

# A Retrospective Analysis of 'Slip-and-Fall' Injuries Among Inpatients at a Tertiary Care Hospital, Karnataka, India

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## ABSTRACT

**Introduction:** The reported cases of 'Slip-And-Fall' (SAF) injuries among inpatients are increasing at an alarming rate, causing increased morbidity and mortality, productivity losses, financial losses, and raising questions about the healthcare facility's capacity to provide safe patient care. Moreover, the lack of studies on SAF injuries in Indian healthcare settings impedes attempts to identify and prevent such inpatient injuries in the future.

**Aim:** To document the causes of SAF injuries and identify the contextual factors related to the injuries.

**Materials and Methods:** A retrospective study conducted in Kasturba Hospital, Karnataka, India, analysis (data from July

31<sup>st</sup> 2000 to July 31<sup>st</sup> 2015) of 61 case reports was carried out. A checklist was developed according to the objectives which consisted the time, outcome, area and the root cause of SAF injuries in the study setting.

**Results:** In the present study, out of 61, 28 cases were reported to have occurred in the wards, 21 cases occurred between 7:30 pm and 7:30 am, no noticeable injuries were the outcome in (36%) of the reported cases.

**Conclusion:** The present study concludes by providing recommendations for reducing SAF injuries in hospitals, and for improving the quality of reporting in SAF injury reports.

**Keywords:** Hospital associated injuries, Inpatient injuries, Premises liability

## INTRODUCTION

The SAF is an umbrella term used to describe the cases of slips and trips, resulting in injuries while on someone else's property. These cases are often considered to be "Premises liability" claims, and the property owner may be held legally responsible [1]. In India, prevalence of SAF injuries are attributed to factors such as lack of awareness by the patient and care providers, and also due to poor maintenance in and around the hospital environment. The issue of patient safety has been a concern since the evolution of accreditation agencies. The reported cases of SAF injuries among inpatients are increasing at an alarming rate [2]. These incidents often result in increased morbidity and mortality, productivity losses, financial losses, and question the healthcare facility's ability to care for patients. Studying the causes of SAF injuries will help us to identify them, thereby prevent similar inpatient injuries in the future. Contextual factors related to the fall (e.g., time, place) could act as predictors of the accident. The present study was performed to investigate possible factors which may be responsible for causing preventable SAF injuries among inpatients at Kasturba Hospital, Manipal, Karnataka, India.

## MATERIALS AND METHODS

The present study was conducted at Kasturba Hospital, a 2032-bedded teaching hospital (tertiary care centre) in a coastal district of Karnataka, India. We conducted a retrospective analysis of SAF cases among inpatients (patient who have been admitted in the hospital for a period greater than 48 hours), which were reported from July 31<sup>st</sup> 2000 to July 31<sup>st</sup> 2015. The study was conducted during September 2016 to February 2017. Information was extracted from incident reports using a data extraction form checklist.

This study was exempted by the Institutional Ethics Committee (IEC) (Kasturba Hospital, Manipal Academy of Higher Education) as it used only secondary data. Permission to access patient records for the present study was obtained from the hospital

authorities. All the patient identification information was kept confidential, and each data entry was coded. Event characteristics which were captured included: time of injury, attributed cause, the setting of SAF injury (location), and the nature of the injury experienced. Data lapses were noted, and the percentage of data lapses for each criteria was calculated {i.e., (Number of lapses/ Total number of data entries)×100}. Descriptive statistics were calculated. Data was managed and analysed using Microsoft Excel 2007.

## RESULTS

Total number of cases that fulfilled present inclusion criteria were 61 cases. As shown in [Table/Fig-1], the present study, found that most of the incidents (34%) occurred from 7:30 pm to 7:30 am (i.e., night shift). The settings (location) in which of SAF injuries occurred most frequently were the wards (45.9%) and washrooms (36.1%). The absence of support (24.6%) and wet floors (36.1%) were considered to be the major causal factors to which the injuries were attributed. The most frequently occurring outcomes were 'no noticeable injuries' (36.1%). However, how these conclusions were reached (e.g., physical examination by a medical practitioner, diagnostic investigations, etc.) was not documented. The attributed cause of injury was not documented in (29.6%) of cases; the time of SAF injury was not recorded in 34 cases (55.7%) and the outcome was not recorded in (6.6%) of cases.

## DISCUSSION

The findings of present study suggest that SAF injuries in the healthcare setting in India have been attributed to wet floors, absence of support, low lighted areas in hospitals, slippery floors, and shifting negligence. We did not find any published reports of SAF injuries in Indian healthcare settings to compare these findings; hence, this research area is one that requires serious attention.

Setting	Wash-rooms	Wards	Corridors	Steps	From wheel-chair	Oth-ers*	Total
n (%) combined	22 (36.1%)	28 (45.9%)	7 (11.5%)	1 (1.6%)	1 (1.6%)	2 (3.3%)	61 (100%)
<b>Attributed cause</b>							
Wet floors	18	1	3	0	0	0	22 (36.1%)
Smooth floors	0	0	1	0	0	0	1 (1.6%)
Shifting negligence	0	0	0	0	1	0	1 (1.6%)
Absence of support	0	15	0	0	0	0	15 (24.6%)
Other causes	2	0	1	0	0	1	4 (6.6%)
Missing	2	12	2	1	0	1	18 (29.6%)
<b>Time</b>							
7:30 am-1:30 pm	1	0	2	0	0	0	3 (4.9%)
1:30 pm-7:30 pm	0	1	1	0	0	1	3 (4.9%)
7:30 pm-7:30 am	9	10	1	1	0	0	21 (34.4%)
Missing	12	17	3	0	1	1	34 (55.7%)
<b>Outcomes</b>							
No noticeable injuries	7	13	2	0	0	0	22 (36.1%)
Sprain	2	0	1	0	0	0	3 (4.9%)
Swelling or blood clot	3	2	1	0	0	0	6 (9.8%)
Skin abrasions	2	0	1	0	0	0	3 (4.9%)
Fracture	1	1		0	0	0	2 (3.3%)
Open bleeding	4	7	1	1	0	0	13 (21.3%)
Others	2	4	1	0	1	0	8 (13.1%)
Missing	1	1	0	0	0	2	4 (6.6%)

**[Table/Fig-1]:** Event characteristics and outcomes of SAF injuries.

\*="Others" includes events occurring in any location other than those already mentioned

The risk of patient injury can be attenuated by taking appropriate precautions, many of which have been well documented [3,4]. Clearly visible warning signboards should be installed near toilets and low lighted areas. Neon boards are preferable as they are more easily visible from a distance. Patients should be advised to wear rubber slippers. Rubber slippers prevent accidental slips, due to ample amount of friction between the sole and floor. Young mothers and other caregivers should be advised on appropriate management of infants. Patient parties or housekeeping staff should accompany the patient during his/her toilet visits.

Staff members should be taught the appropriate precautions to be taken when transferring patients, so as to minimise the risk of fall incidents: for example, patients should be appropriately strapped when they are being shifted within the hospital premises. Adequate staff should be available/on-duty at night to render assistance to elderly or unstable patients if required. Compulsory mock drills should be conducted to ensure that staff are adequately trained to manage patients in the event of SAF injury.

Despite, the apparent simplicity of these preventive interventions, many hospitals in low resource settings have difficulty implementing them due to prohibitively large caseloads, and a lack of funding.

As a result, very few hospitals have National Accreditation Board for Hospital (NABH) and Joint Commission International (JCI) accreditation; however, in recent times this number has been quickly growing [5,6].

Recommendations for data documentation: During the data acquisition process, we noted a number of inconsistencies. There were lapses in data documentation (i.e., missing data); incident reports were documented in non standardised formats, and there was a lack of uniformity in terminologies used for data documentation. In most of the cases, there was not mentioned about the first witness or the informant (i.e., the individual who first saw the event). Furthermore, in many cases, handwriting was illegible; this highlights the importance of utilising electronic incident reporting systems to minimise the data lapses, through inbuilt data validation, and making essential fields mandatory for form submission. Training should be provided to all nurses and doctors (especially new staff) to capture all the relevant fields provided in an incident report. If a manual reporting system exists then they should be made aware of the importance of report completeness. Periodic deficiency checking of the incident report should be done to ensure completeness. Fields should be made available for capturing information about the informant or first witness of the incident. Details about reporting of the incident itself (metadata) should also be captured upon reporting (e.g., time of report); such information can be indispensable when legal issues are involved.

Lack of standardised forms led to inconsistency in data capture and reporting. The use of standardised forms for reporting will ensure uniform documentation. We found that (35%) of the cases, 'time' of SAF injury was not documented and this can lead to challenges with legal implications. There are need to establish standards for documentation and reporting of incidents.

## LIMITATION

In the present study, sample size was small (and data lapses were frequently present), we were unable to calculate statistical associations between event characteristics and outcomes.

We did not focus much on the gender and age related data, but for a large sample size this data can be used for drawing further conclusions.

## CONCLUSION

As the Indian population grows and ages, the demand for hospital admissions will rise. Therefore, we recommend that healthcare providers be made aware of the importance of SAF injuries, their documentation, and the protocols that should be followed when such mishaps occur. Scope for further progress includes the setting up of thresholds by accreditation agencies, and the incorporation of formal training on SAF injury documentation into health professions students training curriculum.

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