

Awareness and incidents of occupational health hazards among female workers of small scale food processing units of Punjab state

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Abstract

Female workers have to work both in the industry as well as at the home to meet their family's daily need. The work pattern in food processing units is very repetitive and exposes workers to several health risks. Lack of protective clothing and equipment also exposes workers' health to Occupational Health and Safety (OHS) hazards and diseases, thereby reducing their efficiency and productivity. The present study was, therefore, undertaken to explore the awareness and incidents of occupational health hazards among female workers of small scale food processing units. The study was carried out on 30 women workers engaged in small scale food processing units. The sample was randomly selected from five randomly selected food processing units of Punjab state. Personal interview method, using an interview schedule, and observation technique were adopted to collect the relevant data. Results revealed that most of the respondents were aware about many of the occupational health hazards related to their work and all the respondents were suffering from muscle pain and discomfort because of working in awkward posture for long working hours. Majority (85 %) of the respondents were aware about the regular use of Personal Protective Equipment/Clothing (PPE/PPC) at workplace, but only 33.3 per cent were using apron, 36.7 per cent were using gloves, 26.7 per cent were using face mask and 40 per cent were using head cover at the workplace. Also because of the pain in the lower back of the respondents, many of their routine activities got affected. The present study highlighted the occupational health hazards faced by the workers of small scale food processing units and the causes of health hazards. It will be beneficial for the workers and the employers of food processing units to take preventive measures to avoid or reduce any health risks at the workplace.

Keywords: Agro-enterprise, Food processing units, Health hazards, Low back pain, Personal protective equipment

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INTRODUCTION

Workers are considered the backbone of any type of industry because they are directly related to the system's productivity. Every worker spends about 8-10 hours a day in the workplace which is a great part of their life. Female workers have to work both in the industry as well as at the home to meet their family's daily needs. The work pattern in food processing units is very repetitive and exposes workers to several health risks. The work becomes strenuous when workers are forced to work repetitively in awkward body posture. The worker turns, twists and bends with the load placed on their body which is the main cause of musculo-skeletal discomforts at low back region (Puttewar and Jaiswal, 2014). Most food industries aim at maximum productivity from their workforce and

equipment. Low levels of productivity are the results of inadvertent neglect of ergonomic aspects in the design of equipment (Gite and Yadav, 1990). In small scale industries, maximum number of tasks are done by human involvement and hardly any ergonomic principles are used (Mali and Vyavahare, 2015). As the duration of a person's employment in an unpleasant environment increases, his/her fitness is compromised leading to reduced performance. At some food factories, attention is mainly on negative outcomes. As long as there are no serious accidents, occupational health and safety policies and practices are not carried out fully. As a result, threats to employees' safety are not eliminated in time because accident-prone areas are not recognized and taken care of before accidents occur. Workers are exposed to

many risks due to lack of adequate protective clothing and this endangers their lives and they frequent the clinic due to work related illnesses like flu and chest pains. Lack of protective clothing and equipment also exposes workers' health to occupational health hazards and diseases, thereby reducing their efficiency and productivity. Katsuro *et al* (2010) in a study found out that food industry workers encountered different Occupational Health and Safety problems such as 38 per cent of the workers suffered from respiratory problems, 15 per cent encountered headaches and musculoskeletal problems each, 5 per cent reported psychological disorders and 2 per cent of the respondents suffered burns. The world health Organization (WHO) estimates occupational health risks as the tenth leading cause of morbidity and mortality (Pingle, 2011). India being a developing country is at the verge of increasing Work Related Musculoskeletal Disorders (WMSDs) among the workers engaged in the Industries (Chaudhary and Singh, 2013). The prevalence of MSDs can be reduced by reducing the postural stress by improving workstation which ultimately improves the working posture of the operator (Wanave and Bhadke, 2014). The present study was therefore undertaken to explore the awareness and incidents of occupational health hazards among female workers of small scale food processing units of Punjab state.

MATERIALS AND METHODS

The study was carried out on 30 women workers engaged in small scale food processing units. The sample was randomly selected from five randomly selected food processing units of Punjab state. Personal interview method, using an interview schedule, and observation technique were adopted to collect the relevant data. An exhaustive list

of health hazards that could possibly be encountered at any food processing unit was prepared and respondents were asked if they were aware about those health hazards and had encountered any of those while working in the units. Respondents were also asked about the use of Personal Protective Equipment/Clothing (PPE/PPC) while working and frequency of usage of PPE/PPC.

To explore the prevalence of low back pain, its intensity; frequency, duration and medication among the respondents, a scale developed by Ruta and Garratt (1994) namely, 'Aberdeen Low Back Pain Scale' was used.

RESULTS AND DISCUSSION

In developing country like India, occupational health issues are mostly neglected (Debray *et al*, 2002) thus increasing the risk of Work Related Musculoskeletal Disorders (WMSDs) among the industry workers (Chaudhary and Singh, 2013). Table 1 (a) and (b) presents data about the awareness, symptoms encountered and causes of health hazards experienced by respondents at their workplace. Respondents were aware about many of the occupational health hazards related to their work such as breathlessness (46.7%), cough (43.3%), prevalence of asthma (20%), chest tightness (26.7%), itching (46.7%), skin irritation (60%), sneezing, eye irritation, burns, cuts, falls/slips and hearing problems from excessive noise (100%), fire explosion (46.7%) and electric shock (53.3%). All the respondents were suffering from muscle pain and discomfort because of working in awkward posture for long working hours, static posture and lifting loads. The results are in line with those of Ansari and Sheikh (2014), who, in a study conducted in India, reported that Work Related Musculoskeletal Disorders are the most prevalent occupational health hazards which are

Table 1 (a). Awareness and symptoms of health hazards encountered at workplace for female workers of processing units of Punjab state.

S. No.	Health hazards	Awareness		Symptoms encountered	
		Yes Freq. (%)	No Freq. (%)	Yes Freq. (%)	No Freq. (%)
1.	Breathlessness	14 (46.7)	16 (53.3)	8 (26.7)	22 (73.3)
2.	Cough	13 (43.3)	17 (56.7)	10 (33.3)	20 (66.7)
3.	Sneezing	30 (100)	0	19 (63.3)	11 (36.7)
4.	Prevalence of Asthma	6 (20)	24 (80)	0	30 (100)
5.	Chest tightness	8 (26.7)	22 (73.3)	0	30 (100)
6.	Eye irritation	30 (100)	0	23 (76.7)	7 (23.3)
7.	Cataract	-	-	-	-
8.	Itching	14 (46.7)	16 (53.3)	0	30 (100)
9.	Skin irritation	18 (60)	12 (40)	10 (33.3)	20 (66.7)
10.	Burns	30 (100)	0	20 (66.7)	10 (33.3)
11.	Cuts	30 (100)	0	22 (73.3)	8 (26.7)
12.	Falls/slips	30 (100)	0	21 (70)	9 (30)
13.	Fire/explosions	14 (46.7)	16 (53.3)	0	30 (100)
14.	Hearing problems from excess noise	30 (100)	0	0	30 (100)
15.	Electric shock	16 (53.3)	14 (46.7)	0	30 (100)
16.	Muscle pain and discomfort	30 (100)	0	30 (100)	0

Table 1(b). Causes of health hazards at work places of processing units.

S. No.	Health Hazards	Causes
1.	Breathlessness	Preparation of <i>masalas</i> Preparation of medicine Lifting heavy items
2.	Cough	Preparation of <i>masalas</i>
3.	Sneezing	Preparation of <i>masalas</i>
4.	Eye irritation	Preparation of <i>masalas</i> Preparation of squashes Preparation of pickles
5.	Skin irritation	Preparation of <i>masalas</i> Preparation of squashes Preparation of pickles
6.	Burns	Cooking Boiling Spilling
7.	Cuts	Chopping or grating of vegetables, fruits Stairs
8.	Falls/slips	Lifting and carrying crates Slippery floor due to spilling of water, oil Working in awkward posture
9.	Muscle pain and discomfort	Long working hours Static posture Lifting loads

Table 2. Use of PPE and other control measures at work places of processing units (n=30).

Sl. No.	Name of PPE	Yes Freq. (%)	No Freq. (%)	If yes , using regularly Freq. (%)
1.	Regular use of PPE at work:			
a.	Apron	30 (100)	0	10 (33.3)
b.	Gloves	30 (100)	0	11 (36.7)
c.	Shoes/boots	-	-	-
d.	Face mask	26 (86.7)	4 (13.3)	08 (26.7)
e.	Head cover	26 (86.7)	4 (13.3)	12 (40)
f.	Ear plugs	-	-	-
2.	Environmental control:			
a.	Fire extinguisher	14 (46.7)	16 (53.3)	-
b.	Vacuum cleaner	7 (23.3)	23 (76.7)	-
c.	Regular checks on the electrical fittings	30 (100)	0	21 (70)
d.	Adequate ventilation	22 (73.3)	8 (26.7)	22 (73.3)
e.	Trained in the use of fire extinguisher	-	-	-
3.	Measures used in pest control:			
a.	Trapping	21 (70)	9 (30)	11(36.7)
b.	Nets	20 (66.7)	10 (33.3)	10 (33.3)
c.	Fumigation	30 (100)	-	8 (26.7)
4.	Waste disposal methods:			
a.	Waste bins	30 (100)	0	30 (100)
b.	Incinerator	-	-	-
c.	Open dumping	30 (100)	0	15 (50)
d.	Burning	30 (100)	0	-
e.	Recycling	30 (100)	0	9 (30)

faced by majority of workers. Swiderska *et al.* (2005) in a study conducted in Poland reported that respiratory problems were faced by workers of food industry. In the present study also, respondents reported symptoms of breathlessness (26.7%) during preparation of masalas, medicine and while lifting heavy items; cough (33.3%) and sneezing (63.3%) during masala preparation; eye irritation (76.7%) and skin irritation (33.3%) during preparation of masalas, squashes and pickles; burns (66.7%) while cooking, boiling or spilling;

cuts (73.3%) while chopping or grating of vegetables and fruits; and falls/slips (70%) in stairs, while lifting and carrying crates and because of slippery floor due to spilling of water or oil while working at their respective workplaces. Some other studies also revealed similar results, such as a study conducted by Smith (2004) on a food industry in UK unveiled that workers of food processing industry faces several health problems like musculoskeletal disorders and dermatitis. Bhushan (2011) in a study conducted in USA reported that industry

Table 3. Low back pain Assessment of female workers.

S. No.	Questions	Response	Frequency (%)
1	In the past 2 weeks how many days did you suffer pain in the back or leg (s)?	None at all	20 (66.6)
		Between 1 and 5 days	5 (16.7)
		Between 6 and 10 days	-
		For more than 10 days	5 (16.7)
2	On the worst day during the past 2 weeks how many pain killers did you take?	None at all	25 (83.3)
		Less than 4 tablets	5 (16.7)
		Between 4 and 8 tablets	-
		Between 9 and 12tablets	-
		More than 12 tablets	-
3	Is the pain made worse by any of the following?	Coughing	5 (16.7)
		Sneezing	5 (16.7)
		Sitting	-
		Standing	-
4	Do any of the following movements ease the pain?	Bending	21 (70)
		Walking	7 (23.3)
		Lying down	24 (80)
		Sitting down	20 (66.7)
		Standing	-
5	In your right leg do you have any pain in the following areas?	Walking	-
		Pain in buttock	4 (13.3)
		Pain in the thigh	23 (76.6)
		Pain in the shin or calf	23 (76.6)
6	In your left leg do you have any pain in the following areas?	Pain in the foot or ankle	3 (10)
		Pain in buttock	4 (13.3)
		Pain in the thigh	23 (76.6)
		Pain in the shin or calf	23 (76.6)
7	Do you have any loss of feeling in your legs?	Pain in the foot or ankle	3 (10)
		No	30 (100)
		Yes just one leg	-
8	In your right leg do you have any weakness or loss of power in the following areas?	Yes both legs	-
		Hip	4 (13.3)
		Knee	11 (36.7)
		Ankle	-
9	In your left leg do you have any weakness or loss of power in the following areas?	Foot	-
		Hip	4 (13.3)
		Knee	11 (36.7)
		Ankle	-
10	If you were to try and bend forward without bending your knees how far down to you think you could bend before the pain stopped you?	Foot	-
		I could touch the floor.	21 (70)
		I could touch my ankles with the tips of my fingers.	9 (30)
		I could touch my mid thighs with the tips of my fingers.	-
		I could not bend forward at all.	-
11	On the worst night during the last week how badly was your sleep affected by the pain?	Not affected at all.	26 (86.7)
		I didn't lose any sleep but needed tablets.	3 (10)
		It prevented me from sleeping	1 (3.3)
		I only had 2-4 hours of sleep.	-
		I had less than 2 hours of sleep.	-
12	On the worst day during the last 2weeks did the pain interfere with your ability to sit down?	I was able to sit in any chair as long as I liked	28 (93.3)
		I could only sit in my favourite chair as long as I liked	-
		Pain prevented me from sitting more than 1 hour	2 (6.7)
		Pain prevented me from sitting more than 30 minutes	-
		Pain prevented me from sitting more than 15 minutes	-
		Pain prevented me from sitting	-
13	On the worst day during the last 2weeks did the pain interfere with your ability to stand?	I could stand as long as I wanted without extra pain.	28 (93.3)
		I could stand as long as I wanted but it gave me extra pain	-
		Pain prevented me from standing more than 1 hour	2 (6.7)
		Pain prevented me from standing more than 30 minutes	-
		Pain prevented me from standing more than 15 minutes	-
14	On the worst day during the last 2weeks did the pain interfere with your ability to walk?	Pain prevented me from standing at all	-
		Pain did not prevent me walking any distance	26 (86.7)
		Pain prevented me walking more than 1 hour	2 (6.7)
		Pain prevented me from walking more than 30 minutes hour	-
		Pain prevented me from walking more than 15 minutes	-
		I can walk but less than ¼	-
		I was unable to walk at all	-

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		No not at all	20 (66.7)
15	In the last 2 weeks did the pain prevent you from carrying out your work/housework and other daily activities?	I could continue with my work suffered	10 (33.3)
		Yes for one day	-
		Yes for 2-6 days	-
		Yes for 7 days or more	-
16	In the last 2 weeks for how many days have you had to stay in bed because of the pain?	None at all	30 (100)
		Between 1 and 5 days	-
		Between 6 and 10 days	-
		For more than 10 days	-
17	In the last 2 weeks have your leisure activities been affected by your pain?	Not affected by the pain	-
		Mildly affected by the pain	14 (46.7)
		Moderately affected by the pain	16 (53.3)
		Severely affected by the pain	-
		Pain prevents any social life at all	-
		None at all	-

workers faced fatal injuries due to fire and explosion in 23 per cent cases, due to contact with objects and equipment in 17 per cent cases and in 9 per cent of the cases, fall was the reason of fatal injuries.

Table 2 provides information regarding use of PPE/PPC and other control measures by the respondents. More than 85 per cent of the respondents were aware about the regular use of Personal Protective Equipment/Clothing (PPE/PPC) at workplace, but apron, gloves, face mask and head cover was used by only 33.3 per cent, 36.7 per cent, 26.7 per cent and 40 per cent of the respondents respectively. Other control measures used at workplace included regular checks on the electrical fittings (59%) and adequate ventilation (73.3%); trapping (36.7%), use of nets (33.3%) and fumigation (26.7%) for pest control; use of waste bins (100%), open dumping (52%) and recycling (30%) of waste generated.

Low back pain assessment of the respondents in Table 3 reveals that, in the past two weeks from the date of data collection, 16.7 per cent of the respondents suffered from pain in the back or legs for more than 10 days and they took less than 4 pain killers to get relief. In case of 70 per cent of the respondents, pain was made worse by bending, and the pain was eased by lying down for 80 per cent of the respondents and by sitting down for 66.7 per cent of the respondents and by sitting down for 66.7 per cent of the respondents. Nearly 76 per cent of the respondents had pain in thighs and shin/calf. Weakness or loss of power in hip and knee was reported by 13.3 per cent and 36.7 per cent of the respondents respectively. Because of the pain in the lower back, leisure activities got mildly and moderately affected for 46.7 and 53.3 per cent of the respondents respectively.

Conclusion

It can be concluded from the findings of the above study that workers of small scale food processing units need to be made aware of the importance of maintaining good posture while working, to prevent Work Related Musculoskeletal Disorders, as all of them were suffering from muscle pain and discomfort. Pain in the lower back also affected

their routine activities. And though 85 per cent of the respondents were aware about the importance of regular use of Personal Protective Clothing/Equipment, but only 33.3 per cent were using apron, 36.7 per cent using gloves, 26.7 per cent face mask and 40 per cent were using head cover at the workplace. So, employers must make PPE/PPC available for the workers at the workplaces and workers should be encouraged to use the PPE/PPC regularly.

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