

In-Hospital Falls and Fractures: Underreported, Overlooked, and Lethal

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ABSTRACT: **Introduction:** In-hospital falls are a persistent issue and the most frequently reported adverse event among older patients. Fall rates typically range from 3 to 11 per 1,000 patient-days, with 25–40% causing injury and up to 10% resulting in serious harm. In Portugal, falls account for 21% of all hospital-reported incidents, according to the National Incident Identification System, highlighting the need for effective prevention. **Objectives:** To evaluate the prevalence and severity of in-hospital falls at a tertiary hospital in 2023 and the number of associated fractures. **Methods:** Retrospective observational study of all hospitalized patients who sustained a fall between January and December 2023. Falls were identified through nursing reports and the internal risk management system, then cross-referenced with orthopedic referrals to confirm fractures. For these cases, outcomes such as mortality, length of stay, and discharge destination were assessed. Data were extracted from electronic records and statistically analyzed. **Results:** A total of 277 falls were reported by nurses (0.6 per 1,000 patient-days), but only 126 were recorded in the internal reporting system (RISI), with 5 classified as severe. Eight patients sustained fractures (3% of reported falls), with a median age of 73.5 years; 65% were male. Fractures included 4 proximal femur, 2 humerus, 1 malleolus, and 1 vertebra. Outcomes were severe: 50% in-hospital mortality, 88% mortality at 120 days, median stay of 55 days, and none regained independent living. **Conclusion:** This study reveals not only a likely underreporting of in-hospital falls but also the serious clinical consequences associated with fall-related fractures.

KEYWORDS: In-hospital falls, fractures, incident reporting, fall prevention

INTRODUCTION

The International Quality Indicator Project defines a fall as any unplanned descent of a patient to the floor or to a lower surface, with or without injury to the patient^[1,2]. Despite global recognition of the problem, in-hospital falls remain a persistent concern and represent the most commonly reported adverse event among hospitalized older adults^[3,4]

Falls and their associated injuries are more prevalent in older populations and can lead to fractures, pain, disability, fear of falling, loss of independence, reduced mobility, premature death, and increased risk

of institutionalization. Beyond the direct physical and psychological impact on the patient, falls also have a significant impact on families, society, and health system costs, making this a major global health issue^[5,6].

Fall rates in hospitals vary widely across countries but are generally estimated at 3 to 11 falls per 1,000 patient-days. Of these, approximately 25–40% result in physical injuries, and 1–10% lead to serious harm such as fractures - most commonly of the hip, wrist, humerus, and pelvis^[3,4,7,8].

In Portugal, data from the national incident reporting system (Notific@) indicate that 21% of all re-

ported incidents are fall-related^[9]. Furthermore, a study conducted at Braga Hospital identified patient falls as the most frequently reported incident^[2].

Summaries of the evidence highlight several risk factors for falls among hospitalized patients, including gait instability, delirium, cognitive impairment, urinary incontinence, history of previous falls, visual impairment, multimorbidity, and the use of psychotropic medications^[9]. The National Initiative for the Care of the Elderly (NICE) also identifies pain, polypharmacy, and muscle weakness as additional contributors^[4].

Falls in hospital settings are widely recognized as an indicator of care quality and are associated with longer hospital stays and poorer patient outcomes. Severe injuries — mostly orthopedic — have a devastating impact on the patient's quality of life^[2,3].

Given the frequency and potential severity of in-hospital falls and related fractures, this issue demands urgent and effective preventive strategies^[9].

This study aimed to assess the prevalence and severity of in-hospital falls in 2023, characterize patients who sustained fall-related fractures, and compare falls recorded by the nursing team with those officially reported in the Internal Risk Management System (RISI).

METHODS

Retrospective observational study that analyzed the number of fractures associated with falls among inpatients at Unidade Local de Saude Santa Maria (ULSSM) during the year 2023. The target population consisted of all hospitalized patients who sustained an in-hospital fall between January and December 2023.

1. Population and Data collection

The study included all hospitalized patients aged 18 years or older who sustained fractures resulting from falls that occurred within the hospital setting between January 1 and December 31, 2023.

In-hospital falls was identified through nursing incident reports and the internal risk management system (RISI). Falls reported in the RISI were classified according to their severity using the International Classification for Patient Safety (ICPS), while those reported by nursing staff were categorized by location: inpatient units or outpatient areas, including outpatients clinics, imaging, radiotherapy, hemodialysis, and the emergency department.

Data from the nursing reports and RISI were an-

onymized, preventing individual patient identification. These sources were cross-referenced with the orthopedic referral system to identify cases of suspected or confirmed fractures.

Additional data were obtained through the orthopedic referral system and the electronic medical record (EMR). These sources allowed for patient identification and enabled a more detailed clinical and demographic characterization, including diagnoses, treatments, and outcomes. The referral system was specifically used to identify all fracture cases resulting from in-hospital falls during 2023.

2. Variables

The variables analyzed in this study encompassed demographic, clinical, functional, and contextual data. Demographic variables included age and sex. Hospital-related variables comprised the date of admission, date of fracture, and total length of hospital stay, including the circumstances of the fall and the use of physical restraints. These data were used to calculate the fall risk at admission based on the Downtown scale.

Pre-fracture status was assessed through the patient's place of residence prior to the fall. Fracture-specific characteristics included the side affected, the presence of pathological fracture, and whether surgical intervention was performed.

Post-fracture data included in-hospital mortality, discharge date, and discharge destination. Functional and nutritional assessments performed at admission were also collected, including the Clinical Frailty Scale (CFS), the Eastern Cooperative Oncology Group (ECOG) performance status, and nutritional status.

Vital status was assessed at 30, 120 days and 1 year post-fracture to determine short- and medium-term and long-term outcomes. Risk factors for falls were assessed using the Downtown Fall Risk Index and included the use of tranquilizers, sedatives, psychotropic drugs, antihypertensives, antidepressants, and antiparkinsonian medications; a documented history of previous falls; visual and hearing impairments; a confused mental state; and gait instability.

Risk factors for fractures were also documented based on the FRAX[®] tool, including a history of previous fractures, current smoking, use of glucocorticoids, diagnosis of rheumatoid arthritis, presence of secondary osteoporosis, and alcohol consumption of three or more units per day.

In the context of the conceptual framework

of the International Classification for Patient Safety (ICPS), the variable “Degree of Harm” was categorized as follows: **None**, when the consequence for the patient was asymptomatic or without detectable symptoms and required no treatment; **Mild**, when the consequence was symptomatic, involving mild symptoms, temporary loss of function, or minimal to moderate short-term harm, requiring no intervention or only minimal intervention, such as additional observation, investigation, analysis, or minor treatment; **Moderate**, when the patient was symptomatic and required further intervention—such as an additional procedure or therapy—an extended hospital stay, or experienced permanent or long-term harm or loss of function; **Severe**, when the consequence was symptomatic and necessitated life-saving measures or major medical/surgical intervention, led to a reduction in life expectancy, or caused significant permanent or long-term harm or functional loss; and **Death**, when, on the balance of probabilities, the incident was the direct or contributing cause of death or significantly hastened death in the short term [10].

4. Ethics and confidentiality

The study was approved by the Ethics Committee of CAML (Centro Académico de Medicina de Lisboa) – ref 295/24. All procedures were conducted in accordance with the ethical standards of the institutional research committee and with the principles outlined in the Declaration of Helsinki. Given the nature of the study and the use of anonymized data from electronic health records, the requirement for informed consent was waived by the ethics committee.

5. Data analysis

Data was organized and analyzed using statistical software. Data analysis was conducted using descriptive statistics, including the mean with standard deviation (SD), median with interquartile range (IQR) and frequencies, as appropriate to characterise the sample.

RESULTS

Prevalence of falls

In 2023, a total of 277 in-hospital falls were reported by the nursing team; of these, 251 occurred during inpatients stays and 26 in outpatient settings. However, only 126 of these events were reported in the Internal Risk Management System (RISI), reflecting a

55% underreporting rate when compared to nursing records. Among the falls reported in RISI, 46% were classified as no-harm incidents, 41% as incidents with mild harm, 5% with moderate harm, 4% with severe harm, and none resulted in death. It is noteworthy that data received from the RISI group may contain inaccuracies due to 4% of cases lacking classification, and deaths were not reported by the RISI group (Table I).

Patients' characterization

Eight patients sustained a fracture resulting from an inpatient fall, corresponding to 3% of all falls reported by the nursing team and 6% of those recorded in the RISI.

Internal Medicine accounted for the highest proportion of cases ($n=3$; 37.5%), likely reflecting the high number of inpatient beds within the department (Table II). Most falls ($n=7$; 87.5%) were unwitnessed.

Among the eight patients who sustained a fracture following an inpatient fall, the majority ($n=7$; 89%) were aged 65 or older, with a median age of 73.5 years (IQR: 69.5–80), and 62.5% were male. All patients were living in their own homes prior to hospitalization (Table III).

Regarding baseline functional status, according to the Clinical Frailty Scale (CFS), among the patients aged over 65 years ($n=7$, 87.5%), four ($n=4$; 43%) were classified as frail (CFS ≥ 5), while the remaining three ($n=3$; 57%) were considered non-frail (CFS 1–4).

The majority of patients ($n=7$, 87.5%) had a high risk of fall at admission based on the Downtown scale.

Only half of these patients underwent nutritional assessment at admission, and among those assessed, 75% were found to be malnourished.

Regarding the timing of the fall during hospitalization, 50% ($n=4$) occurred more than four weeks after admission, while 37.5% ($n=3$) occurred within the first week.

The most common fracture site was the proximal femur (50%), followed by the humerus (25%), malleolus (12.5%), and vertebra (12.5%). Most fractures occurred on the right side (62.5%), and only 25% of patients underwent surgical intervention.

Regarding fall risk factors, 75% of patients ($n=6$) were taking tranquilizers, sedatives, and/or psychotropic medications, and 75% ($n=6$) were on antihypertensive therapy. Additionally, 62.5% ($n=5$) of patients presented with a confused mental state, and 62.5% ($n=5$) exhibited gait instability (Figure 1).

TABLE I. Number of Falls Reported by Nursing Records and the Internal Risk Management System (RIS), 2023

Variable	Patients % (n)	
Falls reported by RISI	126	
Location	Santa Maria Hospital	101 (80)
	Pulido Valente Hospital	25 (20)
Severity	No harm	58 (46)
	Mild harm	52 (41)
	Moderate harm	6 (5)
	Severe harm	5 (4)
	Deaths	--
Falls reported by the nursing staff	277	
In-hospital setting	Inpatient	251 (91)
	Outpatient	26 (9)

TABLE II. Hospital context of patients with fracture following an inpatient fall (n=8)

Variable	Patients % (n)	
Hospital	Santa Maria Hospital	7 (87,5)
	Pulido Valente Hospital	1 (12,5)
Unit	Cardiology	1 (12,5)
	Intensive Care	1 (12,5)
	Gastroenterology	1 (12,5)
	Pneumology	1 (12,5)
	Psychiatry	1 (12,5)
	Internal Medicine	3 (37,5)
Witnessed fall	Yes	1 (12,5)
	No	7 (87,5)

TABLE III. Clinical and demographic characteristics of patients with fall-related fractures. CVID: Common Variable Immunodeficiency.

Patients	Age	Sex	CFS	Pre-hospitalization residence	Unit	Reason for admission	Fall risk (Downton scale)	Nutritional assessment	Type of fracture	Surgery	Surgical status	Circumstances of the fall	Length of in-hospital stay	Discharge destination	Vital status
1	88	F	6	Own home	Internal medicine	Fall in the community	High risk	Not performed	Humerus	No	No surgical indication	Not described	62 days	Nursing home	Death within 120 days
2	79	F	4	Own home	Psychiatry	Psychotic disorder	High risk	Normal	Malleolus	No	No surgical indication	Fall from bed	167 days	Hospital-at-home care	Alive
3	25	F	N/A	Own home	Gastroenterology	Enteropathy associated with CVID	Low risk	Malnutrition	Humerus	No	Unfit for surgery	Fall from the commode chair	65 days	Convalescence unit	Death within 120 days
4	75	M	6	Own home	Internal medicine	Pneumonia	High risk	Not performed	Proximal femur	Yes	Operated	Fall from the armchair	56 days	In-hospital death	In-hospital death
5	72	M	2	Own home	Internal medicine	Dizziness and imbalance	High risk	Malnutrition	Proximal femur	No	Outside area of residence	Found on the floor of the hospital room	28 days	In-hospital death	In-hospital death
6	70	M	7	Own home	Cardiology	Decompensated heart failure	High risk	Malnutrition	Vertebra	No	Reason not specified	Found on the floor of the hospital room	48 days	In-hospital death	In-hospital death
7	69	M	3	Own home	Intensive care	Lower limb bypass occlusion	High risk	Not performed	Proximal femur	Yes	Operated	Fall due to slipping on a wet floor	53 days	In-hospital death	In-hospital death
8	81	M	7	Own home	Pneumology	Pneumonia	High risk	Not performed	Proximal femur	No	Unfit for surgery	Fall from the armchair	31 days	In-hospital death	In-hospital death

As for fracture-specific risk factors, the most frequently observed were the occurrence of a previous fracture and the use of glucocorticoids, each present in 37.5% of patients (n = 3) (Figure 2).

In terms of outcomes, the overall mortality rate was 87.5%, with 62,5% of patients dying during hospitalization and 25% after discharge. Only one patient (12.5%) was alive at 120 days post-fracture (Table IV).

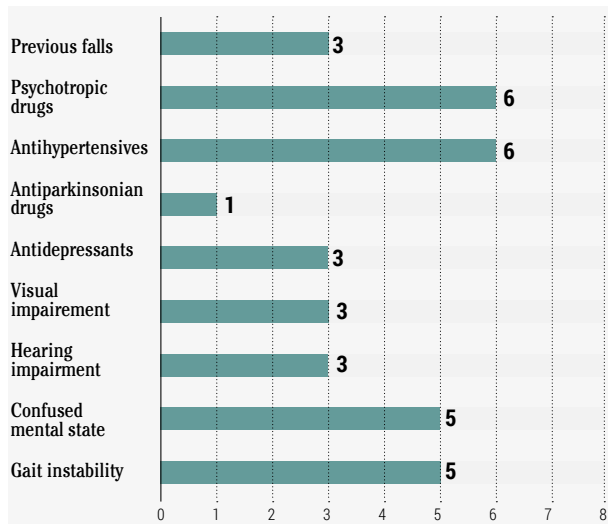


Fig 1. Fall risk factors, based on Downtown criteria.

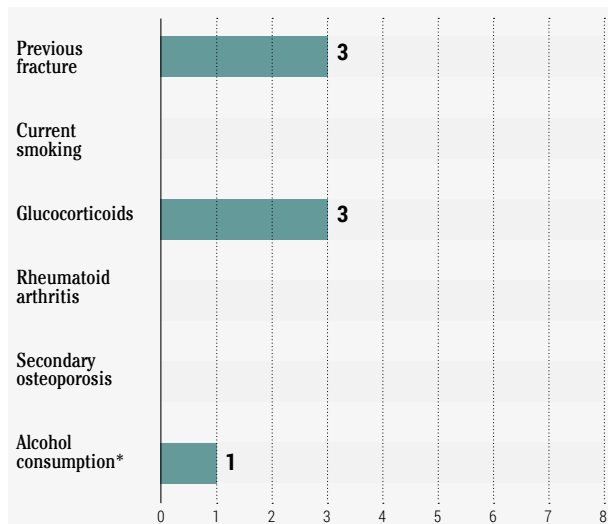


Fig 2. Fracture risk factors, based on FRAX criteria. * ≥3 units/day

TABLE IV. Characteristics of patients with fracture.

Variable	Patients n (%)	
Age	< 65	1 (11)
	≥ 65	7 (89)
Sex	Female	3 (37,5)
	Male	5 (62,5)
Pre-fracture residence	Own home	8 (100)
	Institution	0 (0)
CFS (patients > 65 years) n=7	< 5 (non frail)	3 (43)
	≥ 5 (frail)	4 (57)
ECOG	0	0 (0)
	1	3 (37,5)
	2	1 (12,5)
	3	3 (37,5)
	4	1 (12,5)
Downton risk scale at admission	High risk	7 (87,5)
	Low risk	1 (12,5)
Nutritional assessment at admission	Normal	1 (12,5)
	Malnutrition	3 (37,5)
	Not performed	4 (50)
Location of fracture	Proximal femur	4 (50)
	Humerus	2 (25)
	Malleolus	1 (12,5)
	Vertebra	1 (12,5)
Fracture Side	Right	5 (62,5)
	Left	2 (25)
	N/A	1 (12,5)
Submitted to Surgery	Yes	2 (25)
	No	6 (75)
Length of stay	< 15 days	0 (0)
	16 – 30 days	1 (12,5)
	31 – 60 days	4 (50)
	> 60 days	3 (37,5)
Time from admission to fracture	< 1 week	4 (50)
	1 – 2 weeks	1 (12,5)
	2 – 4 weeks	1 (12,5)
	> 4 weeks	2 (25)
Patient Outcome Following Fracture	Death during hospitalization	5 (62,5)
	Discharged to Nursing home	1 (12,5)
	Discharged to Convalescence unit	1 (12,5)
	Discharged to Hospital-at-home care	1 (12,5)
	Returned to own home	0 (0)
Length of stay until discharge (discharged patients) n=3	< 15 days	0 (0)
	16 – 30 days	0 (0)
	31 – 60 days	0 (0)
	> 60 days	3 (100)
Length of stay until death (Patients who died during hospitalization) n=5	< 15 days	0 (0)
	15 – 30 days	2 (40)
	31 – 60 days	3 (50)
	> 60 days	0 (60)
Vital status at 30 days	Alive	3 (37,5)
	Deceased	5 (62,5)
Vital status at 120 days	Alive	1 (12,5)
	Deceased	7 (87,5)
Vital status at 1 year	Alive	1 (12,5)
	Deceased	7 (87,5)

Length of hospital stay varied, with a median of 55 days (IQR: 45,5–64,5). Among the three patients discharged alive, all had hospital stays exceeding 60 days. For those who died during hospitalization, two (n=2, 40%) died within 15–30 days and three (n=3, 60%) within 31–60 days. At 30 days post-fracture, 62,5% of patients were deceased.

Post-discharge destinations reflected significant loss of independence. Of the three patients discharged alive, one was transferred to a nursing home, one to a convalescence unit, and one received care through a hospital-at-home program. None were able to return to independent living at home.

DISCUSSION

Our study revealed a discrepancy between the number of falls recorded by the nursing team (n=277) and those officially reported in the RISI, which totaled only 126 events. Based on the nursing records, this corresponds to a rate of 0.6 falls per 1,000 patient - days, with an even lower rate when considering only events reported through RISI. This demonstrates that falls are infrequently reported through official channels. In our study, injury severity was assessed among falls reported in RISI: 46% resulted in no harm, 41% in mild harm, 5% in moderate harm, and 4% in severe harm. Of the falls recorded by the nursing team, 3% resulted in a fracture. Despite their low incidence, these fractures had a relevant clinical impact, with a 30-day post-fracture mortality rate of 71% and a 120-day and 1-year mortality rate of 88%.

Studies show that hospital fall rates vary between 3 and 11 per 1,000 patient -days^[4]. However, in the present study at ULSSM, only 277 falls were reported by the nursing staff, corresponding to 0.6 falls per 1,000 patient-days, and even fewer, were reported through the RISI. This discrepancy compared to other studies raises the hypothesis of a significant underreporting of falls in our hospital.

Half of the falls that lead to fractures (n=4; 50%) occurred at the beginning of the hospital stay and 25% took place during prolonged hospitalizations lasting over one month. These findings highlight three important points: the importance of performing a fall risk assessment at the time of admission, as this is when most falls occur; the fact that fractures contribute to an increased length of hospital stay; and that prolonged hospitalizations are also associated with a higher risk of adverse events, such as falls resulting in fractures.^[11,12]

It is noteworthy that most falls resulting in fractures occurred in the patient's room, with the most frequent situations being falls from the armchair (n=2; 25%) and the patient being found on the bedroom floor during the night (n=2; 25%)

Fracture mortality

In the study by Khawar et al. [2021], which evaluated mortality among patients with proximal femur fractures occurring in both hospital and community settings, the 30-day and 1-year mortality rates were significantly higher in the inpatient group compared to the outpatient group. The mortality rate in the inpatient group was 44%^[13], which is considerably lower than the 87.5% mortality observed in our study. However, it should be noted that our study is based on a small sample size.

One may wonder whether this high mortality rate is attributable to pre-existing significant comorbidities in patients prior to the fall that caused the fracture, or whether the fracture itself was the primary contributor to mortality. Although we cannot definitively answer this question, we know that 37.5% of the patients had an ECOG performance status of 1, and only 12.5% had ECOG 4. That is, 37.5% of the sample were independent, with only restrictions on strenuous physical activities. Nevertheless, out of the 8 patients in the sample, only one was alive 120 days after the fall. Based on this information, we can infer that fractures resulting from in-hospital falls are associated with a substantial increase in mortality.

In addition, it is striking that no in-hospital deaths were recorded in the incident reporting system, even though five (62.5%) of the patients who experienced a fall subsequently died during the same hospital stay. This discrepancy raises concerns about the completeness of incident reporting and suggests the possibility that deaths associated with falls may be underreported due to factors such as ambiguity in attributing causality, reluctance to report severe outcomes, or limitations in the integration of reporting systems with clinical documentation. These hypotheses highlight the need to improve the accuracy and comprehensiveness of fall-related incident reporting.

Furthermore, a relevant finding was that only 25% of the patients (n=2) underwent surgery. Upon analyzing the reasons why the remaining patients were not operated on, it was found that, among the 6 patients who did not undergo surgical intervention, two-thirds

had no surgical indication, two-thirds were deemed unfit for surgery due to their clinical condition, and one patient was not operated on because they were outside their usual area of residence.

Length of hospital stay and risk factors for falls

In this study, we observed that 62,5% of the patients had a hospital stay shorter than 60 days, while 37,5% had a stay longer than 60 days. In both cases, these represent substantially prolonged hospitalizations. However, it is noteworthy that all patients in the group with a hospital stay shorter than 60 days were those who died during hospitalization, whereas all patients who were discharged had hospital stays longer than 60 days. This finding highlights the significant impact of fractures on prolonging hospital stay as well as the poor prognosis associated with these fractures.^[12]

In our study, the most prevalent risk factors for falls were the use of psychotropic drugs and antihypertensive medication, followed by a confused mental state and gait instability — all of which are widely recognized in the literature as established risk factors for falls.^[14]

Prevention

The fall prevention protocol of Sant Maria Hospital (part of ULSSM) stipulates the use of the Downton Scale to assess the risk of falls in hospitalized patients, as it is more sensitive to the characteristics of patients during hospitalization^[15].

In this study, none of the patients were under physical restraints at the time of the fall that caused the fracture; however, four patients were subsequently subjected to physical restraints (three on the same day or the following day, and one a week later). Comparing these findings with the evidence, there is no scientific evidence comparing the use of bedrails in preventing falls among hospitalized older adults to no use of bedrails or any type of physical restraints^[12]. Moreover, other studies state that restraints have been shown to increase both fall rates and serious injuries^[14]. There are no data regarding the use of chemical restraints in this patient sample.

At ULSSM, fall risk assessment is performed at admission, every five days, after any change in the patient's condition, and at discharge. Based on the identified fall risk and individual patient risk factors, a personalized management plan is established. The approach is centered on patient education—for example, instructing the patient to wait for assistance before attempting to

stand, if applicable—and on managing and organizing the physical environment, including lowering and locking beds, installing handrails in corridors, and ensuring the patient has access to a call bell from the bed. Similarly, the family plays an important role, given that the presence of a caregiver continuously accompanying the patient during hospitalization is essential, as is their education in fall prevention strategies^[15].

Therefore, having sufficient nursing staff is crucial for effective fall prevention, ensuring nurses have time to monitor patient safety and implement preventive measures^[16]. The 2025 study by Chiu et al. provided evidence of a significant increase in fall rates and a decrease in completion of assessments when occupancy levels exceeded certain thresholds^[17].

Chair alarms, bed alarms and wearable sensors have not been associated with significant reductions in falls^[18], therefore not used at ULSSM.

Fall prevention in inpatient units can not only help hospitals improve patient care, reduce the risk of serious injury, shorten hospital stays, and lower costs but also assist in hospital communication and teamwork^[19].

This study presents several strengths. It addresses a highly relevant and current clinical issue: in-hospital falls, with a particular focus on those resulting in fractures—a rare but severe event with significant clinical consequences and impact on patient outcomes. A major strength lies in its dual approach: on one hand, it presents a quantitative analysis of the overall prevalence of falls recorded in the hospital during 2023, revealing a substantial discrepancy between events documented by the nursing team and those officially reported in the RISI system, thereby exposing a considerable degree of underreporting. On the other hand, it provides a qualitative and descriptive analysis of fall-related fractures, contributing to a deeper understanding of the clinical and functional profile of these patients, the associated risk factors, and the subsequent outcomes. Notably, the findings — particularly the high post-fracture mortality rate and the absence of in-hospital deaths recorded in the incident reporting system—raise important concerns about the robustness and sensitivity of current institutional surveillance tools. These results underscore the need to strengthen adverse event reporting systems and to improve the integration between clinical documentation and institutional monitoring process.

This study also has limitations that should be acknowledged. First, the retrospective nature of the data collection, which relied on existing clinical re-

cords, may affect the completeness and accuracy of the information available. Important variables might be missing or inconsistently documented. Second, the generalizability of the findings is limited, as the data were derived from a single hospital center and the sample who sustained fractures after falls was small, limiting the statistical power and the ability to generalize findings related to this subgroup. Third, due to the observational design of the study, it is not possible to establish causal relationships between the factors analyzed and the occurrence of fractures or mortality. Associations observed should therefore be interpreted with caution. Finally, there is a high likelihood of underreporting of falls. Falls that did not result in immediate visible consequences may not have been recorded in the hospital system. Furthermore, the lack of standardization in documenting falls—such as inconsistencies regarding the circumstances, fall dynamics, and whether witnesses were present—may compromise the analysis of severity and associated factors.

Despite the inherent limitations of a retrospective design and reliance on clinical records, this study represents an important first step in addressing the underrecognition of in-hospital falls as a critical patient safety issue. The findings highlight the urgent need to foster a culture of safety among healthcare professionals, promoting awareness of the serious clinical and systemic consequences of falls, and to improve institutional reporting practices through optimized, user-friendly systems. Moreover, the results reinforce the importance of implementing individualized fall prevention strategies and early multidisciplinary management of patients who sustain fractures, potentially through dedicated services such as orthogeriatric units. These findings lay the groundwork for future prospective studies aimed at evaluating targeted interventions to reduce the incidence and severity of falls in hospitalized patients.

CONCLUSION

This study reveals not only a likely underreporting of in-hospital falls but also the serious clinical impact of fall-related fractures, which were associated with a markedly high mortality rate of 87.5% in the study population.

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