



Occupational Safety and Health among Carpet Factory Workers in a District of Nepal

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Received 23 August 2015; accepted 11 September 2015; published 14 September 2015

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Abstract

Occupational safety and health is a neglected area in small scale cottage factories in Nepal. A cross-sectional study was conducted in 10 small scale carpet factories in Bhaktapur district of Nepal among 100 workers to find out their occupational health and safety status. The study revealed that majority of the workers were females (57%) and more than half (52%) of the workers were aged 20 - 30 years. The duration of work in a day ranged from 8 to 12 hours and majority were weavers (58%). About three in four (77%) worked outside the factory as well. None of them received health education at work and none of the factories had medical treatment facilities and had only basic first aid treatment. Similarly, 80% were not found to be using any personal protective equipment (PPE) during work. A total of 90% workers regarded the dust control measures in their factory as poor; 90% regarded ventilation as poor, 60% reported fire management preparedness as poor; and 30% perceived the first aid treatment services as poor. Majority of them (84%) said they had experienced some health problems at work. The most commonly reported health problems were backache/joint ache (63.1%), eye irritations (40.48%), prolonged headache (40.48%), chest pain (38.1%), and skin irritation (23.81%). Only 27.38% of them informed the authority after experiencing problems; 65.22% of those who reported their problems received treatment. Interestingly, 10% said it was not big deal to have health problems while working in the carpet factory. Further comparative and analytical studies are recommended to explore the occupational health status in small scale factories in Nepal.

Keywords

Carpet Factories, Health, Nepal, Occupation, Safety

Subject Areas: Psychology, Public Health

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1. Introduction

Geographically, Nepal is landlocked between two of the largest countries of the world; China and India, which are the third and the seventh largest countries of the world, respectively [1]. Occupational safety is a major issue for employees, and how management deals with this issue is of both academic and practical significance [2]. In Nepal, the second long-term health plan (1997-2017) has identified occupational health as one of the emerging priority health issues [3]. Occupational safety and health is the science of anticipation, recognition, evaluation and control of hazards arising in or from the workplace, which could impair the health and well-being of workers, and also impact the surrounding communities and the environment [4]. Very little information is available on their workplaces and their work-related health problems in Nepal [3].

Small-scale industries are a widespread, fundamental and essential form of production. In many countries, small-scale industries are the main providers of new employment. In addition, these industries play an outstanding part in economic development of countries by producing export products [5]. Working conditions for the majority of the world's workers do not meet the minimum standards and guidelines set by international agencies. The International Labor Organization (ILO) conventions are intended to guide all countries in the promotion of workplace safety and in managing occupational health and safety programs. ILO conventions and recommendations on occupational safety and health are international agreements that have legal force only if they are ratified by ILO member states [6].

Of the total 3 billion workers in the world, over 85% work and live without having access to occupational health services (OHS). In many countries on all continents, occupational health services may cover only 5% of the workforce. Statistics on coverage are also very unreliable and subject to variations in the definitions and measurement methods [7]. Improving occupational health and safety is in the best interests of all governments, employers and workers, and measures to make improvements should be discussed and agreed among the ILO constituents. Successful health and safety practice is based on collaboration and good will, as well as taking on board the opinions of the people concerned [8]. The study will thus help identify the existing status of occupational health and safety among carpet factory workers and will be useful for researchers, policy makers, academicians and other relevant stakeholders.

2. Methods and Materials

A descriptive cross-sectional study was carried out from May 2011 to October 2011 in selected carpet factories of Bhaktapur district. The workers were selected randomly from 10 factories, 10 from each factory that yielded a total of 100 study subjects. Interviews were conducted with the working staff in the selected factories. The questionnaire was pretested among 10 workers in Lalitpur district. The managers and supervisors were not included in the study. Verbal informed consent was taken from the participants before taking the interview. Privacy and confidentiality was ensured during the study. The respondents were also not forced to answer any of the questions. After data collection, data was entered in MS-EXCEL 2007, which was further analyzed using SPSS version 16 software. Descriptive statistics was only used to analyze the data because of the limited sample size.

3. Results

3.1. Background Information

Fifty two percent were aged 20 - 30 years and 23% were of age 10 - 20 years. Majority of the workers were females (57%) and majority (67%) were Janajatis who are the indigenous people living in the district. One in four (25%) of the factory workers were unmarried. Looking at the marital status, 40% were from nuclear families. Similarly, when they were asked about the distance of place of residence from the factory, it was revealed that 84% of the workers were living inside the factory (**Table 1**).

3.2. Job Characteristics

As seen in **Table 2**, 44% (*i.e.* 44 out of 100) had other family members working in the factory. Majority of the factory workers were weavers (58%) and 64% had worked for 1 to 5 years. All workers worked 6 days a week and the number of working hours ranged from 8 to 12 hours a day. Majority of the workers said they worked in other places outside the factory as well (77%); and around 90% of them (69 out of 77) were involved in carpet

Table 1. Socio-demographic information of the respondents.

Demographic characteristics (n = 100)	Frequency	Percentage
Age		
10 - 20 years	23	23
20 - 30 years	52	52
30 - 40 years	22	22
40 - 50 years	3	3
Sex		
Male	43	43
Female	57	57
Ethnicity		
Janajatis	67	67
Non-Dalit Terai	28	28
Dalit	3	3
Upper caste	2	2
Marital status		
Unmarried	25	25
Married	75	75
Family type		
Nuclear	40	40
Joint	52	52
Extended	8	8
Distance of factory from place of residence		
Living within factory	84	84
Within 30 minutes	7	7
30 min ⁻¹ ·hour	5	5
More than one hour	4	4

Table 2. Job characteristics of the respondents.

Characteristics	Frequency	Percent
Other family members working in the factory (n = 100)		
Yes	44	44
No	56	56
Number of family members working (n = 44)		
1	18	40.91
2	12	27.27
3	9	20.45
4	5	11.36

Continued

Nature of job (n = 100)		
Store related	10	10
Weaving	58	58
Spinning	16	16
Dying related	16	16
Satisfied with the job (n = 100)		
Yes	15	15
No	85	85
Years of work in the factory (n = 100)		
1 - 5	64	64
5 - 10	32	32
>10	4	4
Working days in a week (n = 100)		
6	100	100
Work hours in a day (n = 100)		
8	35	35
10	15	15
12	50	50
Working at other places (n = 100)		
Yes	77	77
No	23	23
Nature of work at other places (n = 77)		
Carpet related	69	89.61
Non-carpet related	8	10.39
Provision of periodic health examination in the factory (n = 100)		
Yes	0	0
No	100	100
Provision of medical treatment besides first aid in the factory (n = 100)		
Yes	0	0
No	100	100
Provision of sick leave		
Yes	100	100
No	0	0
Provision of health education for occupational safety		
Yes	0	0
No	100	100

related work. All the workers said they were not provided the health education at work and all of them said there was no any provision of medical treatment in addition to the basic first aid services. All the workers said that there was a provision of sick leave in the factory.

3.3. Attitude of Carpet Factory Workers on Occupational Health Safety

Of total workers, 95% had the view that periodic health examination is necessary for factory workers; 95% said First aid treatment is necessary; 92% said personal protective equipment (PPE) should be used regularly; 92% said the non-use of PPE can cause health problems; 90% said occupational health and safety is the role of both the owner and workers and 10% had the view that having health problems while working in the factory is not a big deal (Table 3).

3.4. Occupation Safety at Work

Of total workers, 80% were not found to be using any safety measures or PPE. Of 20 workers who were using some measures, the PPE used were gloves (85%), boots (35%), aprons (30%) and mask (15%). Of 20 workers who used the PPE, 25% used it rarely, 50% used sometimes and 25% used always. When asked whether they were ever supervised by their boss at work, 10% said they were never supervised. The workers were also asked about their perceived quality of occupational safety at work in the factory. A total of 90% workers perceived the dust control measures in their factory as poor; 90% reported ventilation facility as poor, 60% reported fire management preparedness as poor; and 30% perceived the first aid treatment services as poor (Table 4).

Table 3. Attitude of workers on occupational health safety (n = 100).

Statements	Frequency	Percent
Periodic health examination for factory workers is necessary		
Yes	95	95
No	5	5
First aid treatment is necessary		
Yes	94	94
No	6	6
Personal protective equipment should be used regularly		
Yes	92	92
no	0	0
Don't know	8	8
Non-use of PPP can cause occupational health problems		
Yes	92	92
No	1	1
Don't know	7	7
Occupational health safety is the role of		
Factory owner only	10	10
Worker only	0	0
Both the owner and worker	90	90
Having health problems is not a big deal in factory work		
Agree	10	10
Disagree	86	86
Don't know	4	4

Table 4. Condition of occupational safety at work.

Characteristics	Frequency	Percent
Used any safety measures (n = 100)		
Yes	20	20
No	80	80
Type of safety measures (n = 20)		
Gloves	17	85
Mask	3	15
Apron	6	30
Boots	7	35
Frequency of use of any safety measures (n = 20)		
Rarely	5	25
Sometimes	10	50
Always	5	25
Supervision by manager at work (n = 100)		
Yes	90	90
No	10	10
Self-Reported quality of dust control measure in the factory (n = 100)		
Good	0	0
Average	10	10
Poor	90	90
Self-reported condition of ventilation in the factory (n = 100)		
Good	0	0
Average	10	10
Poor	90	90
Self-reported quality of fire management in the factory (n = 100)		
Good	0	0
Average	40	40
Poor	60	60
Self-reported quality of first aid facility in the factory (n = 100)		
good	10	10
Average	60	60
poor	30	30

3.5. Health Problems Faced by the Workers and Health Seeking Behavior

Majority (84%) said they had experienced the health problems after working in the factory. The most common reported health problems were backache/joint ache (63.1%), eye irritations (40.48%), prolonged headache (40.48%), chest pain (38.1%), skin irritation (23.81%), GI infections (17.86%), prolonged cough (14.29%), loss

of appetite (5.95%) and fainting (3.57%). Only a few of them informed the authority after experiencing health problems (27.38%); 65.22% were not provided treatment benefits after informing the authority; and of those who were treated, only a third of them (37.5%) were treated in the hospital (Table 5).

4. Discussion

It is commonly assumed that occupational injuries are less of a problem in developing countries because there is less industrialization. Spot studies reveal, however, that injuries are a serious problem among miners, agricultural workers, and industrial workers in most countries [9]. This study also revealed that there exist occupational health problems among the factory workers. Majority (84%) of the workers had experienced at least one health problem while working in the factory.

Carpet hand-weaving is a common practice in countries such as, India, China, Turkey, Iran, and Pakistan and is then transported to other countries for selling. Hand woven carpets are produced in home-based workshops categorized as informal small-scale industry. The work is often organized around families and carried out in homes. As most of the setups are installed in homes, womenfolk and children also contribute to the work [10]. This study also showed that 44% of the carpet factory workers had their families working in the same occupation. The number of family members working ranged from 1 to 4.

Table 5. Health problems faced by the workers.

Characteristics	Frequency	Percent
Experienced health problems after working in the factory (n = 100)		
Yes	84	84
No	16	16
Nature of health problems (n = 84)		
Prolonged cough	12	14.29
Skin infections	20	23.81
Back ache/joint ache	53	63.1
Chest pain	32	38.1
Eye irritations	34	40.48
Prolonged headache	34	40.48
Gastro-intestinal infections	15	17.86
Loss of appetite	5	5.95
Fainting	3	3.57
Informed health problems to the authority (n = 84)		
Yes	23	27.38
No	61	72.62
Treatment provided by authority after informing (n = 23)		
Yes	8	34.78
No	15	65.22
Type of treatment after informing (n = 8)		
At hospital	3	37.5
At health post	5	62.5

The prevalence of work-related musculoskeletal disorders is increasing worldwide. The association between job type and the specific activities within jobs that predispose to the risk of developing such disorders is well documented for developed countries. The prevalence of any work-related musculoskeletal disorders in developing countries ranges from 37% among a general population-based sample of workers through to 92% among nurses [11]. This study also showed 63.1% (50 out of 84) of those having experienced any problems had the problems of backache/joint ache.

Injuries are very common among the factory workers [12] [13]. A study done in Pakistan among carpet factory workers revealed that working children had significantly greater odds of joint pain, dry cough, cuts/bruises, Phalen's sign, and neck/shoulder abnormalities. Symptoms and signs of acute and repetitive injury and respiratory symptoms were more common among carpet-weaving children than their non-working peers [14]. Similarly, literatures suggest that females are found to be more affected with musculo-skeletal disorders than the males [15]. A cross-sectional study of respiratory disorders and atopy in Danish textile industry workers was conducted to survey respiratory symptoms throughout the textile industry which showed that carper factory workers are vulnerable to a number of respiratory illnesses [16]. This study done in Nepal also revealed several health problems among the carpet factory workers like body ache (63.1%), eye irritation (40.5%), prolonged headache (40.5%), chest pain (38.1%), skin problems (23.8%), prolonged cough (14.3%) and other health problems.

In a study done in Tanzania, there was low reported use of personal protective equipment [17]. Of total workers, 80% were not found to be using any safety measures or PPE. Of 20 workers who were using some measures, the PPE used were gloves (85%), boots (35%), aprons (30%) and mask (15%). Of 20 workers who used the PPE, 25% used it rarely, 50% used sometimes and 25% used always.

A study revealed that poor workstation design was a major risk factor for musculoskeletal symptoms in carpet weaving [18]. In this study, the workers were asked about their perceived quality of occupational safety at work in the factory. A total of 90% workers perceived the dust control measures in their factory as poor; 90% reported ventilation facility as poor, 60% reported fire management preparedness as poor; and 30% perceived the first aid treatment services as poor.

5. Limitations

The study was conducted in an urban district and hence might not be able to capture the picture of all carpet factory workers in Nepal. The sample size of the study is also small. So, further researches with large and more representative sample can be done in the future in this area.

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