

Occupational health hazards faced by the spice grinding workers

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■ **ABSTRACT** : The objective of present investigation was to find out the existing clothing practices, protective measures used and physical problems faced by the spice grinding workers. For this purpose, thirty respondents were purposively selected and structured interview schedule was used for data collection. Results revealed that majority of the respondents were wearing the *Dhoti, Kurta and Pajama*. No protective clothing was used. Physical problem faced were burning sensation on skin while cleaning and grinding chillies, eye irritation, watery nose, coughing and sneezing etc. Hence, the need arises to generate awareness among the spice grinding workers for the use of personal protective clothing to save themselves by various physical problems.

■ **KEY WORDS** : Spice grinders, Protective clothing, Physical problems

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Spices are an integral part of the Indian diet since centuries. They help to enhance the taste of food. Some specialty spices are grown at specific locations but turmeric, chilli and coriander etc. are grown in many parts of the country and their consumption is also very high as compared to some other spices. Thus, they are fast moving items, consumed in all households and, therefore, the market is very scattered. This pungency excites the appetite, although such dishes taste burning hot to the uninitiated palate. Chillis, which are green when raw, become bright red on ripening due to a mixture of carotenoid pigments. In tropical countries, chillis are dried in the hot sun, when they become light and papery while still retaining the pungency and the red colour. The powdered dried chilli is widely used in the preparation of curries. Until a few years ago, dried chillis were usually powdered in the kitchen for the use of the individual household, but in recent years, the grinding of dried chillis into powder has become a minor industry. It is done by electrically or fuel-operated machines established in almost every town. Each mill employs three to eight workers, but, in view of the large number of units scattered throughout the country, the number of workers in this occupation must be considerable. The present investigation was carried out

know the existing clothing practices and use of personal protective clothing and physical problems faced by spice grinders or ill health that could be attributed to the nature of their occupation, especially in view of the irritant quality of the material with which they deal.

■ RESEARCH METHODS

The present study was conducted in Udaipur city. Thirty spice grinding workers were purposively selected for the study. These spice grinders were working at spice mill from the last ten years. A structured questionnaire and interview method was used to generate the 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.

■ RESEARCH FINDINGS AND DISCUSSION

The results of the present study as well as relevant discussions have been presented under following sub heads:

General profile of the spice grinders:

The data in Table 1 showed 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 belonged to 20-30 years age group. The caste wise distribution of the respondents highlighted 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 were having nuclear family and remaining were from joint family. Further, 60 per cent of respondents had medium family size while, 40 per cent had small family and none of the respondents had

large family. The data in the table brought to the 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 per cent were in the income range of Rs.10,000-20,000 per month.

The occupational profile of the respondents revealed that good per cent of the respondents (60%) had spice mill as their family occupation and equal number of respondents

Sr. 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	6	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.	Family occupation	Spice grinding	18	60.0
		Agriculture	6	20.0
		Service	6	20.0
7.	Duration (hrs/day)	8-10 hours	12	40.0
		6-8 hours	18	60.0

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
	Pajama	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

(20%) were involved in agriculture and doing service along with spice grinding.

Existing clothing practices of spice grinders:

Information on existing clothing practices was collected (Table 2) and it was found that majority of them were wearing *Kurta* and *Pajama* 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 face masks at the work area are highly recommended. This would help to protect the workers health from the dust, prevalent in the workplace environment.

Type of activity carried out at unit:

Table 3 clearly shows that cleaning, drying and sieving were the activities carried out by only 60 per cent of the unit, while all the other activities were carried out by all the units.

Type of activity	Frequency	Percentage
Cleaning (removing the ribs)	18	60.0
Drying	18	60.0
Grinding	30	100
Sieving	18	60.0
Packing	30	100

Problems encountered by spice grinders:

The workers working in spice milling are exposed to many hazards and the major hazards were related to grinding activity which may be due to exposure to dust. Spice cleaning activity was carried out by only 60 per cent of the respondents as there spice grinders were also involved in selling of the spicewhile rest were only grinding the spice *i.e.* chillis, coriander and turmeric. Cent per cent of the workers experienced a warm or burning sensation of the skin when grinding chilli or pepper. Women are employed to split the fruits of spices in order to remove the ribs containing the pungency prior to grinding. This Table 4 and Fig. 1 clearly show that 83.33 per cent respondents suffered from sneezing and cough which lead to acute effects related to the respiratory problems. Another problem faced by the grinders was headache (60%) because of excessive noise at work place. 60 per cent respondents also suffered from eye irritation/ eye itching which may be due to dust in the

environment. 40 per cent respondents suffered from watering of nose and only 20 per cent respondents suffered from nausea during work. sixty per cent respondents had backache due to bending at the time of packing of spice which may be due to improper posture adopted during the activity.

Problems encountered	Activities		
	Cleaning F (%)	Grinding F (%)	Packing F (%)
Burning sensation on skin	30(100%)	30(100%)	-
Eye irritation and itching	6(20%)	18(60%)	12(40%)
Backache	-	7(23.33%)	03(60%)
Shoulderache	-	7(23.33%)	-
Breathlessness	-	18(60%)	-
Watering of nose	-	12(40%)	-
Nausea	-	6(20%)	-
Headache	-	18(60%)	-
Sweating	-	24(80%)	-
Coughing and sneezing	-	25(83.33%)	6(20%)

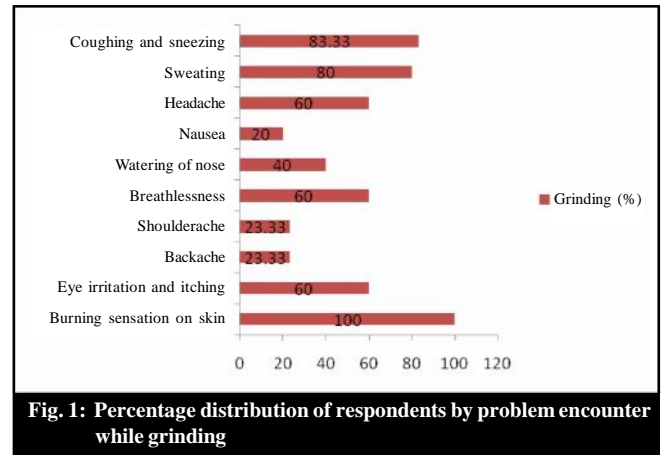


Fig. 1: Percentage distribution of respondents by problem encounter while grinding

According to Jones (1952), chilli powder is a very irritant vegetable dust. In its action, it appears to be in the same category as irritant gases, such as ammonia, sulphur dioxide and chlorine which act merely as superficial irritants to the respiratory mucosa. They produce in comfort and temporary disability but have not been proved to produce cumulative effects. In the present study, there were no instances of permanent respiratory disability such as chronic bronchitis, emphysema, or pulmonary fibrosis among the workers examined, even though some of them were chilli grinders of nine or 10 years standing. It is clear that when they first take to chilli grinding, majority of workers suffer from sneezing, watering of the nose and cough. These symptoms follow a definite pattern; they are maximal at the onset. After a varying period, each worker develops a

tolerance to the irritant quality of the powder, being hardly bothered by it and is free of symptoms when away from work. This tolerance is only relative, as the symptoms return when the atmosphere becomes rapidly contaminated with a high concentration of chilli powder as a result of a sudden blowing into the room.

It was observed that working environment was quite unsafe and unhealthy for workers and also occurrence of various health problems was also due to work pressure, long working hours, monotonous work, and insufficient cleaning at the work place.

Chan *et al.* (1990) also reported symptoms of upper respiratory tract irritation, such as sneezing and runny nose, during which were experienced by 49.2 per cent of workers. These symptoms were maximal in the first few weeks of employment in spice grinding and did not recur in half of the affected workers. Over 26 per cent of the workers experienced a warm or burning sensation of the skin when grinding chilli or pepper. None of the spice grinders had symptoms or evidence on physical examination of allergic skin disease or asthma. Noise-induced hearing loss was detected in 21 per cent of the workers examined but none had severe disabling deafness. Dust levels ranged from 0.03 to 0.82 mg/m³, with a mean value of 0.15 mg/m³. Noise exposure was significant, with levels of between 87 and 98 dBA.

Conclusion:

This can be concluded that spice grinding workers were

facing the problems related to grinding, these were burning sensation, coughing and sneezing, eye irritation, breathlessness due to presence of dust in the work environment. Sweating was due to work pressure. Majority of respondents were wearing *Dhoti Kurta* followed by pant and shirt. None of respondents was using personnel protective devices to protect himself. It is recommended that awareness should be generated among the spice mill workers about the use of personnel protective devices like face mask and ear muffs.

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