



ORIGINAL ARTICLE

A Community Based Study on Occupational Injury in a Slum of Kolkata

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Abstract:

Background: Occupational accidents/injuries represent a major public health problem. A work accident, workplace accident, occupational accident, or accident at work is a "discrete occurrence in the course of work" leading to physical or mental Occupational injury.

Objective: To find out the personal, occupational and injury characteristics of the workers in a Kolkata slum and the association of occupational injury with pertinent variables.

Material & Method: The study was a community based, cross sectional study, done in Basanti Colony, a slum in Ultadanga (Kolkata, West Bengal), over a period of six months in 2013-14 among 147 workers.

Result: The study found that 49% of the workers had suffered from work related injuries. Of the injuries 50% were in the upper limb and half of all the injuries were superficial. It shows that the majority of the workers belong to the age group of 31-40 years, female, domestic worker with duration of occupation up to 10 years. A total of 72 (49%) workers were found to be injured. It shows that superficial injury tops the list followed by sprain and strain with lower limb having the maximum number of injuries.

Key words: Community based study, Occupational injury, Slum, Kolkata

Introduction:

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In many countries occupational injuries represent a major problem in public health. A work accident, workplace accident, occupational accident, or accident at work leads to physical or mental occupational injury. According to the International Labour Organization (ILO), more than 337 million accidents happen on the job each year, resulting, together with occupational diseases, in more than 2.3 million deaths annually.¹ Severe consequences also do occur as an after-effect² leading to social and economic loss^{3,4}. Every year, almost one thousand workers die and one fourth of a million are injured in industries in India in organized sectors only. Thousands of others are crippled due to accidents in unorganized sectors. Number of insured persons in the pay-roll of permanent disablement benefit had gone up to 113,500 with addition of about 15,000 fresh cases of disablement due to employment injury during 1997–1998.⁵

A variety of factors have been found to be responsible for occupational accidents, either directly or indirectly. Work conditions⁶, age^{7–10}, educational status, safety training¹¹, experience¹², smoking^{13, 14}, alcohol^{15–18}, psychosocial factors¹⁹, shift of work²⁰ and weather²¹ have all been designated as responsible factors. Some authors have also shown that the type of worker (temporary or permanent)²² and speed of work²³ are also important factors in the causation of occupational accidents. Now it is understood that accident/injury is a multifactorial event and many of the responsible factors are still not known.

In majority of cases, minor/near accidents are not reported. These accidents are of vital importance while investigating the contributing factors for injuries. Systematic research for human factors serving as determinants of industrial injuries has rarely been made in Indian context. Major effort is given in identifying unsafe conditions leading to injuries. Mechanical/safety issues involved in the occurrence of accident and details of accidents and injuries are frequently identified. The role of human, workplace factors is less recognized. But, modification of human, workplace factors (if undertaken through proper mode of health education) may prevent a good proportion of such accidents. In this background, this study was conducted with the following objectives:

1. To find out the personal, occupational and injury characteristics of the workers in a Kolkata slum
2. To find out the association of occupational injury with pertinent variables.

Methodology:

The study was a community based, cross sectional study, done in Basanti Colony, a slum in Ultadanga (Kolkata, West Bengal), over a period of six months in 2013-14. The study was performed among the workers residing in that area with the help of a local club, "Anya Akash". A total of 1434 informal sector workers were listed by a local survey. From pilot study in the same area, the prevalence of work related injury was observed as 30%. Considering 99% confidence, 10% allowable error and 10% non response allowance, the sample size came to be 154 (140+14). Simple random sampling was done using a random number table from the list of 1434 workers residing in that locality. During study, 7 workers refused to take part in the study resulting in the final sample to be 147. The study involved workers of varied occupations. Study tools used were pre-designed & pre-tested schedule and medical check-up with Stethoscope, B.P machine, weighing scale, measuring tape.

Approval of Institute Ethics Committee was taken before commencement of the study. After prior written informed consent, workers were interviewed and examined to collect information of human factors, possible workplace factors and injury history (last six months) including ergonomic issues. Data related to minor/near accidents were also collected and analysed for the purpose of understanding contributing conditions.

Statistical Analysis: Data was analyzed with tabulation, proportion (%). Chi square test was used to for statistical significance.

Results:

Background characteristics of the workers depicted in table 1. It shows that the majority of the workers belong to the age group of 31-40 years, female, domestic worker with duration of occupation up to 10 years.

The pattern of injury is presented in table 2. A total of 72 (49%) workers were found to be injured. It shows that superficial injury tops the list followed by sprain and strain with lower limb having the maximum number of injuries.

Association of occupational injury with pertinent variables are depicted in table 3. It shows that injury was more among male workers (75%) in the age group of 31-40 years (60%) but these are not statistically significant. Similarly, more injuries were also observed among hypertensive

(50%), non-domestic workers (60%) working in the present occupation for 11-20 years (69.2%) but again these are also statistically insignificant.

Table1

Distribution of the workers according to age, sex and occupational variables.(N=147)

Variable		No.	Percentage
Age group	≤ 30	48	32.7
	31-40	60	40.8
	>40	39	26.5
Sex	Male	24	16.3
	Female	123	83.7
Type of worker	Domestic worker	102	69.4
	Non-domestic worker	45	30.6
Duration in occupation (yrs.)	Up to 10	57	38.8
	11-20	39	26.5
	> 20	15	10.2
	Information not available	36	24.5

Table 2

Distribution of the injured workers according to pattern of injury (N=72)

		No.	Percentage (%)
Type of Injury	Fracture & dislocation	3	4.2
	Sprain & strain	27	37.5
	Superficial injury	36	50
	Burn	6	8.3
Body Parts Injured	Head	6	8.3
	Trunk	3	4.2
	Upper limb	36	50
	Lower limb	27	37.5

Table 3**Association of injuries with pertinent variables (N=147)**

		Total	Injury No (%)	P value
Age group	≤ 30	48	15 (31.3)	0.211
	31 – 40	60	36 (60.0)	
	> 40	39	21 (53.8)	
Sex	Male	24	18 (75.0)	0.11
	Female	123	54 (43.9)	
Present occupation	Domestic worker	102	45 (44.1)	0.238
	Others	45	27 (60.0)	
Duration in occupation (yrs.)	≤ 10	57	18 (31.6)	0.106
	11 – 20	39	27 (69.2)	
	>20	15	6 (40.0)	
Hypertension	Yes	54	27 (50.0)	0.574
	No	93	45 (48.4)	

Discussion:

This study has shown that upper limb injury was more common(50%) whereas other studies have shown that musculoskeletal disorders being the most common hazard in women engaged in sewing and the neck being the most commonly affected part, followed by the low back. ²⁴ In another study done by How-Ran Guo, workers complained of musculoskeletal disorders of mainly neck, back, shoulders, hands, and wrists. ²⁵

Studies done in developed and developing countries reported that men had a higher risk of occupational injury than women ^{26, 27} similar to the present findings.

This study revealed that workers in the age group 31- 40 years were more prone to workplace injury similar to studies done by A. K. Ghosh et al ²⁸, whereas G. Antonio et al ²⁹ stated workers in age group below 30 years old were about 1.9 times more likely to report occupational injury than workers whose age group was 30 years and above due to inaccessibility to health and safety information, lack of training on health and safety, less work experience, low level of knowledge and skill towards the work among young workers.

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