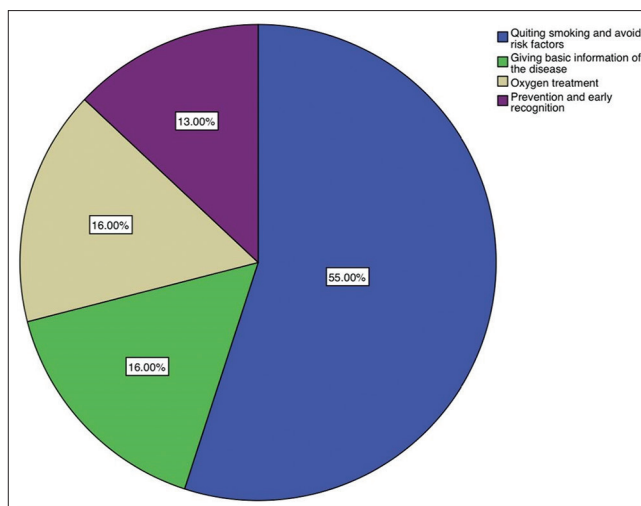


Figure 7: Shows the main intervention for chronic bronchitis

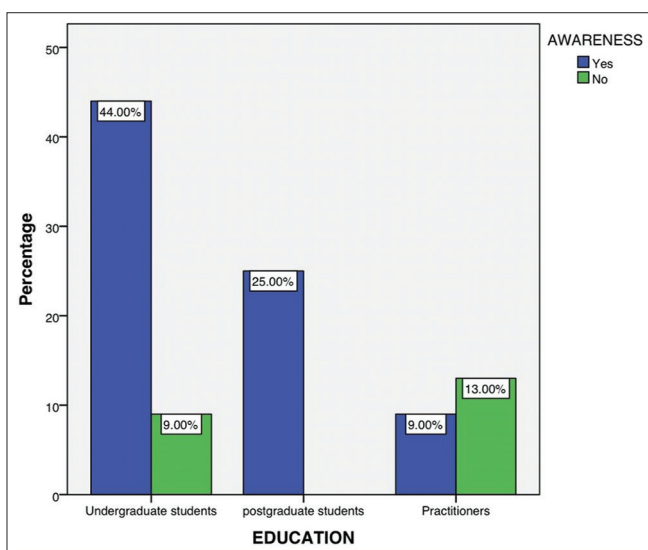


Figure 8: Represents the association between educational status of the participants and Awareness of dental students among chronic bronchitis. X-axis represents the educational status of the dental students participating, whereas Y-axis represents the awareness of the dentals students among chronic bronchitis. $P = 25.467 (>0.05)$. Hence not significant statistically

the basic information can be the intervention, 6%, and 10% of undergraduates and practitioner, respectively, responded that oxygen treatment can be the intervention, whereas 13% of the undergraduate students responded that prevention and early recognition of the disease can be the intervention for CB, but it is statistically insignificant [Figure 10].

DISCUSSION

In this cross-sectional study, we found that awareness of CB had increased among dental students. Furthermore, CB subjects have substantially more exacerbations than COPD CB subjects during follow-up.^[27] CB subjects

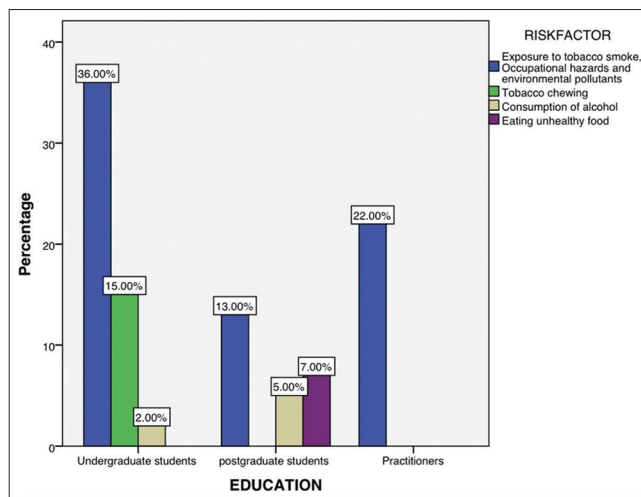


Figure 9: Shows the association of educational status of the participants with the most significant risk factor responded by the participants. X-axis indicates the educational status of the dental students participating, whereas Y-axis indicates the most significant risk factor responded by the participants. $P = 46.326 (>0.05)$. Hence not significant statistically

have substantially more exacerbations than COPD CB subjects during follow-up. Furthermore, this research shows that CB people are more likely to die, particularly from COPD-related pulmonary death. CB was found to be prevalent in 17.7% of COPD patients. 22.6% of the participants had chronic phlegm, whether or not they still had a chronic cough.

Other studies^[28] have found a wide range of prevalence of CB among COPD patients, with 7.4% being the highest. To assess CB, many variants of the classical definition have been used. The Latin American Project for Research in Pulmonary Obstruction study (PLATINO)^[29] states that the prevalence is doubled in a less stringent definition. Moreover, in patient-based studies, an increased prevalence

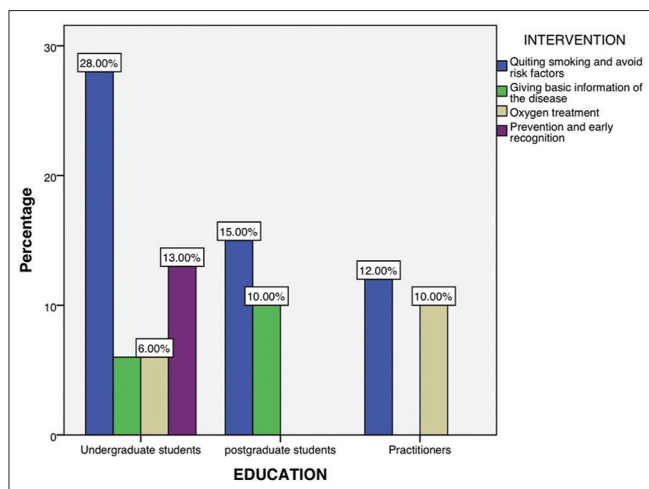


Figure 10: Shows the association of educational status of the participants and the most significant risk factor responded by the participants. X-axis indicates the educational status of the dental students participating whereas Y-axis indicates the most significant risk factor responded by the participants. $P = 41.588 (>0.05)$. Hence statistically insignificant

is reported, in which patients having mild COPD is involved, whereas in the Rotterdam study, which^[30] a higher proportion of patients with mild COPD was involved. The geographical location and smoking are the other factors which can alter the prevalence of CB in COPD patients. The study by Lu *et al.*^[31] found that people in a rural area are more prone to CB.

According to research on pollution exposure in India, the majority of people spend the majority of their time exposed to pollution and other chemicals, smoke, and dust. According to these research, pollution causes approximately 400–550 thousand premature deaths in India each year, which is a very concerning stage for the country's population. Our current study also revealed that the majority of the individuals spend the most of their time dealing with pollution, which is known to play a significant influence in the progression of disease like COPD. Smoking has also been shown to have deleterious impacts on the development of COPD in several studies. Based on a study conducted by Lindberg *et al.*,^[32] smoking is one of the key factors causing COPD, with over half of smokers developing COPD over the course of their lives.

The findings of SLAMA revealed that the leading cause of death behind COPD is smoking.^[33] In our study, it was evidenced that almost three quarters of the participants were aware that smoking is a principal cause of COPD. However, previous studies^[33] established that in developing countries such as India and China, where male smokers are higher than female smokers, and the male smokers are more prone to COPD. This fact is not in accordance with our results. Because as per our findings, more than half of the male smokers were not aware that

in Asia, male COPD cases are greater than the female cases.^[34]

This is a cross-sectional study including a small population and not including information regarding genetic disorder, races, and ethnic groups. In future, the study can be extended with a higher population. There is an urgent need to create the awareness among individuals about the complications associated with CB.

CONCLUSION

Within the study limits, it can be concluded that males are more aware of CB than females. The survey results showed that the most of the surveyed subjects were aware about CB but not its clinical features, oral manifestations, diagnosis, and treatment. Creating awareness plays a key role in providing the best treatment and early diagnosis of a disorder. Hence, this survey helped in creating the awareness about CB among dental students. Other studies can have different outcomes as the result can vary according to the inclusion and exclusion criteria. The present study extended in future with a larger population.

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Conflicts of interest

There are no conflicts of interest.

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