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## OCCUPATIONAL HEALTH HAZARDS AMONG TEXTILE WORKERS

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### ABSTRACT

*The textile industry is the second largest sector. The survey was conducted in five units of garments industry, four units of the dyeing industry and washing industry in Tirupur. Totally 300 target groups computes of 200 males and 100 females are selected for the present study by systemic random sampling. Due to the longer duration of work most of them fall sick and less productivity was noticed. 10%, 15% and 13% respectively from production unit, dyeing unit and washing unit of male's subjects working is standing posture. The longer duration of standing cause a lack of bone density, poor musculature and deficient subcutaneous fat occurs. Improper cleaning, insufficient heat control, poor lifestyle with cigarettes and alcohol consumption leads further health hazards. To conclude this study gives knowledge about occupational health hazards among the textile industry workers to create the awareness among the textile workers.*

**Keywords:** Occupational health hazards, textile industry, textile workers, work activity, productivity

### INTRODUCTION

Occupational health is concerned with the health safety issues of work. The hazards exposure in setting can adversely affect the human health this is a Global burden of occupational diseases and injury in textile industry (Sudha Babel et al, 2014). Occupational Health and Safety in textile industry examines to promote health and safety to the workers in India. Hazards in the garment industry include accident hazards, such as burns and puncture wounds, physical hazards such as heat and noise, chemical hazards such as allergies, ergonomic hazards posed by poor posture, biological hazards from poor nutrition and psychosocial ones that result from abuse on the

part of supervisors and a depressing work environment. All of these are inter-related and can affect both productivity in general and the individual health of the worker (Peggy, 2013).

Around 38.11 million people in India come under labour force. Approximately more than 2500 textile units are present, there are numerous health and safety issues associated with textile industry. National Institute of occupational safety and health (NIOS -1999) reported a priority list of 10 leading work related to illnesses and injuries. Textile industry is labour oriented industry and due to following reasons, accidents can take place frequently in this industry there are, improper material handling, improper knowledge about the machine due to



lack of training, improper mental condition of the workers, unsafe conditions (Triredy and Raman, 2016).

Weaving is primary textile processes for manufacturing fabrics. Weaving presents only a moderate worker safety risk. Seventy six percent majorities of workers have to work in a standing position for 8 to 12 hours, so they are at the risk of different muscular and joint pain. Power transmission devices and are other pinch points are typically guarded. The machine lay, harnesses and other parts that must be frequently accessed by weavers, however, there are only partially enclosed and it can be hazardous for workers. Repetitive-motion trauma is a recognized hazard in the textile industry related to high speed manufacturing equipment (Praveen Kumar, etal, 2014).

Musculoskeletal disorders like carpal tunnel syndrome, forearm tendinitis, bicapital tendinitis, lower back pain, epicondylitis, neck pain, shoulder pain and osteoarthritis of the knees are some of the occupational diseases that have been observed due to heavy weight lifting and moving heavy cloth rolls among the textile workers. Most weaving machines, operating in the production unit found to produce noise levels that generally exceed 90 dBA. In some shuttle and high speed shuttle less weaving, levels may even exceed 100 dBA which can induced hearing loss (Karin, 2017).

The textile manufacturing industry employs over ten million workers throughout the world. Textile industry is the second largest sector and contributes about 62 percent of India's total economy from this sector about 4.8 million people are employed on a monthly or daily basis. There are about 1371 mills in Tamilnadu with working employees of 38461 workers (Anjali, etal, 2016). Keeping this review in the mind the present study was carried out to find out the different types of occupational health hazards

among the textile workers and to promote health status among the textile workers.

## RESEARCH DESIGN

The area chosen to conduct the study in Tirupur known as a *city of knit city* in Tamil nadu consist of 2,5000 knitting and stitching units, 750 dyeing and bleaching unit, 300 printing and 235 embroidery industry. Textile industry was selected by convenience sampling technique.

The survey was conducted in five units of garments industry, four units of dyeing industry and four units of washing industry was selected to carry out the research. The random sampling technique was adopted for the selection of sample. The target groups of adult subjects of both genders from the age group of 20-45 years were selected because in this age more number of people was employed so they were included in the study.

Totally 300 target groups computes of 200 males and 100 females are selected for the present study. The present study was approved under Ethical Committee of Avinashilingam University of approval number AUW/IHEC/FSMD-16-17/XMT-10.

Data regarding to study the demographic profile, smoking habits, alcoholic consumption and work life pattern data was collected from the selected target groups using a well framed interviewed scheduled. All the data was collected carefully and reliability during collection of data the respondents were cooperative throughout the study.

## RESULTS & DISCUSSION

### I. Distribution of the Selected Target Groups based on Gender

Table I shows the age & sex wise distribution of the selected target groups



Table 1

Age & Sex Wise Distribution of the Selected Subjects

Age	Gender	Textile Units					
		Production		Dyeing		Washing	
		No	%	No	%	No	%
21-25	Male	5	7	18	6	11	4
	Female	9	3	3	1	4	1
26-30	Male	16	5	2	8	17	6
	Female	22	7	2	1	3	1
31-35	Male	18	6	16	5	15	5
	Female	14	28	12	1	2	1
36-40	Male	7	2	9	3	21	7
	Female	14	5	4	1	3	1
41-45	Male	6	2	3	1	9	3
	Female	9	3	-	-	-	-

Among the selected 300 target respondents seventeen percent of male and twenty three percent of female respondents belongs to production unit, twenty five percent of male and seven percent of female subjects belongs to dyeing unit whereas twenty four percent of male and four percent of female subjects selected from the washing unit.

**II. Monthly Income Level of the Selected Adults.**

HUDCO income classification (2010) is a good indicator of the socioeconomic and family

back ground information. Only less percent of female earn less than 10,000 per month. Eighteen percent of male from the dyeing unit earn 10,000 to 15,000 per month whereas 11 percent of male and female respondents respectively from production unit, in case of 15 percent of male respondents earn 15,000 to 20,000 per month.

**III. Duration of Work**

The lifestyle pattern includes their duration of work is given in the below table



Table 2

Duration of Work

Duration of Work (hour)	Gender	Textile Units					
		Production		Dyeing		Washing	
		No	%	No	%	No	%
6-7	Male	7	2	9	3	6	2
	Female	12	4	12	4	6	2
8-10	Male	14	5	50	17	31	10
	Female	41	14	5	2	5	2
>10	Male	32	10	16	5	36	12
	Female	15	5	3	1	1	1

Among the 300 selected respondents, 14 percent of female respondents worked for 8 to 10 hours per day from the production unit, 17 percent, ten percent of male respondents from dyeing unit and washing unit respectively worked for 8- 10 hours per day. Whereas ten percent, five percent, 12 percent of the selected respondents from dyeing unit and washing unit respectively. Due to the longer duration of work most of them become sick.

IV. Nature of the Job

In order to study nature of the job the findings revealed that standing posture in the work area by ten percent respondents, fifteen percent respondents and 13 percent respondents respectively from production unit, dyeing unit and washing unit of males

respondents.. Fifteen percent respondents, three percent of respondents respectively from production unit and dyeing units perform the job in the sitting posture. Only very few of them are working in both posture while handling machinery, dyes and chemicals in the textile industry. Musculoskeletal disorders like carpal tunnel syndrome, forearm tendinitis, bicapital tendinitis, lower back pain, epicondylitis, neck pain and other disorders can be commonly reported by the 23 percent of the respondents to this posture while performing the activities in the work area.

A. Duration of Standing Posture in the Work place.

Table .3 revealed that Duration of Standing Posture in the Work place



Table 3

Duration of Standing Posture in the Work place.

Duration(hour)	Gender	Textile units					
		Production		Dyeing		Washing	
		No	%	No	%	No	%
1-5	Male	5	2	15	5	8	3
	Female	4	1	3	1	-	-
5-10	Male	10	3	16	5	12	4
	Female	8	3	2	1	4	1
<10	Male	15	5	14	5	20	7
	Female	-	-	-	-	-	-

From the analysis of data three percent respondents, five percent respondents, four percent of male respondents respectively from production unit, dyeing unit and washing units work in the standing posture for 5-10 hours. The longer duration of standing cause the lack of bone density, poor musculature and deficient

subcutaneous fat occurs for female respondents, three percent respondents, one percent respondent from the three textile units of employees suffers from back pain and muscular wasting.





Table.4

Performance of Work in Sitting Posture

Duration(hour)	Gender	Textile Units					
		Production		Dyeing		Washing	
		No	%	No	%	No	%
1-5	Male	3	1	4	1	4	1
	Female	7	2	3	1	5	2
5-10	Male	15	5	12	4	13	4
	Female	26	9	5	2	12	4
<10	Male	12	4	8	3	4	1
	Female	13	4	-	-	7	2

Present study data revealed that nine percent respondents, two percent respondents and four percent of female employees are working in sitting posture for 5 to 10 hours due to this posture they suffer from occupational low back pain and spine and leads to decrease mio fascial flexibility. Only very less percent respondent of them were working for more than 10 hours per day, this may causes the lack of

joint mobility and spinal extensor muscles fatigue which may impair spinal alignment and stability.

**B. Stretching the Body to Perform the Work Activity**

The analysis of data was tabulated according to their body perform of the working activity.







Table 5

Stretching the Body to Perform the Work Activity

Duration(hour)	Gender	Textile Units					
		Production		Dyeing		Washing	
		No	%	No	%	No	%
1-5	Male	12	4	14	5	9	3
	Female	7	2	3	1	2	1
5-10	Male	6	2	12	4	16	5
	Female	18	6	7	2	4	1

Four percent and five percent of male respondents were for working 5 to 10 hours in the bending posture and carrying weight to transport from one place to another place inside the textile unit itself may cause a back pain and spinal card damage and low density of bones occurs. Six percent respondents and two percent of female's respondents were working in bending posture for 5- 10 hours in the production unit, dyeing unit respectively. Prolonged bending posture can leads to stomach pains and back pains. The very less female respondents also reported that excessive flow of blood was observed during their menstrual time.

**V. Types of Shift**

Male respondents from production unit, dyeing unit and washing unit's employee worked from 9 am to 9 pm shift. 14 percent, 17 percent, 20 percent respondents respectively. Because it's more comfortable for them especially for females respondents. Due to this

shift times the staff members were late to their work. Only two percent respondents and one percent of female respondents from the dyeing and washing unit were working from 8.30 am to 8.30 pm shifts due to this they become more stress before coming to their work place.

**5. a. Number of Night Shifts**

Among the selected respondents 13 percent and ten percent of male respondents respectively from dyeing units and washing units work in the night shift because their nature of job is to colour the fabric in the night and sundry it in the morning nearly 4-5 night shifts per month is followed regularly. Six percent of female respondents work in the evening shifts per month in production unit.

**6. Information Regarding Occupational Health Hazards**

**A. Common Health Hazards among the Selected Respondents**



Table-6

Common Health Hazards faced by the Selected Respondents

Common Health Hazards	Gender	Textiles Unit					
		Production		Dyeing		Washing	
		No	%	No	%	No	%
Respiration Problem	Male	37	12	36	12	42	12
	Female	26	9	6	2	3	1
Allergic	Male	22	7	42	12	52	7
	Female	15	5	9	3	4	1
Hypertension	Male	40	13	46	15	22	7
	Female	42	14	5	2	4	1
Other health problems	Male	12	4	14	5	11	4
	Female	17	6	3	1	3	1

C. Frequency of Cleaning the Machinery

Among selected respondents majority of them suffer from hypertension that is 27 percent respondents, 17 percent, of male and female respondents respectively from the production and dyeing units. And mostly male respondents from the textile units suffer from reparative **problems** due to the exposure of chemicals & yarn. Only very less percent of male and female respondents suffer from other health problems.

Cleaning the machinery can reduce incidence of the dust pollution to the environment. The majority of them clean the machinery in different units they are 11 percent, 15 percent and 12 percent respectively from production unit, dyeing unit and washing unit clean the machine yearly once, and because they are large machinery frequency of cleaning is not possible and can take more time.

B. Information regarding the Safety Measures followed by the respondents

Among the 300 the selected respondents seven percent, six percent, nine percent of male respondents from production unit, dyeing unit and washing unit respectively have the habit of using gloves, face mask, apron as a safety measures. But majority 20 percent female respondents from production unit does not have the habit of using any safety measures, this may leads to occupational health hazards.

D. Heat Control Equipment used in Textile Industry

Heat hazards can cause a major health illness so in the textile units, heat control equipment was placed in respectively 19 percent, 13 percent, eight percent respectively from the production, dyeing and washing unit. But most of them don't have this facility in their working place.



## Conclusion

Workers are tempted to use harmful mixtures of abrasive, alkali and bleaching agents to remove dye stains from their hands. Organic solvents used in the processes and for the cleaning of machines may themselves cause dermatitis or render the skin vulnerable to the irritant action of the other harmful substances that are used. As a result of exposure to the solvent dimethyl formative in a fabric coating factory which can lead to the outbreak of liver disease? The industry includes the spinning, weaving, and knitting, dyeing and finishing of numerous types of natural and synthetic fibres. The products include fabrics, yarns and carpets. Textile workers are exposed to textile-related dusts throughout the manufacturing process. During spinning, weaving and knitting operations, exposure to chemicals is generally limited.

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