

Original Research Article

A cross sectional study on respiratory related morbidities at cotton factories in Hyderabad, Telangana

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Received: 15 February 2017

Accepted: 08 March 2017

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ABSTRACT

Background: In the last few years, globalization and rapid industrial growth lead to the emergence of occupational health issues. Byssinosis is a form of reactive airway disease, caused by exposure to cotton dust in inadequately ventilated working conditions. Cotton dust and fibres has been associated with deteriorating the respiratory function. Studies report that byssinosis is to an extent of 40% among textile workers. There were very few studies in Telangana. Hence, this study was conducted with an objective to identify the magnitude of respiratory related morbidities among workers in cotton factories.

Methods: A cross sectional study was conducted during October to December 2013 in the randomly chosen two cotton factories in the outskirts of Hyderabad. All the employees of the cotton factories were included in the study. Information about socio demographic characteristics, general health condition was collected. A highly validated Medical Research Council (MRC) UK Respiratory questionnaire was used to collect data on respiratory morbidities. Data was entered in MS Excel and analysed using Epi info 7.

Results: A total of 159 employees were participated in the study. Males were 9.4%, females were 90.6%. Mean age was 34.25 (± 10). It was noted that 3.8% had history of asthma, 2% pneumonia, 13.2% hypertension and 3.8% had diabetes. As per MRC dyspnoea scale, in the last one month, grade 2 dyspnoea was seen in 32 % and grade 3 seen in 17%. Around 64 % has been working for more than 5 years and 36 % has been working for less than 5 years in the cotton factory. It was found that the duration of exposure is statistically significant with grade 2 dyspnoea in participants working in cotton factories.

Conclusions: In the present study it can be inferred that the employees in cotton factories are prone to occupational hazards. Inhalation of cotton dust resulting in respiratory morbidities. Increased morbidities are seen in employees with more duration of exposure.

Keywords: Respiratory, Morbidities, Byssinosis, Cotton, Factory

INTRODUCTION

In India, 20 million workers are involved in the textile manufacturing. India being a developing nation is faced with traditional public health problems like communicable diseases, malnutrition, poor environmental sanitation and inadequate medical care. However, in the

last few years, Globalization and rapid industrial growth lead to the emergence of occupational health issues.¹

Byssinosis is a form of reactive airway disease, caused by exposure to cotton dust in inadequately ventilated working conditions. Studies report that byssinosis is to an extent of 40% among textile workers.² Cotton dust and fibres has been associated with deteriorating the respiratory function.³

Till a national campaign against dust-related lung diseases was launched by a voluntary agency in Ahmedabad in 1992, government records for the 150-year-old textile industry showed no cases of byssinosis-the disabling occupational disease caused by cotton dust.

Byssinosis is an 'Occupational respiratory disorder' and was first recognized in the 17th century. Byssinosis is a form of reactive airway disease, also called "Monday fever", caused by exposure to cotton dust in inadequately ventilated working environments.

It can be prevented by reducing dust levels in the factory, some people may have to change jobs to avoid further exposure, using face masks, and other measures can reduce the risk to develop the disease. Avoid smoking, during work in textile manufacturing, bronchodilators help to the relieve symptoms. Physical exercise programs, breathing exercises, and patient education programs are often very helpful for people with a chronic lung disease.⁴

Previous studies show that there is increased risk of respiratory related morbidity in a cotton factory. However, there are few epidemiological studies from India that have assessed the magnitude or the risk factors associated with byssinosis.⁵ There were very few studies in Telangana hence this study was conducted with an objective to identify the magnitude of respiratory related morbidities among workers in cotton factories.

METHODS

This Cross sectional study conducted on November and December 2013 which included factory visits, preliminary survey, data collection, analysis and report writing. Study population were randomly chosen in two cotton factories in the outskirts of Hyderabad

Inclusion criteria

All the Employees of Cotton Factory who are willing to participate in the study and are able to communicate in Telugu, English or Hindi languages.

Exclusion criteria

Employees who are not eligible for inclusion criteria were excluded

Ethical considerations

An Ethical clearance from Institutional Ethical Review Board has been obtained for this Study. Informed Consent has been taken from managing director of the factories of participants.

Equipment used

Questionnaire based on the MRC (UK) respiratory questionnaire which is extensively validated in Screening for Respiratory Related morbidity was used.

Data collection

Participants from two cotton industries were questioned in conscious coherent state. Basic Demographic Information and MRC (UK) Respiratory Questionnaire is used to identify any Respiratory related morbidities.

Statistical analysis

Data Entry has been done in MS Excel. Analysis was done using SPSS (version 17). Frequencies of all morbidities were analysed.

RESULTS

A total of 159 employees were participated in the study. Males were 9.4%, females were 90.6%. Mean age was 34.25 (± 10). It was noted that 3.8% had history of asthma, 2% pneumonia, 13.2% hypertension and 3.8% had diabetes. About 15% had difficulty in breathing and wheeze during sleep. Smoking was present in 3.8% with 1.9% of them smoked atleast one cigarette per day as in Table 1.

Table 1: Distribution of participants as per demographic and morbidity characteristics (N=156).

Variables	Percentage
Gender	
Males	9.4
Females	90.6
Mean Age	34.5(± 10)
Pre-existing conditions*	
Asthma	3.8
Pneumonia	2
Hypertension	13.2
Diabetes mellitus	3.8
Difficulty in Breathing and wheeze during sleep	
Present	15
Absent	85
Smoking	
Present	3.8
Absent	96.2

*one participant may have more than one disease

As per MRC dyspnoea scale, in the last one month, grade 2 dyspnoea was seen in 32 % and grade 3 seen in 17% as shown in Figure 1.

Around 64 % has been working for more than 5 years and 36 % has been working for less than 5 years in the cotton factory as given in Figure 2.

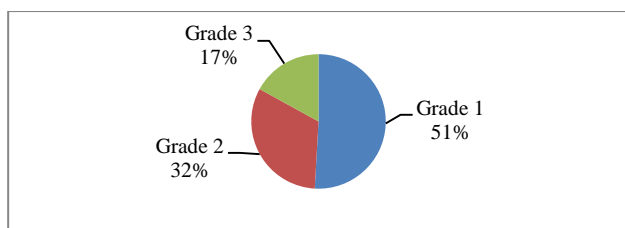


Figure 1: Percentage of grades of dyspnoea as per UK MRC scale in participants working in cotton industries.

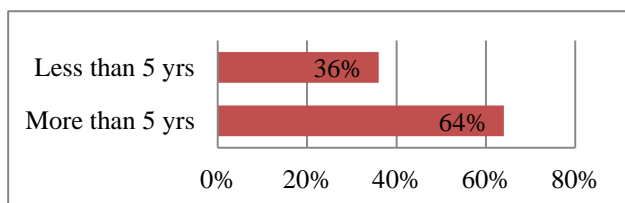


Figure 2: Percentage depicting years of exposure in cotton industries.

It was found that the duration of exposure is statistically significant with grade 2 dyspnoea in participants working in cotton factories as shown in Table 2.

Table 2: Distribution of participants as per years of exposure and grade 2 dyspnoea.

Duration of Exposure	Grade 2 dyspnoea present	Grade 2 dyspnoea absent	Total (N=159)
More than 5 years	40 (78 %)	62 (56 %)	102 (64%)
Less than 5 years	11 (22 %)	47 (44 %)	58 (36%)
Total	51 (100 %)	109 (100 %)	159 (100%)

DISCUSSION

Byssinosis is a form of reactive airway disease, caused by exposure to cotton dust in inadequately ventilated working conditions. Cotton dust and fibres has been associated with deteriorating the respiratory function.

Present cross sectional study was conducted in cotton factories in the outskirts of Hyderabad, A total of 159 employees were participated in the study. Males were 9.4%, females were 90.6%. Mean age was 34.25 (± 10).

In Present study, 64% of all participants are having more than 5 years of exposure, whereas 50% found in similar study conducted by Yerpude and Jogdand.⁶ Duration of Exposure is statistically significant with grade 2 dyspnoea, similar finding was found in the study conducted by Jaiswal.³

In the present study, associated risk factors like smoking is present in 3.8%, similar findings came in the study conducted by Mishra et al.⁵

A study done by Logamurthy et al, indicated that apart from occupation related problem (byssinosis) prevalence of other morbid conditions like diabetes, cardiovascular problems were high, whereas in present study, diabetes is seen in 3.8 % and hypertension in 13.2%.⁷

The results of our study confirm the findings of some previous studies. Employees should be encouraged to use protective measures such as face-masks and prevent respiratory related morbidities.

CONCLUSION

In the present study it can be inferred that the employees of cotton factories are prone to occupational hazards. Inhalation of cotton dust resulting in respiratory related morbidities. Increased morbidities are seen in employees with more duration of exposure. Reducing dust levels in the factories by providing proper ventilation, using face masks, avoiding smoking can reduce the risk of developing respiratory related morbidities.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Mummadi MK, Kusneniwar GN. A cross sectional study on respiratory related morbidities at cotton factories in Hyderabad, Telangana. *Int J Community Med Public Health* 2017;4:959-61.