Introduction

According to the Global burden of Disease Studies in 2015, COPD and asthma ranked among the top 20 conditions causing disability globally and were ranked 8th and 22nd, respectively, as causes of disability burden when measured by disability-adjusted life years (41).

Lung India carries a study on cost of asthma treatment in a private healthcare facility in South India, where the annual cost of asthma treatment has been calculated to be 18,732 INR. The economic burden of asthma can be decreased with access to preventive care, early treatment, and use of primary care health providers instead of emergency department visits (3).

The cause for the rise in asthma incidence may be attributed to many factors like environment, occupation, lifestyle, etc. Traditional teaching with chalk and black board is still used in many schools and colleges in developing countries like India. Teachers are exposed to chalk dust in the class rooms as they are in close proximity to the black board. Chalk dust is a major source of particulate matter in the class rooms. Chalk dust particle size decide the responsive reaction in the respiratory tract and the damage (9).

> 10-15µm in diameter - settle in Upper airway, stimulates sensory nerve reflexes cause inflammation, mucus production, cough and sneezing in an effort to clear the lungs of the particles (≤10µm) are deposited in the alveoli (8).

Our aim of doing this project was to capture the cohort contributed by occupational exposure to chalk for respiratory diseases and to suggest the preventive methods to reduce this contribution to the GBD due to respiratory illnesses.

Materials & Methods

1. School teachers from four different schools (3 urban and 1 rural) were recruited. All the teachers working in these schools were taken into the study. After explaining the purpose of evaluation they were administered the modified MRC Respiratory questionnaire to capture the experience in teaching / number of hours of teaching / days of travel to school / H/O Atopy in the family.

2. They were clinically examined by a physician to find the status of the lungs and other systems.

3. Spirometry was performed as per ATS/ERS Protocols for SPIROMETRY 1986 using “Easy1” PC spirometer made by Meditech AG, Zurich, Switzerland that uses ultrasonic sensor.

4. Blood was drawn for Absolute Eosinophil Count analysis.

5. Chalk pieces were collected from the schools – for Chemical Analysis

6. Results were analyzed using R statistical package

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