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Hospital Falls: retrospective analysis of risk factors and prevention strategies in a healthcare organization in northern Italy

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Keywords: *falls, clinical risk, incident reporting*

SUMMARY

BACKGROUND: Hospital falls represent a critical patient safety issue, despite being potentially preventable events. Effective management is carried out through clinical risk assessment and requires a thorough evaluation of risk factors, incident reporting, and the implementation of targeted interventions. This study focuses on analyzing falls in a healthcare organization in Northern Italy during the period 2020–2022, examining variables such as risk factors, fall locations, and clinical and organizational consequences.

OBJECTIVE: To quantify and analyze hospital falls within the examined healthcare organization, stratifying by age, gender, operational unit, fall location, intrinsic and extrinsic factors, and assessing the impact on patients in terms of diagnostic tests, reported injuries, and management of incident reporting forms. Additionally, the study aims to evaluate existing organizational proposals for fall management adopted by the healthcare organization.

MATERIALS AND METHODS: A retrospective, multicenter study conducted across five hospitals in a healthcare organization in Northern Italy, based on incident reporting data from 2020 to 2022. Statistical analysis includes the Kruskal-Wallis test, Dunn's test, Fisher's exact test, and the Chi-square test for continuous and categorical variables.

RESULTS: In a study of 1,032 incident reporting cases in a hospital, most falls (0.85% of the total) occurred primarily in hospital rooms (64.2%). The most common extrinsic factors included inappropriate footwear (17%). The medical area (58.33%) was the most affected by falls. Among intrinsic factors, 28% of cases showed cognitive deficits, while 13% had urinary and fecal urgency. Significant injuries were reported in 26% of patients, including contusions and fractures, with 23 sentinel events. Comparing the five hospitals (Hospital 1, Hospital 2, Hospital 3, Hospital 4, Hospital 5), falls were most frequent in hospital rooms (67.18%), with the most common extrinsic factors including inappropriate footwear (up to 26.3%). Significant intrinsic factors included cognitive deficits (up to 40%) and urinary/fecal urgency (up to 13.1%). Patient injuries were reported in approximately 28% of cases, with various hospitals highlighting specific issues such as incomplete incident reporting forms.

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DISCUSSION: Hospital falls are influenced by multiple factors, including physical environments and patients' clinical conditions. Educational interventions and procedural reviews have contributed to improved risk management. It is essential to promote a hospital safety culture through integrated strategies addressing both human and organizational factors.

CONCLUSIONS: Effective management of falls in hospitals within the Northern Italy healthcare organization requires multidimensional approaches and targeted interventions based on evidence. Implementing initiatives such as staff training and procedural revisions is crucial to improving patient safety and optimizing healthcare services

INTRODUCTION

Falls represent a complex and global issue in public health, with significant repercussions both on an individual and systemic level. In hospital settings, falls are the most frequent adverse event, negatively impacting patient safety and the quality of care (1-2). Despite being predictable in many cases, falls continue to result in important consequences in terms of morbidity, mortality, and healthcare system costs, making it necessary to manage them through systematic and multidisciplinary approaches (3-4).

Hospital falls are categorized into three main types: accidental, unpredictable physiological, and predictable physiological falls. The latter, where risk factors are identifiable, account for 78% of cases, while accidental falls, such as slipping on wet surfaces, make up 14%. The Joint Commission on Accreditation of Healthcare Organizations (6) identified "reducing the risk of patient harm from falls" as one of the top priorities to improve patient safety, emphasizing the importance of preventive interventions supported by strong epidemiological evidence.

In Italy, the issue of falls is also considered a priority. The Ministry of Health has included such events in the list of priority sentinel events, described as "death or serious harm from patient falls." Data from the Sentinel Event Monitoring indicate that falls account for 33.25% of all reported incidents (7), although this percentage may underestimate the true incidence of the phenomenon. Fall rates in hospitals range from 1.3 to 16.9 per 1,000 patient-days, showing a significant impact on mortality, length of stay, and overall healthcare costs (8).

Fall risk assessment requires an in-depth analysis of risk factors, which can be classified into intrinsic and extrinsic factors. The former includes previous fall incidents, visual, cognitive, or motor deficits, while the latter includes environmental factors such as inadequate flooring, poor lighting, or difficulties with mobility aids (7).

This research aims to examine falls recorded in a health company in Northern Italy, stratifying the data by age, gender, involved operational unit, location of the incident, intrinsic and extrinsic risk factors, and measures taken after falls, such as specialist visits or diagnostic tests. Additional analysis will address the severity of injuries sustained and the potential incompleteness in incident report forms.

The final objective is to compare the existing organizational strategies for managing falls with the best available evidence from the literature. This comparison will help develop a shared procedure for the prevention, monitoring, and reporting of incidents, with the aim of improving patient safety and reducing the impact of falls on healthcare.

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MATERIALS AND METHODS

A retrospective observational multicenter study was conducted across five hospital facilities within the analyzed health organization. The study focused on the analysis of hospital fall reports recorded through the incident reporting system. The data analyzed included:

Details of the event: Status and report number, hospital facility, operational unit, context and location of the event, date and time, type of fall, and the person who detected the fall.

Patient data: Gender, age, date of birth, admission diagnosis.

Contributory factors: Presence of cognitive or sensory deficits, delirium history, polypharmacy, motor deficits.

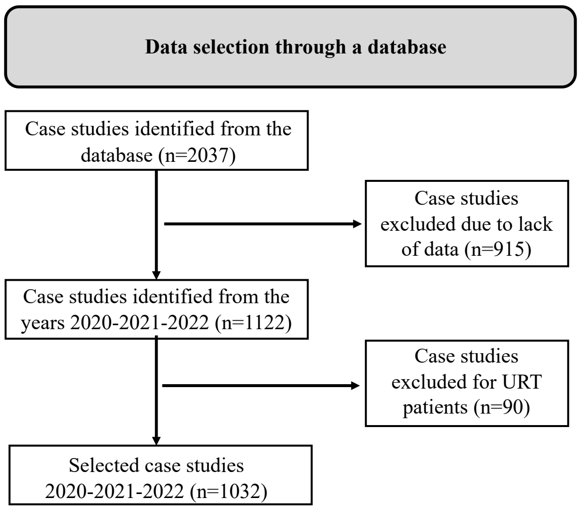
Consequences of the fall: Outcomes of the event (e.g., fractures, trauma, loss of consciousness), need for further investigations or treatments, documentation in medical records, communication with family members.

Due to data incompleteness, falls recorded in 2019 (absence of outcome information) and 2023 (lack of discharge data) were excluded. To focus the analysis on hospital facilities, data related to falls occurring in the community and at the Territorial Rehabilitation Unit (URT) were also excluded.

The study focused on data from the years 2020, 2021, and 2022, analyzed for each year and the five hospital facilities (Hospital 1, Hospital 2, Hospital 3, Hospital 4, Hospital 5). The results were expressed as mean ± standard deviation or percentage, depending on the type of data.

Continuous variables, such as patient age, were analyzed using Kruskal-Wallis and Dunn tests to assess significant differences, given the non-normal distribution of the data. Categorical variables were analyzed with Fisher's exact test for 2x2 contingency tables and Chi-square tests for larger tables. A p-value < 0.05 was considered statistically significant.

Diagram 1. Data selection collected through the database



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RESULTS

A total of 1,032 incident reporting cases were analyzed out of 120,940 recorded hospital discharges. The percentage of falls detected was 0.85% (Tab. 1). The average age of fallen patients was 71.82 years, with a standard deviation of 15.88, of which 64.2% were men and 35.8% were women.

Medical wards were the most frequent setting for falls, accounting for 58.33% of cases, while surgical wards accounted for 14.73%, and service areas, including rehabilitation, 15%.

The collected data show that most falls occurred inside hospital rooms (64.2% of cases), followed by falls in bathrooms (35.8% of cases), corridors (10% of cases), and only 1% of cases occurred outside the hospital.

Among the extrinsic factors contributing to falls, inappropriate footwear was identified in 17% of cases, malfunctioning assistive devices in 5%, slippery floors in 1%, and obstructive materials in 2%, while in 73% of cases, no external factor was identified.

Regarding intrinsic factors, cognitive impairments were recorded in 28% of cases, anxiety in 13%, urinary and fecal urgency in 13%, syncope in 5%, delirium in 5%, and in 34% of cases, no intrinsic factors were identified.

Additionally, diagnostic tests and specialist visits were performed for all 1,032 cases, revealing patient injuries in 26% of cases, including contusions, head trauma, and/or fractures, with 23 sentinel events.

Furthermore, 30% of the reporting forms were found to be incorrectly completed or missing data.

The data were analyzed and divided by year, covering 2020, 2021, and 2022 (Tab. 1).

In 2020, 189 falls were recorded, with an average patient age of 71.53 years and a standard deviation of 18.09, of which 61.9% were men and 38.1% were women. The number of discharged patients was 39,577, with a fall percentage of 0.48%. Falls in medical wards accounted for 61.4%, in surgical wards 12.7%, and in service areas, including rehabilitation, 24.9%.

Falls occurred mainly inside hospital rooms (70.4%), followed by bathrooms (14.8%), corridors (6.9%), and outside areas (1.1%).

Regarding extrinsic factors in 2020, 14.3% of cases involved inappropriate footwear, 6.9% involved malfunctioning assistive devices, 1.1% involved altered flooring, and 3.2% involved obstructive materials, while in 83.1% of cases, no external factor was identified.

For intrinsic factors, 12.2% of cases involved urinary and fecal urgency, 4.2% involved syncope, 30.2% involved cognitive and sensory deficits, 10.6% involved delirium or psychomotor agitation, 3.7% involved delirium, and in 50.3% of cases, no factor was identified.

Radiological tests and specialist visits were performed for all 189 cases in 2020, revealing injuries in 35.4% of cases, including head trauma, fractures, and abrasions, with 4 sentinel events. Additionally, 41.3% of reporting forms were incomplete.

In 2021, the number of falls was 409, with an average patient age of 71.2 years and a standard deviation of 15.22, of which 64.8% were men and 35.2% were women. The number of discharged patients was 38,654, with a fall percentage of 1.06%.

Medical wards accounted for 57.2% of falls, surgical wards 14.7%, and service areas,

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including rehabilitation, 12.7%. Falls in hospital rooms accounted for 77.5%, followed by bathrooms (10.7%), corridors (11%), and outside areas (0.73%).

Among the extrinsic factors identified in 2021, inappropriate footwear was found in 18.58% of cases, malfunctioning assistive devices in 4.4%, altered flooring in 2.4%, and obstructive materials in 2.2%, while in 69.2% of cases, no external factor was identified.

Regarding intrinsic factors, urinary and fecal urgency was present in 16.6% of cases, syncope in 3.9%, cognitive and sensory deficits in 29.3%, psychomotor agitation in 6.85%, delirium in 12.4%, and in 29.34% of cases, no intrinsic factor was identified.

Radiological tests and specialist visits were performed for all 409 cases in 2021, revealing injuries in 27.63% of cases, including head trauma, fractures, and abrasions, with 9 sentinel events. Additionally, 35.94% of reporting forms were incomplete.

In 2022, the number of falls was 434, with an average patient age of 72.5 years and a standard deviation of 14.33, of which 64.7% were men and 35.3% were women. The number of discharged patients was 42,709, with a fall percentage of 1.02%.

Medical wards accounted for 58% of falls, surgical wards 16%, and service areas, including rehabilitation, 12%. Falls in hospital rooms accounted for 76.5%, followed by bathrooms (12.2%), corridors (10.8%), and outside areas (0.5%).

Among the extrinsic factors identified in 2022, inappropriate footwear was found in 16.1% of cases, malfunctioning assistive devices in 4.1%, altered flooring in 0.5%, and obstructive materials in 1.4%, while in 73.3% of cases, no external factor was identified.

Regarding intrinsic factors, urinary and fecal urgency was present in 8.8% of cases, syncope in 6.0%, cognitive and sensory deficits in 29.3%, psychomotor agitation in 15.2%, delirium in 4.1%, and in 32.0% of cases, no intrinsic factor was identified.

Radiological tests and specialist visits were performed for all 434 cases in 2022, revealing injuries in 20% of cases, including head trauma, fractures, and abrasions, with 10 sentinel events. Additionally, 20% of reporting forms were incomplete.

Chi-square statistical analysis of data from 2020, 2021, and 2022 showed a significant increase in falls compared to 2020. It was found that males had a higher frequency of falls than females in all three years examined.

A comparison between the years showed a decrease in falls in medical and service wards but an increase in surgical wards, as well as in extrinsic fall factors. Cases related to urinary urgency decreased, while those associated with syncope and anxiety/agitation increased.

A significant finding is that the number of patients who sustained severe injuries due to falls has decreased over the years. Additionally, there has been a reduction in the percentage of incomplete reporting forms.

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Tab. 1. Results table of incident reporting in 2020-2021-2022

VARIABILES	TOTAL	2020	2021	2022	P VALUE+
Number of discharges	120.940	39.577	38654	42709	
Number of falls	1032	189	409	434	
% of falls	0,85%	0,48%	1,06%	1,02%	<0,0001
Average age	71,82 (15,88)	71,53 (18,09)	71,21 (15,22)	72,53 (14,33)	0,2115*
GENDER					
Male (%)	663 (64,2%)	117 (61,9%)	265 (64,79%)	281 (64,7%)	0,759
Female (%)	369 (35,8%)	72 (38,1%)	144 (35,21%)	153 (35,3%)	
AREA					
Medical area (%)	602 (58,33%)	116 (61,45%)	234 (57,2%)	252 (58%)	0,0087
Surgical area (%)	152 (14,73%)	24 (12,7%)	60 (14,7%)	68 (16%)	
Service area (%)	150 (15%)	47 (24,9%)	52 (12,75%)	51 (12%)	
LOCATION					
Room (%)	782 (76%)	133 (70,4%)	317 (77,51%)	332 (76,5%)	0,5001
Bathroom (%)	125 (12%)	28 (14,8%)	44 (10,76%)	53 (12,2%)	
Hallway (%)	105 (10%)	13 (6,9%)	45 (11%)	47 (10,8%)	
Outside (%)	7 (1%)	2 (1,1%)	3 (0,73%)	2 (0,5%)	
EXTRINSIC FACTORS					
Footwear (%)	173 (17%)	27 (14,3%)	76 (18,58%)	70 (16,1%)	0,1113
Malfunctioning aids (%)	49 (5%)	13 (6,9%)	18 (4,40%)	18 (4,1%)	
Altered flooring (%)	14 (1%)	2 (1,1%)	10 (2,44%)	2 (0,5%)	
Presence of materials (%)	21 (82%)	6 (3,2%)	9 (2,20%)	6 (1,4%)	
No factor identified (%)	758 (73%)	157 (83,1%)	283 (69,15%)	318 (73,3%)	
INTRINSIC FACTORS					
Urinary and/or fecal urgency (%)	129 (13%)	23 (12,2%)	68 (16,63%)	38 (8,8%)	<0,0001
Syncope/Low blood pressure (%)	50 (5%)	8 (4,2%)	16 (3,91%)	26 (6,0%)	
Cognitive and/or sensory deficits (%)	290 (28%)	57 (30,2%)	106 (26,92%)	127 (29,3%)	
Anxiety/Agitation (%)	137 (13%)	20 (10,6%)	28 (6,85%)	66 (15,2%)	
Delirium (%)	53 (5%)	7 (3,7%)	51 (12,47%)	18 (4,1%)	
No factor identified (%)	354 (34%)	95 (50,3%)	120 (29,34%)	139 (32,0%)	
OUTCOMES					
Results of radiological exams and specialist visits (%)	1032 (100%)	189 (100%)	409 (100%)	434 (100%)	
Damages (%)	267 (26%)	67 (35,4%)	113 (27,63%)	87 (20%)	0,0002
Sentinel events (%)	23 (2%)	4 (2,1%)	9 (2,20%)	10 (2,3%)	
INCOMPLETE RECORDS (%)	312 (30%)	78 (41,3%)	147 (35,94%)	87 (20%)	<0,0001

The table reports data on hospital falls recorded through incident reporting in the years 2020-2021-2022. It includes information on average age, gender, number of discharges, percentage and distribution of falls, involved hospital areas, associated extrinsic and intrinsic factors, incidence of patient injuries, sentinel events, and the percentage of incomplete records.

The analysis was then carried out for each hospital facility, examining data from five hospitals: Hospital 1, Hospital 2, Hospital 3, Hospital 4, and Hospital 5 (Tab. 2).

In Hospital 1, the number of falls was 195, with an average patient age of 70.85 years and a standard deviation of 17.20. Among these patients, 62.05% were male and 37.95% female. The total number of discharged patients was 34,860, with a fall rate of 0.6%. Falls occurred primarily in patient rooms (67.18%), followed by bathrooms (15.9%), corridors (10.77%), and outdoor areas (1.03%).

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Regarding hospital areas, 81.03% of falls occurred in medical wards, 11.79% in surgical wards, and 1.03% in service areas, including rehabilitation. Among the identified extrinsic factors, 13.33% of falls were attributed to inadequate footwear, 3.59% to malfunctioning aids, 1.54% to altered flooring, and 4.62% to the presence of obstructive materials, while no external factor was identified in 72.82% of cases.

Regarding intrinsic factors, 11.28% of falls were due to urinary or fecal urgency, 8.21% to syncope, 25.64% to cognitive or sensory deficits, 10.26% to psychomotor agitation, and 4.62% to delirium, while no intrinsic factor was identified in 36.41% of cases. For all 195 falls in Hospital 1, radiological examinations and specialist visits were performed, with 28.21% of cases revealing injuries, including head trauma, fractures, and abrasions (five sentinel events). Additionally, 17.44% of reports were incomplete.

In Hospital 2, 282 falls were recorded, with a total of 36,017 discharges, resulting in a fall rate of 0.80%. The average patient age was 68.23 years, with a standard deviation of 17.05. Among these patients, 62.8% were male and 37.2% female.

Falls occurred primarily in medical wards (73.4%), followed by surgical wards (19.9%) and service areas, including rehabilitation (0.4%). Patients fell mostly in rooms (72.7%), followed by bathrooms (12.4%), corridors (13.5%), and outdoor areas (1.4%). Among extrinsic factors, 11.7% of falls were due to inadequate footwear, 4.3% to malfunctioning aids, 1.4% to altered flooring, and 1.8% to obstructive materials, while no external factor was identified in 72.7% of cases.

Regarding intrinsic factors, 13.1% of falls were due to urinary or fecal urgency, 5.7% to syncope or hypotension, 23.0% to cognitive or sensory deficits, 11.0% to anxiety or agitation, and 5.0% to delirium, while no intrinsic factor was identified in 36.5% of cases.

All 282 patients involved in falls underwent radiological examinations and specialist visits, and injuries were found in 23.4% of cases, including head trauma, fractures, and abrasions (eight sentinel events). Additionally, 32.3% of reports were not completed.

In Hospital 3, 171 falls were recorded, with 16,395 discharges, resulting in a fall rate of 1%. The average patient age was 75.9 years, with a standard deviation of 14.29. Among these patients, 63.7% were male and 36.3% female.

Falls occurred primarily in medical wards (73.1%), followed by surgical wards (15.2%) and service areas (8.2%). Patients fell mostly in rooms (81.3%), followed by bathrooms (12.3%) and corridors (6.4%). Among extrinsic factors, 26.3% of falls were caused by inadequate footwear, 5.3% by malfunctioning aids, 1.2% by altered flooring, and 2.9% by obstructive materials, while no external factor was identified in 59.1% of cases.

Regarding intrinsic factors, 12.3% of falls were due to urinary or fecal urgency, 5.3% to syncope or hypotension, 33.3% to cognitive deficits, 12.9% to agitation and anxiety, and 6.4% to delirium, while no intrinsic factor was identified in 23.4% of cases.

All 171 patients involved in falls underwent radiological examinations and follow-up visits, with 34.5% of cases revealing injuries, including head trauma, fractures, and abrasions (three sentinel events). Additionally, 8.2% of reports were incomplete.

In Hospital 4, 286 falls were recorded, with 7 total discharges, resulting in a fall rate of 0.98%. The average patient age was 73.54 years, with a standard deviation of 13.90. Among these patients, 66% were male and 34% female.

Falls occurred mainly in medical wards (43%), followed by surgical wards (16%). Patients fell mostly in rooms (81.81%), followed by bathrooms (8%) and corridors (9%). Among

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extrinsic factors, 14% of falls were due to inadequate footwear, 3% to malfunctioning aids, 1% to altered flooring, and 1% to obstructive materials, while no external factor was identified in 76% of cases.

Regarding intrinsic factors, 14.4% of falls were due to urinary or fecal urgency, 2% to syncope or hypotension, 21% to cognitive or sensory deficits, 16% to agitation and anxiety, and 6% to delirium, while no intrinsic factor was identified in 33% of cases.

All 286 patients involved in falls underwent radiological examinations and specialist follow-ups. Injuries were found in 21% of cases, including fractures or head trauma (three sentinel events). Additionally, 41% of reports were incomplete.

In Hospital 5, 142 falls were recorded, with 871 discharges, resulting in a fall rate of 16.3%. The average patient age was 71.74 years, with a standard deviation of 16.95. Among these patients, 68% were male and 32% female.

The 142 fall cases occurred mainly in the rehabilitation area. Most falls happened in rooms (75.75%), followed by bathrooms (15%) and corridors (9%). Among extrinsic factors, 20% of falls were caused by inadequate footwear, 8% by malfunctioning aids, and 2% by altered flooring, while no external factor was identified in 66% of cases.

Regarding intrinsic factors, 6% of falls were due to urinary or fecal urgency, 2% to syncope or hypotension, 40% to cognitive deficits, 12% to agitation and anxiety, and 1% to delirium, while no intrinsic factor was identified in 32% of cases.

For all fall cases, radiological examinations and follow-up visits were conducted. Injuries were found in 18% of cases (one sentinel event), and 33% of reports were incomplete.

The comparative statistical analysis revealed that Hospital 5 recorded the highest number of falls. Additionally, data indicate that male patients have a higher fall frequency than female patients across all hospitals. In Hospital 2, falls occur more frequently in medical wards compared to other hospitals. In Hospital 3, inadequate footwear represents a significant factor, whereas in Hospital 2, urinary or fecal urgency emerges as a relevant intrinsic factor. Finally, Hospital 4 shows a high number of incomplete hospital reports, while Hospital 2 has the highest number of injuries following falls.

Tab. 2. *Results table for the five analyzed hospital facilities: Hospital 1, Hospital 2, Hospital 3, Hospital 4, Hospital 5.*

VARIABILES	1	2	3	4	5	P VALUE+
Number of discharges	34.860	36.017	16395	32797	871	
Number of falls	195	282	171	286	142	
% of falls	0,60%	0,80%	1,00%	0,90%	16,30%	<0,0001
Average age	70,85 (17,20)	68,23 (17,05)*	75,94 (14,29)*	73,54 (13,90)*	71,74 (16,95)	0,0008*
GENDER						
Male (%)	121 (62,01%)	177 (62,8%)	109 (63,7%)	188 (66%)	96 (68%)	0,7556
Female (%)	74 (37,9%)	105 (37,2%)	62 (36,3%)	98 (34%)	46 (32%)	
AREA						
Medical area (%)	158 (81,3%)	207 (73,4%)	125 (73,1%)	124 (43%)	0 (0%)	<0,0001
Surgical area (%)	23 (11,79%)	56 (19,9%)	26 (15,2%)	47 (16%)	0 (0%)	
Service area (%)	2 (1,03%)	1 (0,4%)	14 (8,2%)	0 (0%)	142 (100%)	
LOCATION						
Room (%)	131 (67,18%)	205 (72,7%)	139 (81,3%)	233 (81%)	107 (75%)	0,0292
Bathroom (%)	31 (15,90%)	35 (12,4%)	21 (12,3%)	23 (8%)	22 (15%)	
Hallway (%)	21 (10,77%)	38 (13,5%)	11 (6,4%)	26 (9%)	13 (9%)	
Outside (%)	2 (1,03%)	4 (1,4%)	0 (0%)	1 (0%)	0 (0%)	
EXTRINSIC FACTORS						
Footwear (%)	26 (13,33%)	33 (11,7%)	45 (26,3%)	41 (14%)	28 (20%)	0,0016
Malfunctioning aids (%)	7 (3,59%)	12 (4,3%)	9 (5,3%)	10 (3%)	11 (8%)	
Altered flooring (%)	3 (1,54%)	4 (1,4%)	2 (1,2%)	2 (1%)	3 (2%)	
Presence of materials (%)	9 (4,62%)	5 (1,8%)	5 (2,9%)	2 (1%)	0 (0%)	
No factor identified (%)	142 (72,82%)	205 (72,7%)	101 (59,1%)	216 (76%)	94 (66%)	

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VARIABILES	1	2	3	4	5	P VALUE+
INTRINSIC FACTORS						
Urinary and/or fecal urgency (%)	22 (11,28%)	37 (13,1%)	21 (12,3%)	41 (14%)	8 (6%)	<0,0001
Syncope/Low blood pressure (%)	16 (8,21%)	16 (5,7%)	9 (5,3%)	6 (2%)	3 (2%)	
Cognitive and/or sensory deficits (%)	50 (25,64%)	65 (23,0%)	57 (33,3%)	61 (21%)	57 (40%)	
Anxiety/Agitation (%)	20 (10,26%)	31 (11,0%)	22 (12,9%)	47 (16%)	17 (12%)	
Delirium (%)	9 (4,62%)	14 (5,0%)	11 (6,4%)	18 (6%)	1 (1%)	
No factor identified (%)	71 (35,41%)	103 (36,5%)	40 (23,4%)	94 (33%)	46 (32%)	
OUTCOMES						
Results of radiological exams and specialist visits (%)	195 (100%)	282 (100%)	171 (100%)	286 (100%)	142 (100%)	
Damages (%)	55 (28,21%)	66 (23,4%)	59 (34,5%)	61 (21%)	26 (18%)	0,0029
Sentinel events (%)	5 (2,56%)	8 (2,8%)	3 (1,8%)	3 (1%)	1 (1%)	
INCOMPLETE RECORDS (%)	34 (17,44%)	91 (32,3%)	14 (8,2%)	117 (41%)	47 (33%)	<0,0001

The table reports data on hospital falls recorded through incident reporting in hospital facilities. It includes information on average age, gender, number of discharges, percentage and distribution of falls, involved hospital areas, associated extrinsic and intrinsic factors, incidence of patient injuries, sentinel events, and the percentage of incomplete records.

DISCUSSION

The analysis revealed significant annual variations in the number of falls recorded, along with substantial differences in distribution across various hospital facilities. The results showed a significant yearly variation in the number of falls, with an incidence of 0.48% in 2020 and a reduction in the following two years. This decrease could be attributed to various factors, including restrictions due to the pandemic, which limited patient supervision and mobility, increasing the risk of falls. In response to this situation, the health organization intensified staff training, raising awareness about the importance of prevention. Other significant risk factors include the advanced age of patients (over 65 years) and male sex, which, according to the literature, increase the likelihood of falls. Falls are particularly common in medical areas, with a higher prevalence in geriatrics and general medicine. Inadequate footwear also emerged as an underestimated risk, despite recommendations regarding it. Additionally, falls related to intrinsic factors, such as urinary and fecal urgency, were observed, suggesting the need to improve the hospital environment to cater to these patients' needs. In 2020, a notable increase in fall-related injuries was recorded, leading to increased healthcare costs and medico-legal disputes. Finally, fall reporting forms were often incomplete, indicating the need for further staff training to ensure accurate documentation of incidents.

The analysis of fall incident reports within the healthcare organization highlighted significant differences between hospitals, suggesting the need for preventive strategies tailored to the specific characteristics of each hospital. Hospital 5, primarily rehabilitation-focused, recorded a higher percentage of falls (16.30%), likely due to the increased mobility of patients in the rehabilitation phase and the severity of the patients hospitalized. The hospital demographics, influenced by the presence of obstetrics departments in hospitals 2 and 4, lower the average age and also include pediatric falls. The prevalence of falls among male patients is confirmed, as well as the predominance of falls in medical areas, except in hospital 5, where such departments are absent. Falls in patient rooms were more frequent in hospitals 3 and 4, while factors such as inadequate footwear and urinary/fecal urgency were associated with falls in specific hospitals. Hospital 3 also showed a higher number of patient injuries, while hospital 4 had incomplete reporting forms.

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In response to this situation, the healthcare organization implemented two key initiatives between 2022 and 2023. The first involved a review of the organizational procedure for managing fall risk, simplifying and improving its accessibility, with a focus on involving caregivers and early mobilization of patients. The second initiative introduced an accredited online training course for staff, aimed at improving fall management and providing updates on the new organizational procedure. The course, lasting six hours, includes an assessment of knowledge acquired through a final questionnaire.

Data analysis suggests that training improvements should cover key aspects, such as correct completion of fall reporting forms, comprehensive patient assessment, and adapting hospital rooms to ensure safety. It is also essential to raise awareness of the role of adequate footwear and adopt targeted protocols for managing intrinsic factors, such as incontinence. These interventions, combined with continuous improvement in documentation and clinical practices, will help reduce the risk of falls and improve the safety and well-being of hospitalized patients.

CONCLUSIONS

In summary, managing falls in hospitals within the healthcare organization is crucial to ensuring patient safety. The analyses highlighted the influence of factors such as the pandemic, age, patient conditions, and extrinsic factors on the incidence of falls. Recent initiatives, such as the revision of organizational procedures and staff training, are aimed at improving fall management and promoting a culture of safety, thereby ensuring safer and more effective healthcare.

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