STUDY ON RESPIRATORY SYMPTOMS AND VENTILATORY FUNCTION PARAMETERS AMONG SCHOOL TEACHERS WHO ARE EXPOSED TO CHALK DUST

Sajeev S; Mahdoom BWMA, Lankatilake K
Department of Community Medicine,
Faculty of Medicine, Colombo
INTRODUCTION

- Pneumoconiosis
  - Is a range of lung diseases caused by inhalation of organic and non-organic dust of occupational and environmental origin.
  - Dust cause inflammation of the alveoli and interstitium and gradually damage the lungs.

- Bronchitis
  - Is an inflammation of the bronchial tubes.
  - Breathing various fumes and dusts over a long period of time may also cause chronic bronchitis.

- School teachers are exposed to chalk dust while they are using blackboard and chalk for teaching.
OBJECTIVES

- To identify the prevalence of respiratory symptoms among teachers exposed to chalk dust in selected government schools in Colombo and Kalutara districts in the Western Province of Sri Lanka.

- To identify the status of ventilatory function parameters among the teachers exposed to chalk dust those selected government schools in Colombo and Kalutara districts in the Western Province of Sri Lanka.
METHODOLOGY

- **Study design** - Descriptive cross-sectional study

- **Study population**
  - Teachers (>5 years experience) from two selected government schools in Colombo and Kalutara districts
  - Control group of bank officers from a private bank in Colombo district.

- **Study Instrument**
  - Interviewer administered Questionnaire (Modified American Thoracic Society Respiratory Questionnaire)
  - Portable Vitelograph and Peak Flow Meter used to measure the ventilatory functions.
METHODOLOGY

School teachers and control group is matched according to the sex.

Analysis

- SPSS 21 program used for data analysis
- Stratification test was done to exclude the effects of differences in the age and BMI.
## RESULTS: RESPIRATORY SYMPTOMS

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Teachers</th>
<th>Control</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cough</td>
<td>77 (53.4%)</td>
<td>18 (12.08%)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Prolonged cough &gt; 3 months</td>
<td>18 (11.1%)</td>
<td>00</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Wheezing attacks</td>
<td>42 (29.1%)</td>
<td>04 (2.68%)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Breathless on exertion</td>
<td>45 (31.25%)</td>
<td>06 (4.25%)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Acute bronchitis</td>
<td>18 (12.5%)</td>
<td>06 (4%)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>08 (5.55%)</td>
<td>06 (4.02%)</td>
<td>0.54</td>
</tr>
<tr>
<td>Parameter</td>
<td>Teacher</td>
<td>Control</td>
<td>P value</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------</td>
<td>---------------</td>
<td>---------</td>
</tr>
<tr>
<td>PEFR (Max value)</td>
<td>296.53 L/min (SD = 76.63)</td>
<td>337.52 L/min (SD = 32.44)</td>
<td>P&lt; 0.01</td>
</tr>
<tr>
<td>FVC</td>
<td>1.91 L</td>
<td>2.37L</td>
<td>P&lt; 0.01</td>
</tr>
<tr>
<td>FEV1</td>
<td>1.49L</td>
<td>2.00L</td>
<td>P&lt;0.01</td>
</tr>
<tr>
<td>FEV1/FVC</td>
<td>77.87%</td>
<td>84.42%</td>
<td>P&lt;0.01</td>
</tr>
</tbody>
</table>
CONCLUSION

- Adverse respiratory symptoms such as cough, wheezing attacks, breathlessness and episodes of acute bronchitis are common in teachers.

- Respiratory function parameters such as PEFR, FVC, FEV1 and FEV1/FVC are affected among the teachers.

- Above symptoms and changes in the ventilatory parameters in teachers, probably caused by the exposure to chalk dust.
CONCLUSION

- Chalk dust exposure increases the frequency of respiratory symptoms and changes in the ventilator parameters among teachers.

- Chalk dust exposure play a role in the progressive lung damage and may be one of the causes for pneumoconiosis or occupational lung diseases.

- Further research studies are needed to identify specifically the type of lung damage caused by chalk dust exposure.
THANK YOU