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Sangeeta Sharma
Research Scholar, Department of
Textile and Apparel Designing
College of Community and
Applied Sciences, MPUAT,
Udaipur, Rajasthan, India

Aastha Khatri
Research Scholar, Department of
Textile and Apparel Designing,
College of Community and
Applied Sciences, MPUAT,
Udaipur, Rajasthan, India

Correspondence
Sangeeta Sharma
Research scholar (Department of
Textile And Apparel Designing)
College of Community and
Applied Sciences, MPUAT,
Udaipur, Rajasthan, India

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Use of protective clothing for industrial worker

Sangeeta Sharma and Aastha Khatri

Abstract

The workplace environment affects the health of workers. Unhygienic conditions are observed in the workplace environment of Industrial mills as fine organic industrial dust gets airborne in the indoor environment of the industrial mills. Protective Cloth protects the vulnerable nude human body from the extremes of weather, other features of our environment, and for safety reasons. Clothing can protect against many things that might injure the naked human body. The work was undertaken to study the health problems faced by industrial mill workers and to find out existing clothing practices and the use of personal protective clothing by industrial mill workers. The benefits of using protective clothing are obvious, firstly for the worker to protect his person in their working environment that may be hazardous, and secondly the benefit to the company that has its workers wearing protective clothing is that workers are safe and health inspectors are happy. Protective clothing is now functional and durable, assisting and protecting the wearer in their chosen environment. It was further revealed that none of the Industrial mill workers was using the personnel protective devices while working. We recommend the compulsory use of personal protective equipment (nose mask) by industrial mill workers during working hours Protective clothing in certain industries is becoming more and more invaluable to business owners, corporate heads and on-the-ground workers. Protective clothing can be used in many different situations, from hailstorm situations to oil and molten metal, even protecting the wearer from infection. Some work environment situation will find the wearer in protective clothing where the object is to protect the environment from the worker; this is often found in a sterile environment such as hospitals. Protective clothing is also found out on the sports field, where the player needs protective clothing in contact sports or similar dangerous situations such as ice hockey, horse riding, football, etc.

Keywords: Industrial workers, health problems, personnel protective devices

Introduction

Industrial milling can trace its origins back to prehistory, but the modern systems known as gradual reduction Industrial mills have only been developed over the last 200–300 years. Protective clothing. The garments used in domestic purpose protect people from normal sunlight and climatic conditions, but Protective garments are used for saving valuable human life's from various hazards and climatic conditions which encounters human life. Industrial is also considered to be a substance hazardous to health by the Health and Safety Executive (HSE).

Industrial dust is a hazardous substance; it is a respiratory sensitizer and is known to cause allergic rhinitis and occupational asthma. It is also an irritant and may give rise to short term respiratory, nasal and eye symptoms. It may provoke an asthmatic attack in individuals with pre-existing disease and lead to chronic bronchitis (Ajeel and Al-Yasin, 2007) ^[1].

Inhalation of Industrial dust can produce allergic reaction and chronic respiratory disorders, including sensitization and asthma. The health and safety commission of the United Kingdom has established an 8-h TWA maximum exposure limit of 10 mg/m³ for Industrial dust, with a 15-min exposure limit of 30 mg/m³. Industrial dust is a hazardous substance with respiratory sensitizing with pre-existing disease and also causes chronic bronchitis (Smith and Lumley, 1996). Due to all these reason the present investigation was planned with the objective to study the general profile of the respondents, to find out the problems faced by the Industrial mill workers and to find out existing clothing practices and use of personnel protective devices by the Industrial mill workers.

Methodology

The present study was conducted in urban area of Jaipur city. Thirty industrial mills were purposively selected for the present study. These industrial mill owners were working at industrial mill from last ten years. A questionnaire was used to generate information on self-reported problems. Critical examination of work place was also done to know about the work environment. Data were analyzed using frequency, percentage and weighted mean scores.

Results and Discussion

General Profile of the Industrial mill Workers

The data in table shows that 60 per cent of respondents were in the age group of 40 and above, 40 per cent were between the age group of 30-40 years and none of the respondents belong to 20-30 years age group. The caste wise distribution of the respondents highlight that 40 per cent respondents were from other backward caste and general category. Only 20 per cent respondents belonged to ST/SC category. Eighty per cent respondents belonged to nuclear family and remaining were from joint family. Further, 60 per cent of respondents had medium family size, 40 per cent of respondents had small family and none of the respondents had large family. The data in the table bring to light that 40 per cent of respondents were

metric pass, 20 per cent each had primary, up to middle and higher secondary education. Table further depicts that 60 per cent of the respondents were in the income range of Rs. 5000-10000 per month 6.67 per cent earned up to Rs. 5000 per month. 23.33 percent were in the income range of Rs.10, 000-20,000 per month.

Regarding the marital status of the respondents, it can be reviewed from the table that vast majority of respondents (96.67%) were married, whereas 3.33 per cent was widower. The occupational profile of the respondents reveals that good per cent of the respondents (60%) had industrial mill as their family occupation and equal number of respondents (20 per cent) were involved in agriculture and doing service along with industrial mill. Good number of the workers (60%) had work experience of more than ten years. While 40 per cent respondents had more than 20 years. Sixty per cent were operating industrial mill for 6-8 hour while 40 percent for 8-10 hours.

Review of table further reveals that none of the respondents had any disease from childhood period. However, the researcher was curious about their past illness based on their habits of smoking, drinking and tobacco chewing. It was found that only 16.67 per cent respondents belong to this category.

Table 1: General profile of the respondents N=30

S. No.	Aspects	Categories	No of Respondents	
			Frequency	Percentage
1	Age (in years)	31-40	12	40.0
		41 -50	18	60.0
2	Caste	SC/ST	06	20.0
		Backward OBC)	12	40.0
		General	12	40.0
3.	Family Type	Nuclear	24	80.0
		Joint	6	20.0
	Family Size	Small (up to 4 members)	12	40.0
		Medium (5-8 members)	18	60.0
4.	Education	up to Primary	6	20.0
		up to Middle	6	20.0
		up to metric	12	40.0
		Higher secondary	6	20.0
5.	Monthly Income (Rs.)	up to 5000	5	6.67
		5000-10000	18	60.0
		10000-20000	7	23.33
6.	Marital Status	Married	29	26.67
		Widower	01	3.33
7.	Family occupation	Industrial Mill	18	60.0
		Agriculture	6	20.0
		Services	6	
		10-20 years	18	60.0
		< 20 years	12	40.0
10.	Duration (hrs/day)	8-10hours	12	40.0
		6-8 hours	18	60.0
11.	Past history of illness	Yes	5	16.67
		No	25	83.33
12	Bad Habit (smoking ...)	Yes	5	16.67
		No	25	83.33

Type of activity carried out at unit Table 2 clearly shows that cleaning was the activity carried out by only 60 percent of

the unit, while all the other activities were carried out by all the units.

Table 2: Type of activity carried out N-30

S. No.	Type of activity	Frequency	Percentage
1	carding	18	60.0
2	combing	30	100
3	Scouring	30	100
4	Bleaching	30	100
5	Finishing	30	100

Problems encountered while working in Industrial mill

The workers working in industrial milling are exposed to many hazards, and the major hazards were related to grinding activity which may be due to exposure to Industrial dust. Industrial cleaning activity was carried out by only 60 percent

of the respondents as there Industrial mill owners were also involved in selling of the industrial while rest were only fabric the finish i.e. cotton, wool and silk. Problem encountered while fabric finishing were mainly related to skin allergies (face, hand and feet) and it ranged from 10-23.33 per cent.

Table 3: Problems encountered by Industrial mill workers N-30

Problems encountered		Activities				
		Carding F (%)	Combing F (%)	Scouring F (%)	Bleaching F (%)	Finishing F (%)
Skin allergy	Face	3(10%)	12 (40%)	-	-	-
	Hand	9(30%)	-	-	-	-
	Feet	7(23.33%)	-	-	-	-
Eye irritation and itching		6(20%)	18(60%)	-	-	-
Back Ache		-	-	03(60%)	18(60%)	12(40%)
Shoulder ache		-	-	-	18(60%)	14(46.67%)
Breathlessness		-	18(60%)	-	-	-
Allergic Bronchitis		-	12(40%)	-	-	-
Nausea		-	6(20%)	-	-	-
Headache		-	18(60%)	-	-	-
Sweating		-	24(80%)	-	-	-
Cut in hand		-	-	-	-	-
Coughing and sneezing		-	25(83.33%)	-	-	-

This table clearly shows that 83.33 percent respondents suffered from sneezing and cough which lead to acute effects related to the respiratory problems. Another problem faced by Industrial mill workers was headache (60%) because of excessive noise at work place. 60 per cent respondents also suffered from eye irritation/ eye itching it may be due to flour dust in the environment. 40 per cent respondents suffered from allergic Bronchitis. Only 20% respondents suffered from Nausea during work. 60 per cent respondents had back ache due to bending at the time of packing of Industrial. It was due to improper posture adopted during the activity.

Similar results were reported by Wagh, Pachpande, Patel, Attarde, Ingle (2006) in a study on The influence of workplace environment on lung function of Industrial mill workers in Bagru urban center reveals reduced lung efficiency of Industrial mill workers due to excessive exposure to fine organic dust prevalent in the workplace environment. The

impairment in lung efficiency was increased with duration of exposure in the Industrial mill workers. Investigator further stated that that most of the workers were suffering from asthma and respiratory problems, 42% of the flour mill workers were having shortness of breath problems, 34% of workers were having frequent coughing, and 19% workers were having respiratory tract irritation

Problems faced while loading and unloading were related to transferring raw material (fibers) to the process area. The hazard of suffocation in the industrial area. It was told by the authority that the hazard was communicated to them but there is an inherited ignorance among these local workers and they work in their own style. The researcher observed that working environment was quite unsafe and unhealthy for workers and also found occurrence of various health problems were due to work pressure, long working hours, monotonous work, and insufficient cleaning at the work place.

Table 3: Existing clothing pattern of Industrial mill workers N-30

Type of garment		Frequently		Occasionally		Never		WMS
		f	%	F	%	f	%	
Upper garment	Shirt	05	16.67	10	33.3	15	50	0.66
	Kurta	27	91.11	03	9.89	-	-	1.9
	T- Shirt	-	-	10	33.33	20	66.67	.33
Lower Garment	Pant	05	16.67	10	33.33	15	50	0.66
	Pyajama	13	43.33	15	50.0	02	6.66	1.36
	Shorts	-	-	-	-	30	100	-
	Dhoti	20	66.67	05	16.67	05	16.67	1.5
Hands-Gloves		-	-	-	-	30	100	-
Head	Cap	-	-	-	-	30	100	-
	Saffa/pagdi	-	-	10	33.33	20	66.67	.33
Face	Mask	-	-	-	-	30	100	-
	Face cover	-	-	-	-	30	100	-
Feet	Chappal	22	73.33	05	16.67	03	10	1.63
	Shoes	05	16.67	15	50	10	33.33	0.833

Existing clothing practices of industrial mill workers

Information: On existing clothing practices was also collected and it was found that majority of them were wearing kurta and pajayama and dhoti and chapals in feet T. shirt and saffa and pagdi was occasionally worn by the respondents. No one was wearing the cap/ hat and mask or face cover.

Use of personnel protective devices: Personal Protective Equipment (PPE) was not available and was not used. The workers in the work area were not wearing masks and caps on head. No ear muffs were used although noise level was quite high. The results of the various studies suggest that even after proper cleaning operations in industrial mills, the industrial

milling may not be able to reduce the fabric dust levels to below the TLV of 0.5 mg/m³. So the face masks in the work area are highly recommended. This would help to protect the workers health from the industrial dust prevalent in the workplace environment.

Conclusion

This can be concluded that Industrial mill workers were facing the problems related to carding, these were coughing and sneezing, eye irritation, breathlessness due to presence of industrial dust in the work environment. Sweating was due to work pressure. Majority of respondents were wearing dhoti kurta followed by pant shirt. None of respondents were using personnel protective devices to protect themselves. It is recommended that awareness should be generated among industrial mill workers about the use of personnel protective devices like face mask and ear muffs.

References

1. Ajeel NAH, Al-Yassen AK. Work-related allergic disorders among flour mill workers. *The Medical Journal of Basrah University (MJBU)*. 2007; 25(1):29-32.
2. ASABE. Design considerations for the construction and operation of flour milling facilities. Part I: planning, structural, and life safety considerations. American Society of Agricultural and Biological Engineers. An ASABE Meeting Presentation Paper Number. 2007, 074116.
3. Bachanek T, Chalas R, Pawłowicz A, Tarezydto B. Exposure to flour dust and the level of abrasion of hard tooth tissues among the workers of flour mills. *Ann Agric Environ Med*. 1999; 6(2):147-9.
4. Kakooei H, Marioryad H. Exposure to Inhalable Flour Dust and Respiratory Symptoms of Workers in a Flour Mill in Iran. *Iranian Journal of Environmental Health Science & Engineering*. 2005; 2(1):50-55.
5. Wagh ND, Pachpandy BJ, Patel VS, Attarde SB, Ingle ST. The influence of workplace environment on lung function of flour mill workers in Jalgaon urban centre. *Journal of occupational health*. 2006; 48:396-401.