

ORIGINAL RESEARCH



Slip, Trip and Falls among Healthcare Workers of an Apex Tertiary Care Hospital of North India: A Cross Sectional Study

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Abstract

Background: STF (Slip, trip and fall) in healthcare sector is an under-rated hazard, and many of the injuries caused due to STFs in healthcare sector are unreported (1). Studies have shown that the incidence of STFs is reportedly high in countries like United States of America. Slip, trip, and falls are the second most common cause of lost-work days in United States' healthcare sector (2). However, due to lack of data and studies in this regard, the situation in India is not yet known. STFs need a special attention, and measures should be taken to mitigate the risk factors. There are many factors which may contribute to the higher incidence of STFs in healthcare institutions. Some of these factors are liquid contaminates on floors (water, soap, body fluid etc), objects (wheelchair, waste baskets, boxes etc) (3, 4).

Methods: Since, there was no mechanism to report or record the incidence(s) of Slip, trip and falls in hospital where this study was conducted, so the researcher has created a structured questionnaire, and this was introduced in the selected sample population in the form of interview-based survey.

This is a cross-sectional study with a sample size of 406 healthcare workers, this study was conducted in AIIMS (All India Institute of Medical Sciences), New Delhi during January 2019 to March 2019 using structured interview. A pilot study with N=30 was also conducted for establishing the validity and reliability of the questionnaire. Proportionate stratified random sampling was used for participant selection. The collected information was entered in Statistical Package for Social Sciences (SPSS). Descriptive and inferential statistical analyses were performed.

Results:

Out of 406 healthcare workers, from various clinical and support areas of the hospital, it was observed that 14 (3.45%) HCWs have at least one incidence of STF in the last one year. This is higher if we compare with the available data from United States studies. Out of these cases 5 (N=280, 1.78%) cases were from clinical areas of the hospital and 9 (N=126, 7.14%) cases were from support areas of the hospital.

Conclusion: Incidence of STFs was significantly higher in support areas of the hospital. There was a minimum 60 workday's loss in the last one year due to STFs. Overall incidence of STFs was higher in support areas of the hospital.

1 | INTRODUCTION

Workforce for health services is the “heart of the health system in any country.” The WHO (World Health Organization) declares health workforce as “the most valuable resource for health” (5). More than 59 million workers are employed in healthcare sector worldwide (6). We have no reliable source giving the exact number of the health workforce in India, as more than half of the healthcare professionals work in the unorganized private sector (7).

Healthcare industry is one of the most occupational hazardous environments. Healthcare workers are constantly exposed to complicated health and safety hazards in the course of their work. A healthcare worker needs protection from these workplace hazards as much as any other category of workers such as miners or construction workers (8). Government of India is now more focussed on occupational health, and it is reflected in the newer government policies. National health policy 2017 is specially emphasizing on reducing occupational injuries. A Health care provider faces many health hazards during their work. Identification of these workplace hazards and recognizing the risks arising from them is the first step towards the prevention from these hazards.

STFs (Slip, trip and falls) in US healthcare sector have an approximate occurrence of 38.5 per 10000 employees. It is the second most common cause of lost-workday injuries in hospitals of United States (9). In India there are no reported studies to calculate an estimated prevalence of STFs in healthcare sector. STFs can occur at any place and hospitals are no exception for it. Instead, hospitals are the places where chances of STF are even more than the other places, due to hectic work environment, wet floors, spills, tangled wires in ICUs and OTs, etc. This study is an attempt towards uncovering the incidence of STFs and also to study the awareness of healthcare workers towards the hazard of STFs at workplace.

2 | MATERIALS AND METHODS

Study design and settings

This is a cross sectional study and has been carried out at an apex tertiary care hospital located in the capital city of India. The hospital includes several separate buildings housing different centres. This study was carried out in the “Main Hospital building” which is 8-floor building, in which most of the medical and surgical facilities for adults and children are located. Selected support services catering to main hospital have also been included in the study. This study was carried out during the period of Jan 2019 to March 2019.

Sample and sampling

Proportionate stratified random sampling method was chosen for selecting the study population. The total population in the selected areas of the hospital was around 2000 employees. Only those employees were considered for the study, which were willing to participate and were working for more than one year in the institute. Stratification was done based on the departments of various clinical and support departments, so at least 10% of minimum population is covered in the sample. Total calculated sample size for the study was 406.

Data collection

Interviews of employees were conducted in select representative work areas of hospitals. A structured interview questionnaire was designed after review of literature (10). The reliability of interview questionnaire was scrutinized with pilot study and calculating coefficient alpha values. The values were ranging from 0.79 to 0.89.

Data procession and analysis

Supplementary information The online version of this article (<https://doi.org/10.52845/CMRO/2021/4-11-2>) contains supplementary material, which is available to authorized users.

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The Interview data was collected in Microsoft Excel[®] software and was interpreted using IBM SPSS version 24.

Ethics statement

Approval for this study was obtained from the institutional ethics committee of All India Institute of Medical Sciences New Delhi.

3 | RESULTS

Tables 1, 2, 3, 4 and 5

This study was conducted in various clinical and non-clinical areas of the hospital Table 1

TABLE 2:

S. No.	Clinical Area (N=280)	Non-Clinical Area (126)
1	In patient wards	Mortuary
2	OPD	Hospital Laundry
3	Operation theatre	Hospital Kitchen
4	Intensive Care Units	CSSD
5	Radiology and Nuclear Medicine Deptt	Hospital Stores

TABLE 3: Incidence of slip, trip and fall in the last one year

	Yes	No	Do not remember
Clinical Areas (n=280)	5	272	3
Non clinical Areas (n=126)	9	116	1
Total (n=406)	14	388	4

year. Out of which 5 are from clinical areas and 9 are from non-clinical areas. Pearson Chi-Square = 12.724, df=2, p=0.002 which shows there is strong relationship between workplace and incidence of STFs. Non-clinical areas show significantly higher incidence of STFs as compared to clinical areas. Hence, incidence was higher in support staff than Doctors and Nursing staff.

6 (0.5%) respondents from support service areas and 3 (0.1%) respondents from clinical areas had taken at least one day leave in the last one year due to incidence of slip, trip and fall at workplace.

Lost time injury Table 4

TABLE 4:

	Lost days (for 406 employees)	Lost Workday Rate
Clinical Areas	23	8.21
Non clinical Areas	37	29.36
Total	60	14.78

Lost workday Rate was calculated using the OSHA formula:

$$LWR = \frac{[(\text{Total No. of lost days} \times \text{labor hours for 100 employees}) / \text{Number of Employee labor Hours Worked}]}{100}$$

Preference to wear ‘Slip resistant’ shoes at workplace. Table 5

TABLE 5:

	Yes	No
Clinical Areas (n=280)	7	273
Non clinical Areas (n=126)	29	97
Total (n=406)	36	370

Pearson Chi-Square = 28.427, df=2, p>0.001 which shows there is strong evidence that clinical areas staff (Doctors and nurses) are lesser inclined towards wearing Slip resistant shoes as compared to the Support staff of non-clinical areas.

4 | DISCUSSION

AIIMS, New Delhi is an apex tertiary care hospital located in the capital of country. It is the largest public healthcare institution of the country. The institute has various centres of different specialities and super-specialities, but the main hospital building is the oldest structure and it consists of various departments. Main hospital building is an eight storey

TABLE 1: Overall, 406 healthcare workers were interviewed, which included 82 doctors, 161 nursing officers and 163 Support staff. Of these 57% (n=230) participants were males and 43% (n=176) were females.

S. No.	Socio-demographic characteristics	Total Number (percentage)	Number (percentage) Clinical Areas	Number (percentage) Support Areas
1	Gender			
	Male	230 (56.65)	115 (41.07)	115 (91.27)
	Female	176 (43.35)	165 (58.93)	11 (8.73)
2	Age			
	18-30	33 (8.1)	26 (9.29)	07 (5.56)
	31-40	194 (47.78)	173 (61.79)	21 (16.67)
	41-50	134 (33.00)	68 (24.29)	66 (52.38)
	51-60	45 (11.08)	13 (4.64)	32 (25.40)
3	Working duration in Institute			
	<10 years	230 (56.65)	204 (72.86)	26 (20.63)
	11- 20 years	124 (30.54)	64 (22.86)	60 (47.62)
	21-30 years	50 (12.31)	12 (4.29)	38 (30.16)
	More than 30 years	02 (0.49)	00 (0.00)	02 (1.59)
4	Designation			
	Doctor	82 (20.19)	76 (27.14)	06 (4.76)
	Nurse	161 (39.65)	161 (57.50)	00 (0.00)
	Support Staff	163 (40.14)	43 (15.36)	120 (95.23)

structure and it has total 1162 inpatient beds. Total 1,20,110 patients were admitted in the year 2019-20 in the main building of the hospital with an average length of stay of 9.9 days (11). All these figures provide a glimpse of the workload on healthcare workers of hospital. There are many occupational hazards which are associated with hospitals, STF is an underrated hazard. However, we observed in this study that the one-year incidence of STF is about ten times than that of US healthcare.

Studies suggest that

non-clinical areas. Also, 13 out of these 14 have taken at least one day leave due to the incidence. When calculated, in totality 60 lost work days were observed. Majority of the STF incidences recorded are from support areas of the hospital.

5 | CONCLUSION

Since there was no mechanism in the hospital to record the incidences of STF among the health care workers, the incidence of STF was calculated using the interview of the sample population. Total 14 HCWs had at least one incident of STF in the last one year. Out of these, 9 were from the staff of

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