

Occupational Health Hazards of Workers on Construction Sites

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Abstract

Introduction: Occupational health hazards faced by this large and growing number of people depend on the region and its economic standing. *Aim:* To study occupational health status of workers, causes and patterns of occupational injuries. *Materials and methods:* It is a cross-sectional study in total of 100 workers who were examined at different construction sites and hazards were noted. *Results:* It is being observed that most of the construction workers belong to the age group of 20-30 yrs. Male gender dominates construction workers. Distribution of the workers in different categories observed in this study was bricklayers 40% plumber 20%, painters 20%, stone cutters 6%, cleaners 6%, carpenters 4%, heavy machine operator 2%, truck driver 2%. The total injuries abrasions (56) contributed more. Site of injuries is categorized as upper extremities in 41 workers, lower 19 cases. Most of the injuries are afflicted in the evening hours followed by morning and afternoon. Accidents and the injuries occurred predominantly in the overtime'. Use of PPE was only in 4 cases and other 49 cases observed never used the PPE. 9 workers could get an immediate medical attention where 44 others could get first aid. 11 workers lost their daily wages and 42 others escaped from the loss of salary. The loss of daily wages ranged from 1 day to 5 days and the average of it being of daily wage loss per person. *Conclusions:* There is need that the employers address all the potential risk factors at the workplace and educate employees on safe work practices and risk awareness.

Keywords: Occupational Health Hazards; Personal Protective Equipment; Occupational Injuries.

Introduction

The history of civilization shows that men like lived in caves. As civilization developed men discovered 3 basic material wood/ mud & stones to construct the hut and building, wood is good hut has a fear of fire, mud is cheap but is likely to washed away by rain, stone because of its durability is still popularly used, during all types of construction. the users of stone & marble have increase at a rapid rate during the last few years due to various construction plans undertaken by state central government [1]. Occupational health hazards refer to the vulnerable

risks to health and safety for those who work outside the home. According to World Health Organization (WHO), around 70 percent of adult men and 60 percent of adult women throughout the world, an estimated additional 40 million adults enter the global workforce each year [2,3]. The specific occupational health hazards faced by this large and growing number of people depend on the region and its economic standing. However, the following are some of the most common occupational health hazards faced by workers worldwide. The occupational health hazards internationally are mostly structural failures and mechanical or electrical accidents. It includes structures vulnerable to adverse weather conditions, moving and/or unprotected parts of machines, or equipment failure. These occupational health hazards exist fairly equally in developed. World Health Organization defined "Occupational health deals with all aspects of health and safety in the workplace and has a strong focus on primary prevention of hazards." Health is basically defined as a state of physical, mental and social well-being and not merely the absence of disease. Occupational health is a multidisciplinary field of healthcare concerned with enabling an individual to undertake

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Received on 08.03.2018, Accepted on 31.03.2018

their occupation, in the many way that causes least harm to their health. Hence our aim is to study occupational health status and patterns of workers, causes of occupational injuries.

Materials and Methods

It is a cross-sectional study done in department of forensic medicine in total of 100 workers who were examined at different construction sites and various hazards were noted like injuries, skin dermatosis, COPD, multiple joint pains, conjunctivitis, URTI, UTI, malnutrition etc. At its 214th session, the governing body of the ILO decided that one of the two technical questions to be included in the agenda of the tenth session of building, civil engineering and public works committee would be the improvement of working conditions and of the working environment in the construction industry".

In the building sector, as in any other activity, occupational safety and health and general working conditions form an aggregate of interdependent and interacting component part, excessive working hours or the accident, premature ageing or proneness to disease, while housing conditions, food, the existence or absence of medical services and other factors such as remuneration, the pace of work, the nature of the employment contract and fear unemployment also exert their effects. These interactions are reinforced by the features characteristic of the construction industries, including- to mention only two-uncertain weather conditions and the large proportion of migrant, temporarily, young and in some countries, women workers, whose situation makes them both of dangerous work or excessive working hours.

Results

Table 1: Workers in different age and genders groups.

Age-Group	Number of workers	Percentage
0-10	0	0
10-20	30	30
20-30	40	40
30-40	20	20
40-50	10	10
Total	100	100
Sex		
Male	89	89
Female	11	11
Total	100	100

It is been observed that most of the construction workers belong to the age group of 20-30 yrs., followed by 10-20 yrs. Least number of workers are observed in age group of 40-50 yrs. Male gender dominates construction workers, in the study 89% cases were males as compared to the 11% of females (Table 1).

Table 2: Distribution of workers according to the type of work

Trade Occupation	Number Of Workers	Percentage
Plumber	20	(20%)
Painter	20	(20%)
Cleaner	6	(6%)
Bricklayer	40	(40%)
stone cutter	6	(6%)
Carpenter	4	(4%)
heavy machine operator	2	(2%)
truck driver	2	(2%)
	100	(100%)

Distribution of the workers in different categories observed more common in this study was bricklayers 40%, plumber 20%, painters 20 (Table 2).

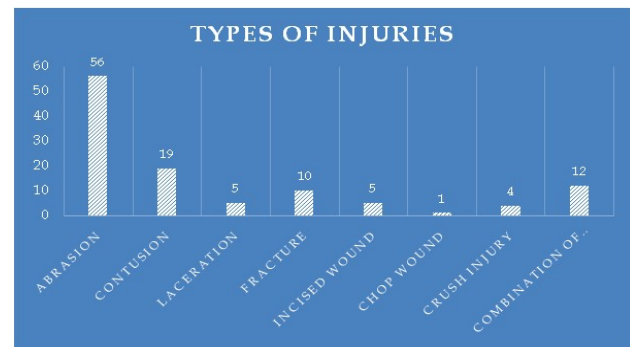


Fig. 1: Distribution of the cases according to the type of injuries

Total injuries contributed to the study were classified as abrasions (56), contusions (19), lacerations (5), fractures (10), incised wounds (5), crush injuries (4) combination of injuries in (12) (Figure 1).

Table 3: Site of injuries distribution.

Site of injuries	Number of cases	Percentage
Upper extremities	41	41
Lower extremities	19	19
Trunk	1	1
Head, face, neck	4	4
Genitals	0	0

Site of injuries is categorized as upper extremities in 41 workers, lower extremities 19 cases, head, neck, face 4 cases, on trunk and in no case injury was on genitals (Table 3).

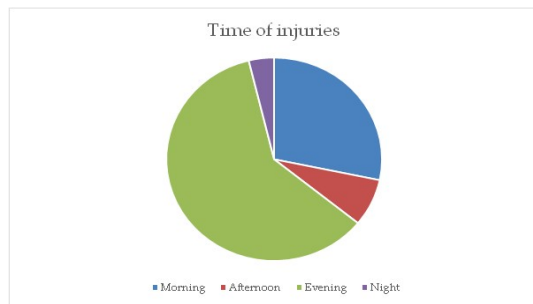


Fig. 2: Time of injuries

Many accidents and the injuries occurred predominantly in the overtime. Use of PPE. was only in 4 cases and other 49 cases observed never used the PPE (Figure 2).

Table 4: Availing treatment and loss of wages after the injury

Was treatment after the injury	Number of cases	Percentage
Yes	9	9
No	44	44
Loss of wages		
Yes	11	11
No	42	42

9 workers could get an immediate medical attention whereas 44 others couldn't get the first aid. 11 workers lost their daily wages and 42 others escaped from the loss of salary. The loss of daily wages ranged from 1 day to 5 days and the average of it being 2.27 days of daily wage loss per person (Table 4).

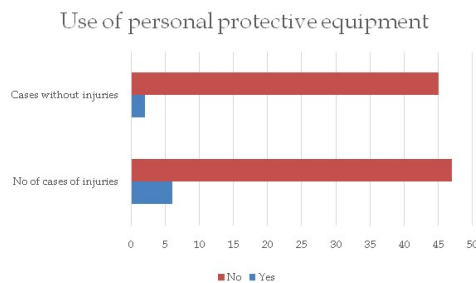


Fig. 3: Use of personal protective equipment

Most of the hazards are with not using protective equipment (Figure 3).

Table 5: Health problems associated in workers

Health problems noted	10-20 yrs	20-30 yrs	30-40 yrs	40-50 yrs	Total number of cases
Skin dermatosis	10	15	15	10	50
Joint pains and body ache	8	15	8	5	36
Hearing impairment	0	1	1	1	3
COPD	0	1	2	3	6
UTI	1	3	5	10	19
Conjunctivitis	0	1	1	3	5
URTi	2	3	5	5	15

In the other hazards observed skin dermatitis was the most common in age group 20-40; joint pains in age group 20-30; hearing impairment in late ages; COPD in late ages; UTI in age

Study was done in total 100 workers and results as follows

Discussions

The study was done on 100 workers. The construction sites were sampled to represent all registered construction sites in Mumbai. Each member or case in the sample is referred to as subject, respondent or interviewers according to Ogula [4]. In research, sample size is normally directly proportional to the population of interest. The different sample from different construction sites in this study was a representative of the population of workers in each particular construction site. Babbie suggests that in research a response rate of at least 50% is considered adequate for analysis and reporting; a response of 60% is good; a response of 70% is very good; a response of 80% and above is excellent". Mugenda and Mugenda found a response rate of 50% is adequate for analysis and reporting while 100% response rate is excellent [5].

It is been observed that most of the construction workers belong to the age group of 20-30 yrs., followed by 10-20 yrs. Least number of workers are observed in age group of 40-50 yrs. The results on age of participants concurs with a similar study by Khairuzzaman et al., found workers age ranging being between 25 and 60 years with a majority being in the age group of 30-40 years [6]. A similar study by Guidotti, young workers tend to feel immune to hazards and do not take PPE usage seriously while older workers feel that they are used to certain types of equipments and that they have experience to work safely despite the hazards involved [7]. Acharya done similar study in Nepal also found that majority of the construction workers were in age group 30-40 years and were more likely to use PPE compared to others [8].

group of 40-50; conjunction in age group of 40-50; URTI (upper respiratory tract infection) in all age groups and it was minimal in young age group and maximum in elderly (Table 5)..

Male gender dominates construction workers, in the study 89% cases were males as compared to the 11% of females. Hard work with high occupational risk is always done by men according to ILO[9] and WHO [4]. The results on gender concur with a similar study by Acharya (2014) on Utilization Pattern of Personal Protective Equipment among Industrial Workers of Nepal, majority of the respondents were male (68.4%) [8]. Kimeto in his study on safety provision among tea factory workers reported that male workers in the factories were high (75.0%) compared to their female counterparts (25.0%) [10].

Anatomical distribution of the injuries is categorized as upper extremities in 41 workers, lower extremities 19 cases, head, neck, face 4 cases, on trunk and in no case injury was on genitals. Acharya [8] in a similar study reported almost similar results regarding the prevalence of injuries/ailments among construction site workers. In his study, out of 187 respondents, 60 (32.1%) workers had faced health problems or hazards while working in the industry. Most of the workers suffered from accidents/injuries followed by musculo-skeletal problems. Studies of Aguwa [11] on workplace personal protective equipments also reported similar results on the type of injuries/ailments experienced by industrial workers. A similar study in a developing country (Nepal) showed that there were high industrial hazards due to low use of PPE. Improper utilization of PPE in the workplace has led to various health hazards according to studies of Acharya.

Site of injury distribution at different times of the day in my study shows the pattern as most of the of the injuries are afflicted in the evening hours followed by morning and afternoon and the least cases in the night as the sites where the data was collected were not functioning during those hours. it was also observed that the accidents and the injuries occurred predominantly in the overtime.

Use of PPE was only in 4 cases and other 49 cases observed never used the PPE. Muchemedzi and Charamba [12] noted in his study that accidents result from unsafe conditions, equipment or materials in the work environment. A similar study conducted among cement workers in United Arab Emirates by Ahmed and Smith [13], showed that only 52.9% of the workers knew the hazards other than the dust that were associated with their work. Accidents are caused by unsafe acts or practices (the human element that results from poor attitudes, physical conditions and lack of

knowledge or skills to enable one to work safely) as explained by (Muchemedzi et al., [14] in a similar study. According to Frank bird accident ratio study in 1969, 88% of accidents are caused by unsafe acts of persons, 10% are caused by unsafe mechanical or physical conditions and the remaining 2% are unpreventable. Muchemedzi and Charamba [12] established that the majority of accidents (98%) do not just happen, instead; people who perform unsafe acts and create unsafe conditions cause them and therefore accidents are preventable. When accidents are prevented injuries/illness are also gotten ride off. Use of PPE can protect a worker from potential injuries/illness as a result of accidents.

The loss of daily wages ranged from 1 day to 5 days and the average of it being 2.27 days of daily wage loss per person. In the other hazards observed, skin dermatitis was the most common in age group 20-40; joint pains in age group 20-30; hearing impairment in late ages; COPD in late ages; UTI in age group of 40-50; conjunction in age group of 40-50; URTI (upper respiratory tract infection) in all age groups and it was minimal in young age group and maximum in elderly.

Constant awareness of all hazards, injuries and illness associated with constructions should be maintained. All sorts of injuries to workers should as much as possible should be minimized while on duties. Strictly Safety rules to be followed by taking help of personal protective equipments. One should follow the standard permissible limits of working hours. Periodic rest in between the work schedules is needed Periodical medical examination to be conducted scrupulously. Awareness about the safety at work to be increased by interaction with workers, orientation lectures, various posters, slogans to be displayed. Quick attention and First aid boxes to be provided at the construction sites. Workers should be trained for giving first aid to others.

Conclusion

Occupational hazards are preventable so Prevention depends on the understanding that workers' safety is not only the responsibility of the workers, but is the primary responsibility of the employer. The employers needs training of their employees on the appropriate safety procedures and maintain safe working environment so that hazards are less likely to occur.

It is essential for workers to adhere to strict safety

protocol and attend routine safety seminars that stress the importance of following safety guidelines. Potentially hazardous machinery should be routinely inspected to ensure safety measures are in place and working properly. Tools should be properly chosen and suitably verified before use. Workplace should be brightly lit and extreme temperatures avoided, as well as suitable clothing for assignment tasks provided.

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