

Ironing Workplaces and Safety Hazards

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Abstract: The present study entitled 'Ironing Workplaces and Safety Hazards' was planned with main objective to note the existing ironing workstation, to study the occupational health hazards of laundry workers and Remedial measures suggested for reducing health hazards for ironing activity. The study was conducted in Parbhani town of Marathwada region in Maharashtra state. Forty five laundry workers (30 male and 15 female) were randomly selected from eight areas of Parbhani town. The selected samples were grouped between the age ranges of 25-55 years. Looking into the advantages of questionnaire and interview schedule both methods were implemented for the data collection. Findings of the study indicated that majority of the selected laundries workplaces used electronic iron of 6 kg weight for ironing task. Number of complaints reported sometimes by hundred per cent male and females laundry workers at laundry workplace such as heat scorching, hand and finger burn, itching in palm, muscle strain, shock and cuts on skin. Based on the findings remedial measures are suggested which will help in improving the work environment.

Key words: Laundry Work, Workstation Design, Workplace, Standing Position, Ergonomics

1. Introduction

Clothing is an important basic need of human being, right from birth to death. Clothes protect the human body from the elements including rain, snow, wind and other weather as well as from sun. (Mehta, 2012) A well-clad person in a perfect outfit poses a good personality and reckoned by the people. Any outfit though well-tailored and out of quality material does not create the required impact until and unless it is well finished.

Clothing being the prime necessity, looking into the advantages of clothing their durability and comfort provided by the clothes, and initial cost being comparatively high it becomes essential to maintain them in proper manner i.e. wash, dry, iron store them. Therefore a laundry is a must in every home. Time and energy saving is possible when the help is sought from professional/ commercial laundries.

Laundry is a group of clothes or linens that are being washed, or a place where clothing and other fabrics are washed or cleaned. (Village, 1998) Most of the women daily carry out the laundering activity in their home but today laundry is not only household activity but is also included in professional activity.

Indian laundry workers spend more hours of the day in laundering activities such as collecting clothes, washing clothes, ironing clothes and handover clothes to customers home. In laundering activities, Ironing is an important activity in all cloth finishing. Ironing is



the process of removing the wrinkles from fabric with the help of heated iron. Hot irons kill parasites and bacteria in clothing and eliminate mildew. (Balter, 2009) Most ironing is done on an ironing board, a small, portable, foldable table with a heat resistant surface. (Parimalam, 2006). Ironing surfaces should be high enough to avoid stooping. Ironing boards should not be too high as - having the arms continually raised imposes strain on the shoulder, neck and upper back. (Ahuja, 2008)

The worker experiences muscular fatigue (Handgrip) and body pains during ironing of clothes in standing posture. (Halim, 2011) The repetitive and forceful hand movement is the cause of strain and fatigue. Perceived exertion is an important method for evaluating the strain and fatigue during ironing activity. It can be based on an individual's sensation. Perceived exertion is the positive correlation between physiological reaction and perceived exertion. (Rao, 2001)

Since the time immemorial, human beings have been creative and active in making places and designs elaborate and decorative. The workplaces being a part of this also underwent many changes however while doing so the basic fact and principle of user friendly design was lost and the workers started complaining about discomfort and pain during work.

Ergonomics is the study of work in relation to the environment in which it is performed (the workplace) and those who perform it (workers). It is used to determine how the workplace can be designed or adapted by the worker in order to prevent a variety of health problems and to increase efficiency in other words, to make the job fit the worker, instead of forcing the worker to conform to the job. One simple example is raising the height of a worktable so that the worker does not have to bend down unnecessarily to reach his or her work. (Porter, 2000)

Laundry workstation should be designed with both the workers and task in mind so that work can be performed comfortably, smoothly and efficiently. If the workstation is properly designed, the worker will be able to maintain a correct and comfortable body posture, this is important because an uncomfortable work posture can cause a variety of problems. (Muhundhan, 2013) Creating a healthy workplace and recognizing ergonomic risk factors in the laundry workplaces is an essential first step in correcting hazards and improving worker protection. Poor workstation design can lead to health related problems. Minor changes in workstation design can make a big difference to productivity, health and safety. (Pauline, 2001) Considering these issues, this study has been conducted with the following objectives,

- To study the existing ironing workstation
- To study occupational health hazard of laundry workers
- Remedial measures suggested for reducing health hazards for ironing activity

2. Methodology

The study was conducted in Parbhani town of Marathwada region in Maharashtra

state. Forty four laundry workers (30 male and 15 female) was randomly selected from eight areas at Fifteen laundry workplaces of Parbhani town. The selected samples were grouped between the age ranges of 25-55 years. The questionnaire was used to collect information on selected samples related to study that include details of ironing workstation and occupational health hazards of laundry workers while performing ironing clothes. Based on the findings remedial measures suggested which will help to improve the work environment.

3. Results and Discussions

3.1 Details of existing ironing workstation: Information on details of existing ironing workstation is presented in table no.1 it is the inferred from the table that majority of eighty seven per cent of laundries are situated in centre of the town and only thirteen per cent of laundry work places are situated nearby the town. With reference to the total dimension of laundry workplace area it was noted that the dimensions of thirty three per cent selected laundry workplaces were 10'x12' (sq. ft.), the dimensions of twenty seven per cent selected laundry workplaces were 10'x10' and 12'x12' (sq. ft). Only thirteen per cent selected laundry workplaces were of 6'x12' (sq. ft) dimensions. With reference to the availability of ventilator, window and door at laundry workplaces, it was observed that sixty seven per cent of selected laundries had no ventilator, thirty three per cent of selected laundries had of 1.5'x 1.5' size of ventilator. Seventy three per cent of selected laundries had 3' x 3' size of window and twenty-seven per cent of selected laundries had no window. Majority of ninety three percent of selected laundries had 6'x7' size of door and very few i.e. seven per cent of selected laundries had 4'x7' size of door. With regard to the electrical fittings and fixtures at selected laundry workplaces it was observed that majority of seventy three per cent and twenty seven per cent laundries had incandescent bulb of 230 volts and 60 watt and fluorescent tube of 230 volts and 100 watt respectively. Electronic iron of 230 volts and 1000 watt was used by fifty three per cent of selected laundry workplaces while only forty seven per cent of selected laundry workplaces used electronic iron of 230 volts and 1500 watt. majority of all selected laundry workplaces used electronic iron of 6 kg weight for ironing task. Iron of 3.5 Kg was provided to the workers for giving them the understanding of hand and palm fatigue. Seventy three workplaces used water sprayer for sprinkling water on cotton clothes during the ironing task and in twenty seven per cent laundry workplaces, small size bucket was used for sprinkling water on cotton clothes. With reference to characteristics of iron it was observed that majority of all selected laundry workplaces had iron weighing 6 kg, sturdy handle with Fiber material, and large size of sole plate. Majority of selected laundry workplaces material of sole plate made from iron metal. With regard to characteristics of iron cord and characteristics of Ironing board / table /surface pad, it was observed that majority of all selected laundry workplaces had detached iron cord. Ironing board / table/ surface pad made from cotton material is heat resistant and pad is separately laid down on ironing board / table / surface.

3.1.1 Timing of selected laundry workplace: Information on timing of selected laundry workplace is presented in fig no.1. It is evident from the table that opening and closing time was 10 am to 8 pm for fifty three per cent of selected laundry and in forty seven per cent of selected laundry opening and closing time was 9 am to 8 pm. Regarding break periods availed by the workers it is noted that fifty-three per cent of selected laundry workers take a lunch break of 15 to 30 min and forty-seven per cent of selected laundry workers take lunch



Table no. 1 Details of existing ironing workstation

(a) Work place area situated			Frequency (n=15)
Center of town			13 (87)
Nearby town			2(13)
(b) Total area (sq. ft)			
6'x12'			2(13)
10x10' and 12'x12'			4(27)
10'x12'/13'			5(33)
(c) Type of flooring and walls in workplace			
Flooring	Soft	Carpet	-
	Hard	Wooden	9(60)
		Tile	4(27)
		Concrete base	2(13)
Ventilator (ft.)	1.5'x 1.5'	1 no.	5(33)
no ventilators			10(67)
Window (ft.)	3'x3'	1 no.	11(73)
no windows			4(27)
Doors (ft.)	4'x7'	1 no.	1(7)
	6'x7'	1no.	14(93)
(d) Electrical fitting in laundry work place			
Light fixtures	Volts	Watt	
Incandescent bulb	230	60	11(73)
Fluorescent tube	230	100	4(27)
Electronic Iron	230	1000	8 (53)
	230	1500	7(47)
Details of iron and ironing workplace			
(a)Equipment used for ironing			Frequency(n= 15)
Electrical iron			15(100)
Water sprayer			11(73.3)
Small bucket			4(26.6)
Characteristics of Iron			
Weight of Iron	6kg		15(100)
Handle material	Fabric		15(100)
Iron handle	Sturdy		15(100)
Size of sole plate	Large sole plate		15(100)
Material of sole plate	Iron metal		15(100)
Detached cord			15(100)
(b)Characteristics of Ironing board / table /surface pad			
Ironing board / table pad made from material	Cotton		15(100)
Separately lay down pad on ironing board / table			15(100)

*Figures in parenthesis indicate percentages

break of 1 hr because they went home for lunch ,or wanted to rest after lunch.

3.2 Occupational Health hazards of laundry workers: Information on health hazards due to laundering and storing equipment in laundry workplace presented in table no. 15 and illustrated in fig no 10. Number of complaints reported sometimes by hundred percent laundry workers at workplace had suffered with heat scorching, hand and finger burn, itching in palm, muscle strain, shock and cuts on skin, Muscle Strain, while 21% male workers reported pain in shoulder sometimes. Whereas pain in shoulder was always reported by 23%



Opening and ending time of laundry

Break time

Fig. 1 Timing of selected laundry workplace

Table No.2 Health Hazards at Laundry Workstations and Remedial Measures Suggested for Reducing Health Hazards for Ironing Activity of male laundry workers.

Name of the item	Health hazards	Male (N=30)			Female (N=12)			Remedies
		Always	Some times	Never	Always	Sometimes	Never	
Iron body	Heat scorching	-	30 (100%)	-	-	15 (100%)	-	Choose iron design with higher handle height to save fingers from touching the iron body. Use hand gloves avoiding burning.
	Hand & fingers burns	-	30 (100%)	-	-	15 (100%)	-	
Iron handle	Itching in the palm	-	30 (100%)	-	-	15 (100%)	-	Provide fabric covered iron handle for proper grip. Avoid using hard handle material.
	Difficulty in lifting	-	-	26 (87%)	-	-	-	
	Muscle Strain	-	21 (70%)	9(30%)	-	7 (100%)	-	
Iron cord	Shock	-	30 (100%)	-	-	15 (100%)	-	Inspect iron cord weekly or monthly. Use proper insulating material for wiring.
Ironing board / table	Pain in shoulder	7(23.33 %)	-	-	-	-	-	Make work surfaces height-adjustable.
Sprayer	Pain in finger	-	2 (6.6%)	-	-	-	-	Used good quality sprayer.
Switch board	Pain in lifting hand	-	-	-	-	-	-	Check the fittings. Avoid open wires and loose connections.
	Shock	-	30 (100%)	-	-	15(100%)	-	Use proper insulating material for wiring.



Rack/ cup board	Cut the skin (poor fitting and fixture material)	-	30 (100%)	-	15(100%)	-	Avoid sharp edged of furniture.
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Male respondents did not report at all difficulty in lifting (87%) and Muscle strain (30%). These are general easy and feasible suggestions given for the benefit of laundry workers.

4. Conclusion


It can be concluded that majority of the selected laundries were situated in the center of the town because it had an easy accesses to costumer home for collection and delivery of clothes. Laundries were having wooden flooring with an incandescent bulb with no ventilators in majority of laundry workplaces used electronic iron of 230 volts and 1000 watt. Working hours were eight and above and availed a lunch break of 1 hour. Majority of Male and Female laundry workers experienced heat scorching, hand and fingers burn, itching in palm, muscle strain, shock and cut on skin and shoulder pain due to improper design of working tools.

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