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Impact of Environmental Parameters on Women Workers Health in Ginning Mills of Dharwad Taluka

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ABSTRACT

It has been observed that the workplace environment affects the performance of workers. Workers are more than the most important asset for an organization, they play pivotal role in current operational performance and future competitive advantage. Workers spend major part of their life in the organization within which they work. Poor environmental conditions can cause various health problems to workers. The work will attempt to describe some elements of the workplace environment that can impact on workers health like lighting, noise, temperature and relative humidity. Keeping this in view a study was conducted to study the impact of environmental parameters on workers health in ginning mill of Dharwad taluka, Karnataka. A survey was conducted by interview method from ginning mill workers to elicit information regarding occupational health problems and instruments were used to study the environmental parameters. It was revealed that about 40 per cent workers experienced physical stress and strain, about 68.88 per cent workers had experienced difficulty while communicating with others during working.

Key words: *Ginning mill, Environmental parameters, Workers, Health problems.*

INTRODUCTION

A healthy and motivated workforce is the key ingredient for productivity and economic prosperity. Workers seek greater reward for their productive efforts through improved working conditions and a safer working environment. The expansion in scale of operations coupled with aging of mechanical installation and introduction of complicated and hazardous technologies is believed to raise health risks along with safety requirements for workers, resulting in high rates of accidents, occupational disease and unhealthy working environment. Lighting, noise, temperature and humidity are some of the important parameters which human exposed with regards to the environment in which they work and live.

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The effects of above environmental parameters have a direct effect on the production quality levels and physiological functioning capacity of human being. The human body capacity and the proper design of the equipment are effective only if the environment is congenial. It is therefore very important to study each and every environmental parameter ergonomically. It is important to provide comfortable environment along with to the worker when you design the job, design the equipment to do the job and while analysing analysis of human anthropometrics measurements[6]. India has a long and rich tradition of producing of variety textile. The textile industry is the second largest industry after agriculture in terms of number of person employed multi-directional contribution to the domestic economy. India earns 27% of its total foreign exchange through textile exports. Further, the textile industry also contributes nearly 14% of the total industrial production of the India. It contributes nearly 3% to country's gross domestic product and17% to country's export earnings.Provides direct employment to over 38.11 million people or employing almost 25 per cent of the country's labour force[4]. The unhealthy and unsafe work environment in ginning mills results in several health problems. Since, the workers are the driving forces of the national economy and thus their working lives should be protected from various occupational health hazards. Hence, the health and safety of the workers have been recognized as a fundamental human right. This paper highlights the unsafe work environment prevalent in garment industries.

MATERIAL AND METHODS

The present study was undertaken in three Ginning mills of Dharawad taluka, Karnataka during the year 2016-17 from each ginning mill 30 women workers were randomly selected for the study. A self-structured pre tested interview schedule was administered on 90 ginning mill workers to gather the general and specific information, various instruments used to study the environmental parameters in the ginning mill such as Hygrometer, Lux meter, Sound level meter, Heat stress monitor. The data was further tabulated and analysed by calculating frequency and percentage.

RESULTS AND DISCUSSION

Thus, irrespective of the ginning mills, higher percentage (44.4 %) of the workers belonged to the age group of 38-49 years followed by less than 37 years (30 %) and more than 49 years (24.4 %) of age group. Sebsibe *et al.*[8] also found in their in their study that majority of the workers were middle aged. Chaudhry *et al.*[1] in the study also revealed that majority of the workers belonged to middle age group (51-60).

With regard to the education, 44.44 per cent of the workers were illiterate followed by education up to primary but attended school for at least one to two years (28.8 %) and primary education but less than 10thclass (14.4 %).These findings are on par with the results of Thoreia *et al.*[10] which revealed majority of the women (18.5 %) were illiterate.

With regard to the type of family, Irrespective of ginning mills, it is clear from the table that, 70 per cent of the workers belonged to the nuclear family type, followed by joint family (30%). Vastrad *et al.*[11] also found in their studies that majority of the workers (90 %) belonged to nuclear family.

Over all findings showed that higher percentage of workers *i.e.*, 47.77 per cent belonged to small family size followed by medium family (44.4 %) and large family (6.4 %). Indumathy and kamalraj[2] revealed the similar findings that majority of the workers (36.66 %) belonged to medium size family.

With regards to the caste, it is clear from the table that, 47.77 per cent of the women belonged to the upper caste, which was followed by OBC (44.44 %), dalits (4.4 %) and tribals (33.33 %).The findings of the study are in line with the results of Samata[7].

Family annuval income highest percentage (43.33 %) of the workers had their annual family income more than Rs 1, 20,000, followed by Rs 60,000 to 1, 20,000 (28.88 %) and Rs 60,000 (27.7 %).The findings are in line with the results of Sekar *et al*[9].

Table 2 shows that details of environmental parameters in ginning mills.

The mean temperature of first ginning mill was found to be 26.7 ºC and standard deviation was 4.94.TheRelative humidity (34.2% ± 4.19), Light (473lux ± 112.8) and Noise (82.9dBA ± 6.80). In second ginning mill mean temperature was 24.1 ºC and standard deviation was 3.72.Therelative humidity (32.4% ± 3.9), light (397lux ± 111.1) and Noise (87.7dBA ± 4.90) were obtained.

Whereas in third ginning mill mean temperature was found to be 26.6 ºC and standard deviation was 3.96. The Relative humidity (32.7% ± 4.12), light (410lux ± 144) and Noise (90dBA ± 6.67) were obtained. The findings of the study are in line with the results of Padmini and Venmathi[6].

Table 3 depicts perceived problems of women workers due to the temperature and relative humidity in ginning mills.

Majority of the workers (66.66 %) in first ginning mill experienced physical stress and strain followed by nausea (46.66 %), extreme fatigue (46.66 %), heat exhaustion (40 %), dehydration (23.33 %) and dizziness (23.33 %). Equal per cent of the workers (30 % each) in second ginning mill experienced nausea, physical stress and strain, followed by extreme fatigue (26.66 %), dehydration (16.66 %), nausea and dizziness (6.6 %).

More than 40 per cent of the workers in third ginning mill experienced physical stress and strain (43.33%), extreme fatigue (40%) followed by heat exhaustion (36.66 %), nausea (16.66 %), dizziness (13.33 %) and dehydration (10 %) due to temperature and relative humidity in ginning mills. The findings of the study are in line with the results of Preeti and Oberoi[5].

Further, irrespective of ginning mills, about 40 per cent workers experienced physical stress and strain followed by extreme fatigue (41.11 %), heat exhaustion (34.44%), nausea (26.66%), dehydration (16.66%) and dizziness (13.33 %).

Temperature is a measure of the degree of heat intensity, temperature can be assumed as the average kinetic energy (heat) in a body at a molecular level. When the temperature increases, then the body temperature of subject is increases. Relative humidity can affects thermal comfort of human wellbeing as well as humidity can influence the heat transfer quantity from skin to environment.

Table 4 reveals the perceived problems of women workers due to noise in the ginning mills. Majority of the workers (43.33 %) in first ginning mill experienced difficulty while communicating with others followed by head ache (40 %), work disturbance (40 %), lack of concentration (16.66 %) and hearing loss (3.33 %) due to noise present in the ginning mill.

Similarly, major per cent of the workers (70%) in second ginning mill experienced difficulty while communicating followed by work disturbance (43.33%), head ache and irritation (33.33 %), lack of concentration and hearing loss (10 %) due to noise.

More than fifty per cent of the workers in third ginning mill, also experienced difficulty while communicating with others (83.33 %), head ache (73.33 %) and work disturbance (66.66 %), lack of concentration (36.66 %), irritation (23.33 %) and hearing loss (13.33 %).

Further, irrespective of ginning mills majority of the women workers (68.88 %) had experienced difficulty while communicating with others during working followed by head ache (42.22 %), work disturbance (40 %), lack of concentration (21.11 %) and irritation (8.88 %) due to noise present in the ginning mills. The findings of the study are in line with the results of Thoreia *et al*[10]. Because presence of excessive noise in the ginning mills workers experiencing all these difficulties.

Table 5 shows the relationship between environmental parameters and occupational problems of workers in ginning mills. The results revealed that occupational problems of workers in first ginning mill were found to be positively significant with temperature and relative humidity while non-significant with light and noise. In second ginning mill occupational problems of workers were positively significant with light whereas

in case of temperature, relative humidity and noise it was found to be non-significant.

In case of third ginning mill, occupational problems were positively significant with noise whereas temperature, relative humidity and light were found to be non-significant.

In ginning mills found to have poor illumination, improper ventilation, excessive noise, more temperature and relative humidity are some of the important parameters which humans exposed with regards to the environment in which they live and work. The effects of above environmental parameters have a direct effect on the workers health and production quality.

Table 1: Socio economic characteristics of ginning mill workers N=90

	Characteristics	Frequency	Percentage
Age	<37 years	27	30.00
	38 – 49 years	40	44.44
	>49	23	24.44
Education	Illiterate	41	44.44
	Just literate but no schooling	7	7.77
	primary but attended school for at least one to two year	26	28.88
	Primary but <10th	13	14.44
	10thClass pass but < graduation	3	3.33
Type of family	Nuclear	63	70.00
	Joint	27	30.00
Family size	Small (<4)	43	47.77
	Medium (4-8)	41	44.44
	Large (>8)	6	6.44
Caste	Tribal	3	3.33
	Dalits	4	4.44
	OBC	40	44.44
	Upper cast	43	47.77
Total family annual income (Rs)	< 60000	24	27.77
	60000-1,20,000	26	28.88
	>1,20,000	39	43.33

Table 2: Details of environmental parameters in ginning mill N=90

Environmental parameters	Ginning mill I (n1=30)	Ginning mill II (n2=30)	Ginning mill III (n3=30)	Permissible level
Temperature (ºC)	26.7±4.94	25.1±3.72	26.6±3.96	12ºC (in cold season) 28 ºC (in warm season)
Humidity (%)	34.2±5.19	32.5±3.9	32.7±4.12	40-60
Light (Lux)	473±112.8	397±111.1	410±145	500-1000
Noise (dB)	82.9±6.80	87.7±4.90	90±6.67	60-85

Table3: Perceived problems of selected women workers due to temperature and relative humidity in the Ginning mills N=90

Perceived Problems	Ginning mill I (n1=30)	Ginning mill II (n2=30)	Ginning mill III (n3=30)	Total (n=90)
Physical stress and strain	20 (66.66)	9 (30.00)	16 (53.33)	45 (50.00)
Nausea	17 (56.66)	2 (6.66)	5 (16.66)	24 (26.66)
Heat exhaustion	12 (40.00)	9 (30.00)	11 (36.66)	32 (35.55)
Extreme fatigue	14 (46.66)	8 (26.66)	15 (50.00)	37 (41.11)
Dizziness	6 (20.00)	2 (6.66)	4 (13.33)	12 (13.33)
Dehydration	7 (23.33)	5 (16.66)	3 (10.00)	15 (16.66)

(Note: Figures in parentheses indicate percentage multiple responses are obtained)

Table 4: Perceived problems of selected women workers due to noise in the Ginning mills N = 90

Perceived Problems	Ginning mill I (n1=30)	Ginning mill II (n2=30)	Ginning mill III (n3=30)	Total (n=90)
Head ache	15 (50.00)	10 (33.33)	22 (73.33)	47 (52.22)
Work Disturbance	12 (40.00)	13 (43.33)	20 (66.66)	45 (50.00)
Difficult To Communicate	16 (53.33)	21 (70.00)	25 (83.33)	62 (68.88)
Irritation	14 (46.66)	10 (33.33)	7 (23.33)	31 (34.44)
Lack of Concentration	5 (16.66)	3 (10.00)	11 (36.66)	19 (21.11)
Hearing Loss	1 (3.33)	3 (10.00)	4 (13.33)	8 (8.88)

(Note: Figures in parentheses indicate percentage and multiple responses are obtained)

Table 5: Relationship between environmental parameters and occupational health problems

Environmental parameters	Pearson Correlation coefficient 'r' value		
	Ginning mill I (n1=30)	Ginning mill II (n2=30)	Ginning mill III (n3=30)
	Occupational health problems		
	Fatigue		
Temperature (ºC)	0.372*	0.25	0.150
Humidity (%)	0.630**	0.39	0.05
	Eyestrain		
Light (Lux)	0.172	0.45**	0.91
	Irritation to ear		
Noise (dB)	0.05	0.185	0.851**

**significant at 0.01 level * Significant at 0.05 level

CONCLUSION

The Ginning mills of Dharwad taluka were found to have poor illumination, improper ventilation, excessive noise, congested work area, poor ergonomic workstations. The workers were exposed to dust, chemicals mainly in the form of solvents, ergonomical problems, psychosocial problems, etc. Due to lack of education, unawareness of the hazards of their occupations, general backwardness in sanitation, poor nutrition and climatic proneness of this geographic region to epidemics aggravates their health hazards from work environment. Hence, measures towards improving the awareness of occupational health and safety and thereby motivating the workers in use of personal protective equipment would help in achieving a safe and healthy workplace environment.

REFERENCES

1. Chaudhry, Maryam, I., Alina, K., Occupational health and safety studies and assessment of asthma in employees working in yarn making sector of a textile industry, near Wan-Radha-Ram. *J. Med. Clinical. Sci*., **4(1):** 20-36 (2014).
2. Indumathy, R. and kamalraj, S., A study on quality of work life among workers with special reference to textile industry in Tirupur district. *Int. J. Multidisciplinary Res*., **2(4):** 265-281 (2012).
3. Kamalesh, J., Lalit, T. and Sopan, T., Respiratory impairment in cotton ginning workers Exposed to cotton dust in Jalagaan Maharstra., *Intl. J. Occu. Safety and Ergonom*., **1(19):** 3-12 (2011).
4. Meena, M. L. and Dangayach, G. S., An Ergonomic Approach To Design Hand Tool For Screen Textile Printing.*Int. J. Recent Adv. Mech. Eng.*, **4(2):** 59-66 (2015).
5. Preeti, N., Oberoi, K., Effect of environmental stress on the health of women workers handling thread cones in the spinning industry in Ludhiana, Panjab. *Indian J. Soc. Sci*., **52(3):** 309-315 (2011).
6. Padmini, D., Venmathi, A., Unsafe work environment in garment industry, in Tirupur. *India. J. Envi. Res. Develop. HR*., **7(1):** 569-575 (2012).
7. Samata, P., Health and nutritional status of women working in textile industries., Msc Theses, Department of Human Development College of Rural Home Science, Dharwad University of Agricultural Sciences, Dharwad - 580 005 (2009).
8. Sebsibe, T., Temesgen, K. and Yalemzewod, A., Utilization of personal

protective equipment and associated factors among textile factory workers at Hawassa Town, Southern Ethiopia. *J. Occu. Med. Toxi*., **1(3):** 1-7 (2016).

9. Sekar, M. Shunmuga, S. and Subburaj, A., Health and Welfare Measures in Tamil Nadu Spinning Mills, India. *J. Indian Streams Res*., **2(10):** 1-6 (2012).
10. Thoreia, M., Hosnia, S. Abd El-Megeed, S. M.and Hoda, D. F., A study of occupational health hazards among assiut spinning factory workers.Ass. Univ. Bull. *J.Environ. Res.,* **1(7):** 64-75 (2004).
11. Vastrad, Jyoti, V., Kotur, Rajashri and Byadgi, Shameembanu A., Occupational related health problems of workers in ginning mill. *Asian J. Home Sci.,* **8(2):** 657-660 (2013).