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Clothing practices and problems of workers engaged in cotton ginning

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Abstract
In India, textile manufacturing is one of the oldest Indian industries and about20 million workers are involved in different processes. Cotton is one of the major cash crops grown in India. After harvesting it goes under various processes until the manufacturing of a fine fabric. Ginning is the first step in this direction. A large amount of fibre dust is released during ginning and workers engaged in this process are at a great risk of exposure to various health problems due to lack of protective clothing and other preventive measures. The present study was conducted to study the existing clothing practices and health problems encountered by the workers of ginning mill. The data collected from thirty respondents engaged in cotton ginning at mills of Hisar and Panipat revealed that the respondents wear casual dresses at work place. Due to lack of protective or functional clothing and long exposure to cotton dust and high level of noise, the respondents faced different health problems viz. eye irritation, running nose, coughing, headache, hearing and breathing problems, etc.

Keywords: Clothing, practices, engaged, cotton ginning

Introduction
Cotton is the most important fibre crop not only of India but of the entire world. It provides the basic raw material (cotton fibre) to cotton textile industry. India has the largest area under cotton cultivation in the world though and is the world's third largest producer of cotton after China and the USA. About 80 per cent of the total irrigated area under cotton is in Punjab, Haryana, Gujarat and Rajasthan. Accounting for 11.91 per cent production and 6.77 per cent of hectarage, Haryana is the fifth largest producer of cotton in India. In the year 2002-03, Haryana produced 11.38 lakh bales. The state has the second highest yield of 3.4 quintals/hectare in the country next only to that of the neighbouring Punjab. In Haryana about 80 per cent of the production comes from Hissar, Sirsa and Fatehabad districts which are contiguous to the major cotton producing districts of Punjab. Bhiwani, Jind, Rohtak and Ambala are other producing districts (Mondal, 2019) [5].

Cotton ginning and pressing have been identified as a traditional industry under the unorganized sector, which functions on a seasonal basis (Siziya and Munalula, 2005). Ginning is the first mechanical process involved in processing cotton. Ginning mills separate cotton fibers from seed balls and dust particles directly from the field, the cotton seed comes to nearby gins for separation of cotton and seeds. The cotton first goes through air dryers to reduce moisture content and then through cleaning equipment to remove foreign particles. This operation actually facilitates the processing of cotton and improves the fibre quality of cotton. The cotton is then air conveyed to gin stands where revolving circular saws separate the cotton (lint) through closely spaced ribs that prevents the "cotton-seeds" from passing through. The cotton (lint) is removed from the saw teeth by air blasts or by rotating brushes.

Cotton industry workers are exposed to various hazards in different departments of textile factories, especially in the ginning, spinning and weaving sections which play an important role in the high incidence of industrial health hazards. Ginning factories discharge large amounts of cotton dust, which leads to decreased pulmonary function in the exposed subjects. Byssinosis and other related respiratory abnormalities are well-known occupational respiratory diseases in textile mill workers caused by cotton dust pollution (Jannet and Jeyanthi, 2006) [4]. Thus keeping in view the problems faced by workers in cotton ginning the present study was conducted to identify the problems encountered by the workers engaged in cotton ginning.

Methodology: The present study was planned to identify the occupational health hazards and existing dress patterns of farm workers engaged in ginning of cotton. The methodology adopted for the study is presented under the following headings.

i. **Locale and sample selection:** Cotton ginning mill located at Hisar and Panipat districts of Haryana state were selected for the study. Total thirty respondents (25 male and 05 female) were interviewed to elicit the information on health hazards among the workers.

ii. **Tools used:** Duly pretested interview schedule developed for this purpose was used and the information was collected by interview and observation method. The information regarding personal profile of the respondents, type of activity performed, existing clothing practices, health problems encountered during work and occupational dress pattern of workers was gathered by administering the developed interview schedule.

Results and Discussion

Table 1: Personal profile of ginning mill workers n=30

Variables	Frequency	Percentage
Age (Years)		
21- 30	15	50.00
31-40	09	30.00
Above 40	06	20.00
Education		
Primary	07	23.30
Middle	18	60.00
Matriculation	05	16.70
Sex		
Male	25	83.33
Female	05	16.67
Family Type		
Nuclear	17	56.70
Joint	13	14.40

Personal profile: The data incorporated in Table 1 show that maximum number of respondents (50%) were in the age group of 21-30 years followed by 30 percent respondents who belonged to the age group of 31-40 years and 20 percent respondents were above the age of 40 years. With reference to education, 60 percent respondents acquired education upto middle level, 23.30 percent respondents were educated upto primary and only 16.70 respondents completed their secondary education. The data pertaining to family type of respondents highlighted that more than half of the respondents (56.70%) were from nuclear families and 14.40 percent respondents were from joint families.

Activities performed by the respondents: Basically there are three major activities in the ginning mill. Cotton procured from the market is cleaned, for removal of parts of dry leaves of pods or any foreign matters. Then the cotton is fed to the machines where the seeds are removed mechanically from the fibres and on the other side of machines, the fibre is collected in sacs. The loose fibres are fed to the pressing section where these are pressed and packed in bundles for transmission to other industries.

Table 2: Types of activities performed by the workers n=30

S. No	Activities performed	Male (n=25)		Female (n=05)	
		Frequency	Percentage	Frequency	Percentage
1	Preliminary cleaning	06	24.00	05	100
2	Loading of cotton in machine and its collection	11	44.00	--	--
3	Pressing and packing cotton bundles	08	32.00	--	--

The depicted in Table two reveal that amongst male workers 80 percent respondents were working in preliminary cleaning section while all the female respondents were hired to carry out this activity only. Loading of cotton in machines and its collection was being done by 44 percent male respondents. Pressing and packing of cotton bales was being done by only 32 percent male respondents.

Health problems of workers engaged in Textile section

In ginning mills cotton fibers are separated from seed balls and other vegetable matters, the fibers are converted into yarns. In the ginning mills, air gets polluted with fiber dust which results into accumulation of dust and cotton fibres on head, and other body parts leading to itching and irritation. Other problems identified were: eye irritation/watery eyes, sneezing/running, coughing, breathlessness, headache and hearing loss. Workers engaged in different sections encountered various health problems and the data are furnished in Table 3 and 4.

Table 3: General problems encountered during work n= 30

S. No	Problems encountered	Frequency	Percentage
1.	**Accumulation of dust/cotton on**		
	• Head	19	63.00
	• Other body parts	30	100.00
	• Clothes	30	100.00
2.	Eye irritation	21	70.00
3.	Watery eyes	21	70.00
4.	Sneezing/running nose	15	50.00
5.	Coughing	12	40.00
6.	Breathlessness	13	43.00
7.	Headache	05	16.00
8.	Hearing problem	03	10.00

As per perusal of Table 3, problems of soiling of other parts of body and clothes were reported by all the respondents while the problem of accumulation of dust of cotton fibre on head was reported by the 63 percent respondents. A large number of respondents i.e. 70 percent reported the problems of eye irritation and watery eyes. Sneezing/running nose was the problem of about half (50%) of the respondents. Complaint of breathlessness was intimated by 43 percent respondents while 40 percent respondents reported about the problem of coughing. Problem of headache and hearing was also reported by a few numbers of respondents i.e. 16 percent and 10 percent, respectively.

Table 4: Existing clothing pattern of male workers n=30

Type of garment		Weighted Mean Score
Upper garment	Shirt	1.35
	Kurta	0.73
	T- Shirt	0.33
Lower Garment	Pant	1.55
	Pyjama	0.87
Head	Cap	0.36
	Saffa/*pagdi*	1.24
	Face cover	0.27
Feet	*Chappal*	0.71
	Shoes	1.56

From the data regarding the dressing pattern of male respondents, it is evident that most of them were using shirt-pant (WMS 1.35 and 1.55) followed by *kurta-pyjama* (WMS 0.73 and 0.87) while working. For protection of hair, most commonly used protective accessory was *saffa* (WMS 1.24), cap was also used for face coverage by a few respondents (WMS 0.36). Use of shoes was found more than *chappal* by the workers as indicated by their respective weighted mean score of 1.56 and 0.71, respectively.

Table 5: Existing clothing pattern of females workers n=30

Type of garment		Weighted Mean Score
Upper garment	*Kameez*	2.0
Lower Garment	*Salwar*	2.0
Head	*Dupatta*/*odhana*	2.0
Feet	*Chappal*	1.36
	Shoes	0.93

The data pertaining to existing clothing practices of female respondents furnished in Table 5 show that *kameez-salwar* was the only dress worn by women (WMS 2.0). All the respondents were covering their head and face with *dupatta* (WMS 2.0). The respondents preferred to wear *chappal* (WMS 1.36) as compared to shoes (WMS 0.93).

Problems with existing dress: The existing clothing practices of respondents revealed that they were not using any specific protective clothing/accessories, hence encountered different problems at work place. Use of *saffa/duptta* was not providing adequate protection to head and face.

Table 6: Problems faced by the workers of ginning mill n-30

S. No	Problem Faced	Frequency	Percentage
1.	Fiber dust/particles stick into hair	09	30.00
2.	Fiber dust stuck on clothing	27	90.00
3.	Inhalation of cotton dust	13	43.33
4.	Problem in breathing with *saffa*/*duppata* on nose	05	16.66
5.	Hindrance in work due to clothes during activity	11	36.66
6.	Dust particles stick on body parts	15	50.00
7.	Headache with use of earplugs	17	56.66

From the data, it can be inferred that 90 percent respondents faced the problem of sticking of fibre dust on clothing followed by headache with use of earplugs (56.66%), dust particles stick on body parts (50%), inhalation of cotton dust (43.33%), hindrance in work due to clothing (36.66%), fibre dust/particles stick into hair (30%) and few respondents (166.66%) also faced problem in breathing with *saffa*/*dupatta* on nose. Due to the reason that while collecting cotton from machine, the fragile and filthy fibres get dispersed into work environment and circulate freely in the air. Since, the workers do not follow any safety measures while working, these fibres get into their eyes and nose leading to several disorders.

According to Khan and Saadia, 2006 [2], chest tightness was reported by 51-71percent workers of the ginning factories, compared to 55-62 percent for chest pain and 33-42 percent for frequent cough. In as many as 51percent of workers exposed for over 10 years, FEV1 was under 60 percent and over 55 percent of workers reported difficulty in breathing.

Dube, *et al*., 2013 [1] also reported that workers exposed to high dust levels for over 10 years had the highest odds ratios for frequent cough, chest tightness and difficulty in breathing.

Jadhav, *et al*., 2016 [3], also reported that the workers in spinning industry are exposed to high levels of cotton dust. Respiratory tract diseases are very common, among the spinning mill workers as a result of inhalation of cotton fibers and dust in work place. The most common respiratory health problems were cough, chest pain and dyspnea according to history.

Conclusion

The workers engaged in ginning mills faced different problems at their work place due to inappropriate measures taken by them in their existing clothing practices or lack of protective clothing/accessories. Hence, it was felt that there is a need to educate the workers regarding health hazards caused due to ginning operations and also to develop protective clothing/accessories to help the workers in combating clothing related occupational problems encountered by them at the work place.

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