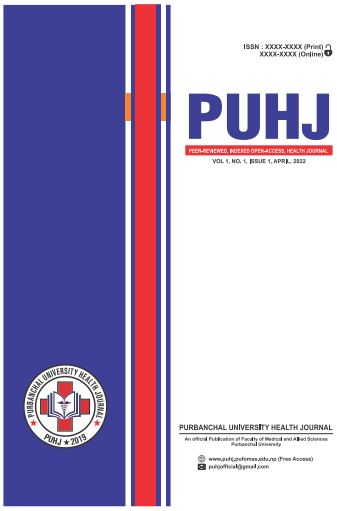

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Awareness of Occupational Health Hazards and First Aid Management of Metal Workers of Patan Industrial Estate, Lalitpur, Nepal

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Abstract

Introduction: About 270 million workers meet occupational accidents estimated by the International Labor Organization (ILO). Metal workers are also exposed to accidents and injuries. However, there is little awareness on occupational health hazards in developing countries.

Objective: The objective of the study was to assess the level of awareness of occupational health hazards and first aid management of metal workers of Patan Industrial Estate Lalitpur, Nepal.

Method: Descriptive cross-sectional study was carried out among purposively selected 147 industrial metal workers who worked at least six months. By using structured interview schedule data was collected. Data were collected from 21 August 2018 to 16 September 2018. Descriptive and inferential statistics (Chi-square test) were used in data analysis.

Result: The mean age of workers was 34.41 years (±11.85). Most of the workers were male (90.5%), literate (78.2%), iron workers (55.1%). The awareness level regarding occupational health hazards among workers was inadequate. Similarly, the level of awareness regarding first aid management was also inadequate among them. There was no association between the level of awareness on occupational health hazards and socio-demographic variables (age, sex, education and work experience) and further no association between level of awareness on first aid management and demographic variables (age, sex, education and work experience) was found.

Conclusion: The level of awareness on occupational health hazards and first aid management in the present study was inadequate. Therefore, it is recommended to organize the educational program for improving awareness on occupational health hazards and first aid management.

Keywords: Awareness; First aid; Metal workers; Occupational health hazards

Introduction

Occupational health deals with all area of health and safety in the workplace and emphasis on prevention of hazards .[1] It is the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations.[2] Workers spend about one third of their lifetime at workplace and face many occupational hazards.[3] As per ILO estimation, 2.3 million people die every year from work-related accidents and diseases globally. There were 313 million non-fatal accidents per year.[4] It is unfortunate to know that many of these workplace tragedies are preventable. The study was conducted at welding sites, where awareness about occupational health hazards associated with welding was present among 62.6% welders. First aid kit was present at 38.7% sites.[5] Approximately 20000 workers have accidents at workplace every year which lead to about 200 death in Nepal.[4] Proper use of personal protective equipment protects workers from workplace hazards and help avoid injuries and accidents.[7]

First aid is the immediate assistance provided to a sick or injured person until professional help arrives.[8] A study in Greece was conducted among industrial workers about first aid knowledge where significant differences first aid trained and no trained workers.[9] A person can provide the necessary care while waiting for the ambulance to arrive if he learned the first aid management skills.

Sustainable, social and economic development on a global, national and local level is vastly dependent on a healthy workforce. More research study and recording of occupational health and safety issues in the workplace is the persistent need of the country for establishing safe and hazard free work.[11]

First aid covers methods and techniques that enhance practical skills related to prevention, preparedness and the immediate response to health emergencies.[12] As well as less study was found in occupational health hazards and first aid management in industrial areas.

The objectives were to find out the socio-demographic variables of the workers, to assess the level of awareness of occupational health hazards of metal workers, to assess the level of awareness of first aid management of metal workers and to determine the association between socio-demographic variables, awareness of occupational health hazards and first aid management.

Method

Descriptive cross sectional quantitative study design was used to assess the awareness of occupational health hazards and first aid management of metal workers of Patan industrial Estate, Lalitpur Nepal from the period of 21 August 2018 to 16 September 2018. Using non probability purposive sampling technique 147 metal workers were selected as sample. Data collection was taken by using self-structured interview questionnaires in Nepali version. Ethical approval was taken from Institutional ethical review committee of Patan Academy of Health Sciences Lalitpur, Nepal and verbal informed consent was obtained from workers before data collection. Privacy was ensured by collecting data from each respondent separately. Collected data was checked for accuracy, completeness, scored immediately and were organized properly after each day of data collection and before entry. Collected data were entered into the statistical package for social sciences (SPSS) version 16 for analysis.

Result

Sociodemographic Characteristics of metal workers

Majority of respondents (90.5%) were male. Respondents 29.3% belonged to the age group of< 40 years and the mean age was 34.41±11.85. Most of the respondents were (78.2%) literate, above forty percent (40.8%) were secondary level education. More than fifty percent (55.1%) were iron workers.

Table 1 Awareness on most common injuries and reason behind the injury N=147

Variable	n(%)
Most Common Injuries[a]	
Injuries of hands or fingers	147(100)
Eye injuries	142(96.6)
Fracture	23(15.6)
Sprains	14(9.5)
Reason behind injury[a]	
Cut by sharp objects	147(100)
Burn by flame	144(98)
Electric shock	144(98)
Not use of PPE	135(91.8)

Multiple Response

All the workers had injuries in hands or fingers and only 9.5% complained of sprains. Regarding

reason behind injury all respondent mentioned cut by sharp objects where the reason behind injury was not due to the usage of PPE(91.8%).

Table 2. Awareness on Personal Protective Equipments, Necessary to use PPE and Prevent From Accident and Injuries N=147

Variable	n(%)
Personal Protective Equipment[a]	
Hard hat	99(67.3)
Goggles	138(93.9)
Gloves	131(89.1)
Apron	145(98.6)
Mask	146(99.3)
Boot	116(78.9)
Necessary to Use PPE[a]	
Protect from burn	145(98.6)
Protect from current	54(36.7)
Prevent FromAccidents/Injuries[a]	
Wearing hard hat	142(96.6)
Wearing goggles	146(99.3)
Wearing apron	144(98)
Wearing mask	146(99.3)

Multiple Response

Almost all respondents answered (99.3%) wearing mask, but 67.3% answered on wearing hard hat on frequently used PPE. Regarding its use, 98.6% used to protect from burn and only 36.7% answered to protect from current whereas when asked about the PPE use that can help from preventing the accidents/injuries almost all (99.3%) the respondents indicated on wearing googles and mask (Table 2).

Table 3. Level of awareness on Occupational Health Hazard N=147

Level of Awareness	n(%)
Inadequate awareness	54(36.7)
Moderate awareness	49(33.3)
Adequate	44(29.9)

Table 3 shows that only 29.9% respondents had adequate awareness on occupational health hazards.

Table 4. Level of awareness on first aid management N=147

Level of Awareness	n(%)
Inadequate awareness	57(38.8)
Moderate awareness	53(36.1)
Adequate	37(25.2)

Table 4 shows that only 25.2% respondents had adequate level of awareness of first aid management.

Table 5. Association Between Demographic Variables with Level of Awareness on Occupational Health Hazards N=147

	Level of awareness		
Characteristics	**Inadequate Awareness**	**Adequate awareness**	**p-value**
	N (%)	N (%)	
Age			
0-40 years	36(24.5%)	10(6.8%)	.177
40-80	68(46.3%)	33(22.4%)	
Sex			
Male	41(27.9%)	92(62.6%)	.708
Female	5(3.4%)	9(6.1%)	
Education			
Literate	53(36.1%)	63(42.9%)	.487
Illiterate	12(8.2%)	19(12.9%)	
Literate			
Primary &secondary	33(28.9%)	39(34.2%)	.467
Higher secondary & above	67(58.8%)	75(68.8%)	
Work Exeperience			
0-20	43(29.5%))	2(1.4%)	.121
21-40	88(60.3%)	13(8.9%)	

Note: Chi-square at p-value<0.05

No association between level of awareness on occupational health hazards and demographic variables (age, education, sex and work experience) was found (Table 5).

Table 6. Association between demographic variables with awareness on first aid management N=147

Variables	Level of awareness		p-value
	Inadequate Awareness n (%)	**Adequate awareness n (%)**	
Age(years)			
18-40	16(10.9%)	4(2.7%)	.328
40-80	88(59.9%)	39(26.5%)	
Sex			
Male	20(13.6%)	113(76.9%)	.119
Female	0(0%)	14(9.5%)	
Educational Status			
Literate	70(47.6%)	46(31.3%)	.381
Illiterate	16(10.9%)	15(10.2%)	
Literate			
Primary &secondary	16(13.9%)	17(14.8%)	.616
Higher secondary & above	45(39.1%)	52(45.2%)	
Work Experience			
0-20	17(11.6%)	115(78.2%)	.446
21-40	3(2.0%)	12(8.2%)	

Note: Chi-square at p-value<0.05

Table 5 shows no association between level of awareness on first aid and demographic characteristics (age, education, sex and work experience).

Table 7. Awareness on Commonly Occurred Foreign body, Immediate Action in foreign body, Immediate & Electric Shock, First Aid kit Available and Completeness of Articles N=147

Variable	n(%)
Commonly occurred foreign body	
Foreign body in eye	120(81.7)
Foreign body in nose	5(3.46
Foreign body in ear	6(4.1)
Foreign body in skin	16(10.9)
Immediate action in foreign body	
Remove the foreign body by hand	94(63.9)
Shout for help	35(23.8)
Clean with water	17(11.6)
Other (do nothing, go to hospital)	1(0.7)
Immediate action in electric shock [a]	
Keep the victim in side lying position	131(89.1)
Check respiration	121(82.3)
Remove the victim from danger	90(61.2)
Keep patient warm	68(46.3)
First aid kit available	
No	2(1.4)
Yes	145(98.6)

Multiple response

Workers answered 81.7% foreign body in eye and 4.1% foreign body in ear as commonly occurring foreign body. Regarding immediate action 63.9% remove the foreign body by hand. Respondents answered 89.1% kept the victim in side lying position and 46.3% kept the patient warm on immediate action when exposed to electric shock. 98.6% reported about availability of first aid kit but with incomplete articles.

Discussion

In this study metal workers had inadequate awareness on occupational health hazards. Cut injuries of hands or fingers, eye injuries/foreign body were reported by as most common (96.6%) injuries during metal work. Wearing mask, gloves, goggles, aprons, hard hat and boots were reported by above 90% to prevent accidents/ injuries. Regarding the use of PPE, Always 91(61.9%), Most of time 30 (20.4%), Sometimes 26(17.7%) was reported which is supported by Hassan S.M in 2014 where welders had low levels of awareness and reported of many complaints of occupational health hazards.[13] The most frequent (81.7%) complaint was foreign body in the eye followed by cut (45.7%) and injuries (50%) as this findings was similar to the study done by Yetunde O. Tagurum in 2017.[14] The study of Nairobi metropolitan reported 36% workers were responsible for safety and health[15] and other study in Kathmandu metropolitan city revealed 56% had awareness on occupational health hazards.[16]

Majority (98%) of welders were clearly aware of at least one type of welding hazard or PPE. [17] Another study by Joseph N. in 2017 found awareness about occupational health hazards and association with welding among 97(62.6%) welders[18] Because the workers were aware about morbidity, personal protective equipment and first aid practice. The finding of this study also contradicts with a study done in western Nepal where 90.7% welders were aware of at least one hazard of welding and were aware of it. Only 47.7% workers used one or more types of PPE. A higher work experience, presence of work regulation, job satisfaction were the causes of awareness.[19]

In this study 90.5% workers were male and who were >40 years (29.3%) of age. Only metal workers had adequate levels of awareness on first aid management. There were 98.6% metal work industries that had first aid kits available but without complete articles which is supported by Nitin Joseph, who reported of inadequate awareness knowledge of first aid. [20] First aid kits were available in only five of the nine schools surveyed.[21] Similarly, a study in Dehradun India 17% of students had complete knowledge of first aid,[22] 12.5% were having good knowledge regarding first aid of Punjab,[23] Good knowledge regarding first aid management in India was reported as 25%[24] and 12.5%.[25]This meant that a health education program like health teaching is required on first aid management and training also necessary for workers.

The findings contradict with the study done in Mangalore, India where 85% have good knowledge[26-27] as the respondents had higher education (postgraduate study) the level knowledge.

There is no association between awareness of first aid management and demographic variables was found in our study which is supported by the study done by AL. Samgham 2015, who also reported of no significant association between teachers' knowledge of first aid and demographic variables. So health education programs and training is necessary in first aid management.

Conclusion

Majority of the respondents had inadequate awareness on occupational health hazards and first aid management. No association between demographic variables and occupational health hazards and first aid management. The finding

shows that there is a need of awareness activities on occupational health hazards and first aid management in that Industrial Estate.

Recommendation

An educational intervention, qualitative study on occupational health hazards and first aid management among metal workers can be conducted.

Conflict of interest

The author declares no conflict of interest.

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