

ASSESSMENT OF THE PROBLEMS OF WORKPLACE HYGIENE IN COTTON PROCESSING ENTERPRISES

Ibotova M.O

Bukhara State Medical Institute

Anotation: *Respiratory diseases caused by cotton dust are increasing dramatically all over the world, especially in developing countries where the problem is serious. Respiratory symptoms such as cough, phlegm, wheezing, shortness of breath, chest tightness, chronic bronchitis and byssinosis are common among workers exposed to cotton dust. However, the magnitude of the problem is not well known and information about risk factors is limited. Therefore, this study was aimed at assessing the prevalence of respiratory symptoms and associated factors.*

Keywords: *workmen, cotton processing, technical means, length of service, health status, morbidity*

Anotatsiya: *Paxta changidan kelib chiqadigan nafas yo'llari kasalliklari butun dunyoda, ayniqsa muammo jiddiy bo'lgan rivojlanayotgan mamlakatlarda keskin ko'paymoqda. Paxta changiga duchor bo'lgan ishchilar orasida yo'tal, balg'am, xirillash, nafas qisilishi, ko'krak qafasi qisilishi, surunkali bronxit va byssinoz kabi nafas olish belgilari keng tarqalgan. Biroq, muammoning kattaligi yaxshi ma'lum emas va xavf omillari haqida ma'lumot cheklangan. Shuning uchun ushbu tadqiqot nafas olish belgilari va ular bilan bog'liq omillarning tarqalishini baholashga qaratilgan edi.*

Kalit so'zlar: *ishchilar, paxtani qayta ishlash, texnik vositalar, ish staji, sog'lig'i, kasallanishi*

The ginning, spinning and weaving process of textile industry generate large amount of cotton dust. The dust consists of different size and type of particles, such as ground-up plant matter, fiber, bacteria, fungi, soil, pesticides, non-cotton matter, and other contaminants [4, 5]. Exposure to the cotton dust led to respiratory problems, such as cough, phlegm, wheezing, shortness of breath, chest tightness, chronic bronchitis, and byssinosis [6,7,8]. Exposure to cotton dust has also profound effect on pulmonary function [8]. Byssinosis is a chronic respiratory disease that is seen among workers exposed to cotton dust [9, 10]. The type and concentration of dust, duration of exposure and genetic factors are interplaying the diseases of the respiratory system induced by occupational dusts [1, 2]. Moreover, working in the department where there is higher exposure of cotton dust such as spinning and weaving and being aged were found to be the risk factors for respiratory problems related to cotton dust [10]. Breathing problems associated with cotton dust begin to decline as a result of the stringent measures taken by employers and workers in developed countries. However, problems in developing countries remain very neglected [3, 4] and there is no health information.

The textile industry is one of the major manufacturing industries established in developed and developing countries [5]. The cotton industry plays an important role in developing countries. The cotton sector is expanding, taking into account the volume of cotton production and the number of people employed in this area [10]. The textile industry or cotton sector is the main economic instrument that attracts many workers [6]. However, workers are at risk for breathing problems associated with cotton dust. But the extent of the problem is not well known and is known to indicate this type of health problem and its risk factors. Therefore, this study was conducted to assess cotton dust exposure, self-reported respiratory symptoms and associated factors among textile factory workers.

METHODS

A Comparative cross-sectional study design was employed. A total of 400 (270 exposed and 130 unexposed) participants were included in the study. Stratified and simple random sampling techniques were used to select exposed and unexposed groups to cotton dust respectively. Multivariable binary logistic regression analyses was performed to identify variables associated with respiratory symptoms and adjusted odds ratio was used to determine the strength of associations. The weaving section includes various activities such as wrapping, twisting, gluing and weaving. Then a cloth is obtained from chain threads arranged vertically and weaving threads arranged horizontally. The fabrics are then placed in storage.

For the unknown group, the source residents were employees of the General Administration of textile factories and external workers in informal sectors located in the environment (200-500 meters from the technical department of the textile factory) with at least 1 year of work. Those with a history of smoking, asthma or COPD were excluded from the unspecified group.

SAMPLING PROCEDURES

Study subjects from the exposed groups were selected using stratified sampling technique, assuming that workers in different departments would exhibit different level of exposure to cotton dust. Study subjects were allocated to each stratum proportionally and selected by simple random sampling. Whereas, the unexposed groups were selected by simple random sampling technique using their salary payment roster sheet, which was obtained from their respective offices.

MEASUREMENT OF VARIABLES

Respiratory symptoms, the primary outcome variable of the study was determined by the presence of one or more respiratory symptoms such as, cough, phlegm, wheezing, dyspnea, chest pain and breathlessness among workers.

Ventilation condition, the ventilation condition of the working units was reported as adequate if the working unit furnished with functional mechanical ventilation system (ventilator, Local exhaust ventilation system) and natural ventilation systems (doors, windows and any other openings). Lack of obstruction of air flow in the unit also

considered and if the data collector senses sufficient air circulation in the working unit; fair if there is functional mechanical ventilation system and natural systems, but obstructed air flow due to poor design of the working units; and inadequate if the unit lacks functional mechanical and natural ventilation system, and if the air flow obstructed by adjacent buildings and poor layout of the unit.

WORKPLACE CONDITION

The overall conditions of employees and the working environment were observed to see workers exposure to cotton dust. Accordingly, poor indoor air quality at working environment was observed. Working environments were characterized with excessive dust and there was no a documented functioning housekeeping program. Moreover, most of the data collectors were experienced sudden sneezing upon entering the working unit in the textile industries and it was observed that worker's eye brows, hair, nostrils and cloths were covered with dust particle.

Although, natural ventilation systems (doors, windows and other opening) were present, the air flow in different working units was obstructed due to poor design and layout of the working units. The working units lacked functional mechanical ventilation system. In addition, working units were poorly illuminated. We observed that all the working units had no warning signs and safety instruction procedures. Safety procedures were not posted indicating whether employees cotton dust exposure is kept at the accepted levels. None of the plants practiced wet mopping to minimize cotton dust exposure. We also found that all of the workers did not use respirator, face shields, and other PPE to minimize cotton dust exposure.

RESULTS

A total of 400 questionnaires (270 exposed and 130 unexposed) were distributed, 390 (260 exposed and 130 unexposed) were completed and the applied questionnaire was analyzed, which provides a response rate of 95.1%. Two-thirds, 165 (60.6%) exposed and half, 60 (49.4%) unopened participants were men. The average age of affected and unaffected respondents was 28.24 (7.58) and 29.79 years.

RESPIRATORY SYMPTOMS

This study showed that the prevalence of self-reported cotton dust warning respiratory symptoms was between 47.8% (95% CI: 41.3-53.7%) and 15.3% (95% CI: 9.6-22.3%) among exposed groups. Cough (28.1%), sputum (19.6%), chest tension (30%) and shortness of breath (21.11%) were common respiratory symptoms reported by exposed groups. Significant differences in respiratory symptoms were observed between affected and unaffected participants, and there were more signs of respiratory irritation among affected workers than in unaffected participants.

In the current study, the prevalence of self reported respiratory symptoms was higher among participants exposed to cotton dust (47.8%) than unexposed respondents (15.3%). This might be due to the fact that exposure to dust from cotton during weaving,

spinning, ginning and packaging are higher among textile workers. Hence, occupational exposure to cotton dust has been linked with respiratory disorders.

According to this study, male respondents had higher odds of developing respiratory symptoms. This finding is supported by study done in Shanghai and Lancashire cotton industries indicating that male textile workers are at higher risk of having respiratory symptoms than female textile workers [10, 11]. The difference in respiratory symptoms might be explained due to the fact that male workers have longer service year in this study and have higher cumulative dust exposure. Other possible reason is, female workers are usually assigned in less hazardous department in cotton industries [1, 2]. However, this finding is contrary to studies done in Greek [12], Denmark [13] and China [24]. Ventilation of working units was statistically associated with respiratory symptoms. Higher odds of developing respiratory symptoms were observed among workers who worked in inadequately ventilated working units. This result is not surprising because textile industries release high level of dust in working environment [10, 11] and various studies indicated that lack of ventilation in cotton industry working environment as a major factor of developing respiratory symptoms among cotton industry workers [1]. Moreover, their effects have a tendency to be more pronounced in the case of poor ventilation [13].

Lack of the Pulmonary Function Test and measurement of cotton dust concentration to strengthen the self-reported symptoms were the limitations of this study. In addition, the possibility of healthy workers effect could not be ruled out. But through observation of overall conditions of employees and working environment, excluding workers with less than 1 year of work experience and by honestly explaining the objective and significances of the study we tried to minimize the effect.

CONCLUSIONS

The prevalence of self-reported respiratory symptoms was higher among workers exposed to cotton dust than unexposed workers. Sex, service year, working department and work unit ventilation were predictor variables for respiratory symptoms. Thus, reducing exposure to dust, adequate ventilation and improving the hygiene of working departments are needed to reduce respiratory symptoms.

REFERENCES:

1. IbodovaMakhfuzaOybekovna.Ecological Problems of the Environment Under Modern Conditions. // AMALIY VA TIBBIYOT FANLARI ILMIIY JURNALI//ISSN: 2181-3464–2022. Б. 82-84
- 2.X.S.Samadova.Turli mehnat sharoitidagi omillarning inson organizmiga gigiyenik bahosi // Ta’lim fidoyilari // – 2022. – P. 8-11
- 3.Samandarovna S. K. IMPACT OF CLIMATE CHANGE ON LIFE ACTIVITIES//Neo Scientific Peer Reviewed Journal// Volume- 12 | ISSN (E): 2949-7752 | July,2023.P-31-33.

4. KH Samadova. THE IMPORTANCE OF PHYSICAL DEVELOPMENT IN A CHILD'S LIFE // International Journal of Education, Social Science & Humanities. FARS Publishers // Volume-11 | Issue-1 | 2023. P-708-712.
5. Ibotova Mahfuza Oybekqizi. Уровень Физического Здоровья И Здорового Образа Жизни Студентов. // MALIY VA TIBBIYOT FANLARI ILMIY JURNALI // ISSN: 2181-3464. P.59-62
6. SX Samandarovna., Mehnat Sharoitining Inson Organizmiga Ta'siri Sog'Lom Turmush Tarzi // AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI // ISSN: 2181-3464 C34-37
7. Samadova Khatichabegim Samandarovna. The Problem of Environmental Pollution // Vital Annex: International Journal of Novel Research in Advanced Sciences // –2022. – P. 81-85.
8. XC. Самадова., СОФЛОМ ТУРМУШ ТАРЗИ ИНСОН САЛОМАТЛИГИНИНГ АСОСИДИР // Journal of Advanced Research and Stability, Volume: 02 Issue: 09 | Sep - 2022 ISSN: 2181-2608 C198-201
9. XS Samadova. МАКТАБ YOSHIDAGI BOLALARNING JISMONIY RIVOJLANISHINING SALOMATLIKKA TA'SIRI // O'ZBEKISTONDA FANLARARO INNOVATSIYALAR VA ILMIY TADQIQOTLAR JURNALI // -2023/1/22-P. 424-427
10. Ibodova Makhfuza. SOIL ECOLOGY AND FUNCTIONS. // Journal of Advanced Research and Stability // Volume: 02 Issue: 09 | Sep - 2022 ISSN: 2181-2608 -B.177-181
11. Samadova X. Radioaktiv nurlarning organizmiga ta'siri // Science and Education. – 2022. – Т. 3. – №. 12. – С. 189-194.
12. Ибадова Махфуза Ойбековна. Шумовой Фактор Окружающей Среды: Оценка Влияния На Самочувствие Студентов. // AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI // ISSN: 2181-3464 – 2022. Б. 92-94
13. XC Самадова. Health of Preschool Children and Environmental Factors in Preschool Educational Organization of Bukhara // International Journal of Studies in Natural and Medical Sciences // Page 12-17
16. Tojiboyeva M. S. THE CONCEPT OF "INTELLIGENCE" IN UZBEK AND ENGLISH LINGUISTIC CULTURE AND LEXICAL MEANS OF CONCEPT FORMATION // Mental Enlightenment Scientific-Methodological Journal. – 2023. – С. 223-229.
17. Tojiboyeva, M. (2023). PROVERBS WITH ZOONYM COMPONENT EXPRESSING THE CONCEPT OF "IGNORANCE" IN ENGLISH AND UZBEK. Fergana State University Conference, 143.
18. Tojiboyeva M. S. Section 5. Languages of the world // The European Journal of Literature and Linguistics. – С. 49.