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Research Article

Patient Falls in the Acute Care Hospital Setting as Perceived by the Frontline Staff

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Abstract

Patient falls and related injuries are traumatic life experiences, for patients, family members, and institutions that provide health care. Falls in acute care hospitals are a significant nursing clinical problem with legal implications and regulatory consequences. The purpose of this study was to identify perceptions of frontline staff regarding the factors associated with patient falls in acute care hospital settings. A survey of 20 items, using a Likert-type scale consisting of intrinsic and extrinsic factor statements, and 1 open-ended question were used in this study. The results were found using descriptive statistics. The top 4 intrinsic factors contributing to falls as agreed by the participants in order of mean were confusion, unsteady gait, history of falls, and taking multiple medications. The top 3 extrinsic contributing fall risk factors were identified as lack of supervision, lack of teamwork, and inadequate staff education. In conclusion, the safety of patients who are confused, have unsteady gait, have fallen before, or on multiple medications need to be supervised using a team approach, with staff who are trained in caring for fall risk patients. Maslow and Orlando's theories were used to guide the study.

Keywords

Falls; Fall prevention in an acute care setting; Fall prevention programs; Perceptions of fall risk factors; Intrinsic and extrinsic factors in falls

Introduction

Falls affecting patients in acute care hospitals is a significant nursing clinical problem, with legal implications and regulatory consequences [1]. Trauma, bone fractures and even death can result from falls. Psychological trauma and the fear of falling, particularly in the elderly, may lead to a decline in activities of daily living ([ADL] [2]. The cost associated with treatment and trauma from falls depends on the severity of an injury. Spetz et al. [1] reviewed numerous studies and following conversion to 2012 US dollars, found that associated fall costs ranged from $1,139 to $30,931 per fall.

Medicare and Medicaid policies in the United States mandate that fall injuries sustained by hospitalized patients are not reimbursable. This leads to an estimated cost of $16-$19 billion per year incurred by healthcare organizations providing and treating injuries caused by falls [3]. Falls increase the average length of stay for acute patients thus increasing the cost of care that is not reimbursable [4].

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Patient safety is a major concern considering the negative consequences associated with falls. As people age, muscle strength deteriorates, increasing the incidence of falls and injuries. The acuity of hospitalized patients requires vigilance from frontline staff to ensure the safety of patients. Tzeng et al. [5] studied staff awareness regarding the importance of bed height in preventing falls. Tzeng et al. [6] found that nursing staff were aware of the importance of maintaining beds in the low position and using bed-height alert systems. The researchers suggested that awareness alone does not necessarily result in adherence to safety protocols. It is remarkable to note that "the majority of falls and fall-related injuries in older adults could be prevented with a thorough evaluation of existing extrinsic factors, intrinsic factors, and environmental hazards" [5]. This particular study collected data regarding front line staff's perception of various intrinsic and extrinsic factors as they relate to fall risk. Tzeng et al. suggested that increased awareness of the impact of external and internal factors might help front line staff develop and implement fall prevention interventions.

Problem statement

Patient falls, and related injuries are traumatic life experiences for patients, family members, and institutions that provide health care. Despite the use of fall prevention protocols, falls continue to occur in the acute care setting. The costs associated with patient falls, and their related injuries drain resources that could be used to improve the quality of patient care. Patient safety, professional accountability, clinical based research practice, and staff responsibility for implementing outcomes must be addressed as health professionals' work to resolve this institutional problem of patient falls.

Purpose statement

The purpose of this quantitative, non-experimental, descriptive study was to identify contributing factors for patient falls as perceived by frontline staff in the acute care hospital setting. The intrinsic and extrinsic factors associated with patient falls was the focus.

Literature Review

The Cumulative Index to Nursing & Allied Health Literature (CINAHL), MEDLINE, and EBSCOhost were accessed to find the research studies applicable to the proposed study. The following keywords were used to search the databases: falls, falls prevention in an acute care setting, falls prevention programs, perceptions of fall risk factors, and intrinsic and extrinsic factors in falls. The articles selected for the research were published from 2010 to 2016 except for the theory by Maslow [7], and the study by Tzeng and Yin [6].

Empirical literature review

Patient falls in acute care hospitals continue to cause negative effects that compromise patient safety and the quality of care provided by health care providers worldwide [8]. The magnitude of falls correlates to increased costs and increased lengths of hospital stay after falls [9]. Huang et al. [10] studied medication-related falls in the elderly. They identified drug use as one of the intrinsic risk factors causing falls, injuries, and uncalculated deaths. A common theme emerging from research on falls focuses on quality of life. Improving

autonomy, social life interactions, and engagement in health care concerns can increase the individual's quality of life [11].

The ramifications of falls, fall-related injuries and the associated costs require a collective effort be implemented for fall prevention education among stakeholders, physicians, frontline staff, and patients. This education must be streamlined to address intrinsic and extrinsic risk factors that may result in falls.

Intrinsic Factors

Falls are a result of the interplay between non-modifiable and modifiable risk factors. Intrinsic factors are described as those factors that can be changed. Tzeng and Yin [6] explained that "intrinsic risk factors are integral to each individual patient and may be associated with age-related changes, such as previous falls, reduced vision, unsteady gait, balance, musculoskeletal system deficits, mental status deficits, acute illness, and chronic illness". Knowledge of the intrinsic factors that contribute to falls can lead to successful fall prevention strategies.

Tang et al. [12] suggested that each patient admitted to the acute care setting receive a thorough assessment which includes intrinsic factors for fall such as the patient's history of falls, admitting diagnosis, comorbidities, gait, and cognitive status. These intrinsic factors need to be investigated and a prevention plan put into place to reduce the risk for falls. The extent to which the intrinsic factors contribute to patient falls is an important element to implementation planning.

History of falls

Patients who had previous falls may experience physical and psychological associations such as fear of falling and lack of confidence, resulting in reduced functional capacities to perform activities of daily living (ADL). Fear to engage in ADLs and other physical exercises that promote bone and muscle strength may result in compromised quality of life and safety. Therefore, patients who experienced previous falls should be evaluated and attention is given, in the light of this known risk factor [10]. Kim et al. [13] also noted that falls with injury create fear in patients. The fear of future falls can result in functional deterioration, which compromises the quality of life.

Unsteady gait and balance

When a patient expresses weakness of bilateral lower extremities, the risk for falls increase. Proactive measures need to be taken to assess the need for assistive equipment such as a walker, cane, or crutches. In contemplating balance, the triangle has a mathematical dimension that reflects how human beings walk, resulting in the stability that prevents falls while ambulating. When the principle of triangular motion is broken, one loses their balance and the likelihood of falls increases.

Medications

Medications are an essential part of life for many people and are directly related to increased patient falls. The elderly often experience increased poly-pharmacy use contributing to falls particularly if not monitored appropriately [10]. Huang et al. [10] also reported that the use of sedatives, hypnotics, antidepressants and benzodiazepines had been related to an elevated risk of falls. They noted that the risk of falls is two-fold when diazepam dosages are increased. Codeine combinations were found to have the greatest fall risk for injuries. Digoxin and diuretics also elevated fall risk. The study found the following helpful actions in reducing fall risk: regular review and adjustment of medications, medication reconciliation between health care providers, and counseling interventions by front line staff regarding fall risk factors. (Huang et al. [10] Sanders et al. [14] in their study also noted that the use of multiple drugs elevated patient's risk for falls.

Mental status deficits

Cognition is the heartbeat of all thought process and abstract mental pictures that may be converted into concrete frames of reference. Deterioration in mental capacities affects timely judgments that may increase catastrophic events such as falls. Horkawa et al. [15] looked at the difference in fall rates of older adults with and without deficits in cognition. They found that those with cognitive deficits were twice as likely to fall. According to Martin et al., (as cited in Blackwood et al.), "Cognition is composed of multiple domains (e.g., attention, memory, visual-spatial ability, executive function) that work together to process information during functional tasks to maintain balance and prevent falling.". A deficit in even one of the domains can increase the risk for falls.

Extrinsic Factors

Extrinsic risk factors are modifiable and independent. Thus, extrinsic factors can be isolated and associated with the physical environment. Abraham [16] identified the following as extrinsic risk factors for falls on an inpatient psychiatric unit: teamwork, physical therapy evaluation, supervision, toileting, 15-min checks, staffing ratios, and identification of patients as high risk. Nitz and Johnston [17] defined environmental extrinsic risk factors as items such as weather, lighting, and surface/footwear interface. Extrinsic risk factors in a study by Tzeng and Yin [6] were identified as medications, inadequate supportive devices in bathrooms, and the design of furnishings, nature of floor surfaces, inadequate lighting, and improper footwear.

Multidisciplinary team (MDT)

Utilization of an MDT is an extrinsic risk factor that may decrease falls in the acute care setting. Fall prevention plans require a proactive approach that involves multidisciplinary representatives such as physicians, nurses, aides, pharmacists, therapists, risk managers, and administrators. The MDT's communicate information about patient risks and suggest to front line staff possible interventions to decrease patient falls [11].

Physical/occupational therapy

In a randomized study that compared the efficacy of supervised Tai Chi exercise with conventional physical therapy exercises the following was observed. Tai Chi principles such as body awareness, relaxation, breathing, and the ability to align the body in particular spatial orientation were used during training compared with the conventional physical therapy exercises that consisted of weight transfer, strengthening, and ambulation. Study participants who received Tai Chi supervised exercises were noted to have decreased falls post the intervention as compared to those who received the conventional exercises [11].

Summary of the literature review

In summary, the negative effects on patients who fall because of unidentified intrinsic and extrinsic risk factors, compromises patient safety and increases the cost of healthcare. History of falls, unsteady

gait, and mental status changes are significant factors influencing patient falls. A multidisciplinary team approach is required to monitor needs, and control patient falls. The fact that falls continue to be an unresolved issue suggests a gap in knowledge related to falls. Frontline staffs have a pivotal role in developing functional action plans for fall prevention and reduction [3].

Theoretical Framework

Maslow

Maslow's theory of human motivation is the theoretical framework used to guide this study. Nature governs the basic physiological needs for toileting and thirst. When basic physiologic needs such as toileting arise, they override all other hierarchical needs. If the patient calls for the nurse and no one responds in a timely fashion, the patient's urge to walk to the bathroom or over reach for a glass of water may increase fall risk.

Maslow [7] listed the domain of safety and security as one of the hierarchy of needs. Once basic physiological needs are met, individuals can develop interpersonal relationships with others. Patients need assurance that help is available when required. A quick response to call lights and frequent rounds builds patient trust and an assurance of safety and security. Creating a familiar environment, one that is less threatening, neutral, and appealing can foster a sense of safety and security [7]. Understanding of Maslow's hierarchy of the physiological and safety needs help frontline staff to be proactive in fall preventative measures.

Orlando

Orlando's theory of nursing process served as a supplement to the theoretical Framework by Maslow. Maslow focused on meeting the needs of the individual to ascend to a higher quality of life. Orlando focuses on identifying and meeting the "immediate" needs of the patient. She describes the nurse as a "knowledge worker" who can identify needs.

In her theory, the nurse-patient relationship is a collaborative endeavor, in which practical action plans can be developed and implemented that result in quality patient care outcomes [18].

Orlando's theory focused on the perceived action of the patient and perceived reaction by the nurse. Frontline staff perceives the action of the patient and use this perception to involve the patient in determining a plan of care to meet their identified needs. Assess and anticipating patient needs can help reduce patient falls. The exploration of patient perceptions, thoughts, and feelings by frontline staff determine the plan of care that should be instituted when addressing the reduction of patient falls [18].

Research Questions

Quantitative component

RQ1. What are the frontline staffs' perceptions of the intrinsic factors contributing to patient falls in the acute care hospital setting?

RQ2. What are the frontline staffs' perceptions of the extrinsic factors contributing to patient falls in the acute care hospital setting?

Qualitative component

RQ3. What factors does frontline staff believe contribute to falls on their unit?

Definition of terms

For this study, the following terms are defined:

Front line staff was operationally defined as registered nurses (RN), personal care providers (PCP) and physical and occupational therapists (PT/OT).

Perception, for the purpose of this study is defined as belief or precipitating factors that cause falls.

Staff perception of intrinsic and extrinsic fall factors were operationally defined by the staff responses given on the Inpatient Acute Care Unit Patient Falls Survey.

Intrinsic factors are "integral to each patient and may be associated with age-related changes, such as previous falls, reduced vision, unsteady gait, balance, musculoskeletal system deficits, mental status deficits, acute illness, and chronic illness" [6].

Extrinsic factors are described as factors that are modifiable and independent. Extrinsic factors can be isolated and associated with the physical environment. Examples of extrinsic risk factors are medications, inadequate supportive devices in bathrooms, the design of furnishings, uneven or slippery floor surfaces, inadequate lighting, and improper footwear [6].

Patient Falls has been defined as "inadvertently coming to rest on the ground or another lower level, excluding intentional change of position, to lean on furniture, walls or other objects" [8].

Fall Prevention is a calculated measure of hospital quality measures that denote safe and high-quality care outcomes in acute care settings where frontline staffs are assumed to play a significant role in-patient fall reduction [3].

Methodology

The method used is a quantitative, non-experimental, descriptive study. A cross-sectional design allowed the researcher to obtain opinions and beliefs (perceptions) of frontline staff regarding patient falls. One open-ended question allowing participants to explain their perceptions was incorporated into the survey.

Research setting

The research setting was a 308-bed acute care not-for-profit hospital in north central Indiana. The research was conducted on the Progressive Care Unit (PCU), Medical-Surgical Unit, and Orthopedic-Neuro-Surgical Unit. The hospital was relatively new with modern equipment to monitor falls such as beds with inbuilt sensors and telephones accessible to communicate directly with patients when they needed help.

Population and sample size

The study participants consisted of frontline staff including Registered Nurses (RNs), Patient-Care Providers (PCPs), Physical Therapists (PTs), and Occupational Therapists (OTs) employed at the not-for-profit hospital on the previously specified units. A select group of participants' representative of all eligible staff was considered the sample. The inclusion criteria were any of the previously mentioned employees working on the designated units as full-time, part-time, or as needed (PRN). Participants were 18 years of age or older. The exclusion criterion is RNs, PTs, OTs, and PCPs on other units not described in this research proposal. G-power was used to calculate an appropriate sample size for this study. In this convenience sample study, the goal was 132 participants.

Ethical/legal considerations

Permission to conduct this research study was obtained from the College Institutional Review Board (IRB) and the Hospital IRB. Permission was also obtained from the hospital unit managers. A sampling of participants began only after receipt of IRB approval. This process ensured that ethical considerations were addressed fully before the research study was conducted. All study participation was voluntary, and their rights to confidentiality, safety, informed consent, and respect were maintained throughout the study. The consent form provided the participants details about the research as well as risks and benefits. Each participant completed the consent form before the collection of data.

The signed informed consent forms were kept in a secure place and did not include participants identifying information. Participants selected their position title on the demographic data sheet, but names of employees were not requested. All collected data for this study were maintained in a secure place and separate from consent forms. The data and consents were submitted to the College School of Nursing (SON) to be stored electronically for at least three years. The SON staff scanned the data into the computer and stored it on discs in a locked cabinet.

Survey instrument

A 20-statement Likert scale tool was used to collect the data for the research study. This Likert scale consisted of statements on which participants indicated whether one agrees or disagrees on a continuum of five points [19]. The survey presented items about either intrinsic or extrinsic factors related to patient falls. The survey tool was originally designed to "assess the opinions regarding the causes and methods to reduce patient falls on inpatient psychiatric units" and was known as the Inpatient Psychiatric Unit Patient Falls Survey [16]. The tool was modified with permission from the original author to suit the acute care setting. Items 1, 2, 3, 4, 8, 13, 14, and 20 address the intrinsic factors. Items 5, 6, 7, 9, 10, 11, 12, 15, 16 17, 18, and 19 address the extrinsic factors.

One open-ended question was added to the survey tool to obtain further input from participants on what factors they perceive contributed to falls on their unit. The modified tool was titled, the "Inpatient Acute Care Unit Patient Falls Survey". Permission was obtained to modify and use the instrument.

Reliability is the attainment of consistent measurement overtime and validity is the degree that an instrument measures what it is intended to measure [19]. According to Abraham [16], the original tool was reviewed by a panel of 5 experts to determine question validity and reliability before use. Following data collection, Abraham analyzed the reliability of both the intrinsic and extrinsic items sets. He determined that "The survey possessed sufficient reliability, based on the conventional cutoff of 0.70 for adequate reliability".

Data collection

With the permission of the unit managers, announcements were made in the departmental meetings of the pre-determined units to ask frontline staff to participate in the study. Participants were also asked individually during break or lunch. Staff who agreed to participate was given a consent form describing the study and the responsibilities of both the participant and the researcher. Once questions and concerns were answered, the participants were asked to sign the consent form. The inpatient acute care unit patient falls surveys, and demographic data sheet were distributed, and instructions were given on how to return them. The informed consents, demographic sheets, and the survey tools were stored separately in large envelopes to ensure anonymity. Participation was voluntary, and no pressure was placed on the employee to participate. Incentives in the form of writing pens and candy were given to participants in appreciation of their time in completing the survey questionnaire. The surveys were initiated on January 12th, 2017 and completed on February 10th, 2017.

Results

Contrary to the expectation, the sample size obtained was large enough to allow for statistical analysis minimizing the bias of the results. Of the 170 surveys distributed, 148 were returned with complete data accounting for 87.1% and 22 surveys not returned accounting for 12.9%. The sample sizes enabled valid conclusions to be drawn and were statistically significant with an approximate $p<0.001$ value on repeated measures of analysis of variance.

As shown in Table 1, the descriptive statistical sample total number was 148 (n=148). Regarding gender, 88.0% females provided care and 12.0% males. The data suggested that care provided in this acute care hospital facility is predominantly female. The quantitative data in this survey ranks the intrinsic and extrinsic factors contributing to patient fall in the acute care hospital setting. This survey also highlights emergent themes from qualitative data.

Participants from age 18 years to 30 years constituted 30%. Even distribution was noted for other age categories. The data suggested that the care provided in the acute care hospital facility was among the young and middle age adults. As expected, the study showed the majority of the staff were registered nurses (65.3%), followed by patient care providers (29.7%). A relatively small percentage was represented by the physical/occupational therapist (6.8%); who does not imply that their contribution was insignificant.

The data reveals that work experience >11 years ranked highest at 39.9%. Rest of the items in the work experience category was somewhat evenly distributed. The day shift (0700-1930 hours)

Table 1: Demographic information.

Gender	**f**	**%**
Male	16	12.0%
Female	132	88.0%
Age		
30 years or below	45	30.4%
31-40 years	37	25.0%
41-50 years	36	24.3%
51 years or above	30	20.3%
Occupation		
Registered Nurse (RN)	94	63.5%
Patient Care Provider (PCP)	44	29.7%
Physical/Occupational Therapy (PT/OT)	10	6.8%
Work Experience		
<1 Year	23	15.5%
2-5 years	34	23.0%
6-10 years	32	21.6%
>11years	59	39.9%
Work Schedule		
0700-1900 hours (Day Shift)	97	64.5%
1900-0700 hours (Night Shift)	51	35.5%
Note: N=148		

accounts for the highest number (64.5%) of the participants that completed the survey. This distribution is a fair representation of what goes on during each shift. The level of activity is reduced during the night shift.

Research question 1

The first research question of this study was, "What are the frontline staffs' perceptions of the intrinsic factors contributing to patient falls in the acute care hospital setting?" Table 2 below itemizes eight survey statements focused on the intrinsic factors contributing to falls in the order of means. The Likert-type scale was used, and the participants rated each item from 1 (Strongly Disagree) to 5 (Strongly Agree). The higher the mean, indicated the higher the levels of agreement.

The mean and standard deviation was calculated for each of the eight statements about the intrinsic factors and was ranked by the level of agreement. Of the eight statements, the participants in this study tended to agree that "confusion (M=4.57, SD=0.60) and unsteady gait (M=4.57, SD=0.56), were the top indicators or falls. History of falls was a close third with a (M=4.51, SD 0.61). Use of multiple medications with a high mean of 4.06 was not a surprise. Although, though agitation was the weakest statement as per this study, it contributed to a significant number of falls.

Research question 2

The second research question of this study was, "What are the frontline staffs' perceptions of the extrinsic factors contributing to patient falls in the acute care hospital setting?" Table 3 below itemizes the extrinsic factors contributing to patient falls. The participants agreed that the most extrinsic factor causing falls was "lack of supervision" (M=4.69, SD=0.49). Use of teamwork to deter patient falls was a close second in agreement (M=4.55, SD=4.53). Most of the other items in the table represent safety. The weakest statement was that the participants agreed that placing all patients on high fall risk precaution help reduce the number of falls (M=3.03, SD 1.15). This item was the weakest possibly because participants tended to agree that placing all patients on high-risk precautions would help reduce the number of falls was not practical.

Qualitative question 3

The qualitative research question was, "What factors does frontline staff believe contribute to falls on their unit?"

Themes, contain a table with emergent themes from qualitative data. The top four intrinsic themes were confusion, medications, unsteady gait, and comorbidities in the order of frequency of occurrence. The top four extrinsic themes were need for staffing for patient supervision, lack of safety equipment and unsafe milieu, lack of teamwork, and toileting issues. In addition, other issues mentioned in the qualitative responses to the question were advanced age of patients, inadequate staff education, and training, family members asking patients to get up without checking with staff, and not answering call lights fast-enough. Table 4 contains samples of quotes from participants.

Data analysis

The results were found using descriptive statistics. Frequency and percentages were calculated for demographics. The mean and

Table 2: Intrinsic factors' contributing to patient falls in the acute care hospital setting.

Variable	Mean	SD
Confusion: Cognitively impaired patients are more likely to fall.	4.57	0.60
Unsteady Gait: Unsteady gait increases the risk of falls.	4.57	0.56
History of Falls:		
Individuals who experienced recent falls at home or in nursing homes are at increased fall risk when admitted	4.51	0.61
Medications: Taking multiple meds increases the risk of patient falls	4.06	0.86
Advanced Age:		
Patients 65 years old and older are more likely to fall than younger patients.	4.01	0.83
Co-morbidities:		
Medically fragile patients with multiple medical diagnoses fall more often than the patients with a single problem.	3.91	0.82
Ambulatory Patients:		
The ambulatory nature of patients increases the risk of falls.	3.54	1.07
Agitation: Falls occur when patients are given medications to decrease agitation or out of control behaviour	3.45	0.91

Note: N=148

Table 3: Extrinsic factors contributing to patient fall in the acute care hospital setting.

Variable	Mean	SD
Supervision: Adequate staffing levels reduce patient falls.	4.69	0.49
Teamwork: Multi-disciplinary team support is essential for reducing patient falls.	4.55	0.53
Staff Education: Falls can be reduced through on going staff training and education in fall prevention protocols.	4.30	0.73
PT/OT Evaluation: Physical/Occupational therapy evaluation for at-risk patients help to reduce patient falls.	4.22	0.72
Professional training for staff: professionally trained staffs are needed to care for and assist with fall prevention.	4.14	0.73
Grab bars: Wall mounted grab bars decreases the risk of patient falls.	4.04	0.75
Toileting: Implementing scheduled toileting every two hours decreases the incidence of patient falls	4.04	0.75
Footwear: Inadequate footwear causes patient falls.	4.03	0.75
One-on-one: One-on-one staffing is essential in preventing high-risk patient falls.	3.89	0.93
Current practice: Current practice of patient monitoring is helping to keep the number of falls to a minimum.	3.76	0.75
Staffing: Assigned designated staff for fall risk watches helps decrease patient falls.	3.71	0.87
Placing all patients: Placing all patients on high fall risk precaution will help reduce the number of falls.	3.03	1.15

standard deviation was used in analyzing the survey questions. Eight of the survey questions described intrinsic factors contributing to patient falls. They are items # 1, 2, 3, 4, 8, 13, 14, 20. Twelve of the survey questions describe extrinsic factors causing falls. They are items 5, 6, 7, 9, 10, 11, 12, 15, 16, 17, 18, 19. A mean level of agreement was determined for each item. The researcher was able to determine the mean level of agreement between intrinsic and extrinsic factors as a whole and individually. A repeat measure analysis of variance (ANOVA) with a Newman Keuls Multiple Comparisons post hoc test was completed for the 20 items. The SPSS-19 statistical software was used for the analysis. Themes were analyzed for the qualitative data.

Discussion of Findings

Discussion includes the demographics, quantitative, and the qualitative findings. Noted in this study was that several intrinsic and extrinsic fall risk factors have implications in patient falls.

Discussion of intrinsic factors

According to Abraham [16], confusion, unsteady gait, history of falls, and medications were four top intrinsic factors contributing to patient falls. In the same study, the author concluded that staff education, supervision, and teamwork were top extrinsic factors needed to prevent patient falls in psychiatric inpatient units. The findings of the current study of patient falls in the acute care setting matched with [16] findings of falls in the psychiatric setting in several ways. Literature indicated extensive findings of history of falls, confusion, and unsteady gait, and multiple medications as contributing factors for falls [10,14].

Based on the results, it is evident that the participants agreed "confusion" (M=4.57, SD=0.60), "unsteady gait" (M=4.57, SD=0.56), "history of falls" (M=4.51, SD=0.61), and "medications" (M=4.06, SD=0.86) are the intrinsic factors causing falls in an acute care hospital setting (Figure 1). The remaining four factors also were significant contributors to the risk of patient falls. Therefore, it can be concluded that intrinsic factors were strong contributors to patient falls.

Discussion of extrinsic factors

The participants tended to agree that the eight strongest extrinsic statements were, "lack of supervision" (M=4.69, SD=0.49), "lack of teamwork" (M=4.55, SD=0.53), "staff education" (M=4.30, SD=0.73), "lack of PT/OT evaluation" (M=4.22, SD=0.72), "lack of professional training for staff" (M=4.14, SD=0.73), "lack of grab bars" (M=4.04, SD=0.86), "toileting issues" (M=4.04, SD=0.86), and "unsuitable foot-wear" (M=4.03, SD=0.73) (Figure 2). Participants tended to strongly disagree with the statements related to assigned designated staff for fall risk watch helps decrease patient falls (M=3.71, SD=0.87). Finally, placing all patients on high-risk precautions was the least agreed upon among the participants even though it received a mean score higher than the midpoint (M=3.03, SD=1.15).

Abraham's [16] study indicated that teamwork should be priority for fall prevention. Tousignant et al. [13] had emphasized the need for a multidisciplinary team approach to use for preventing falls. Based on the current findings, it can be concluded that safety measures such as using foot-wear, grab bars, are essential; however, scheduled toileting, PT/OT evaluation of patients who are on fall risk, trained staff, team approach, and adequate supervision are necessary to keep the patients safe.

Discussion of qualitative themes

Based on the results, it is evident that the participants identified the qualitative intrinsic themes of "confusion" (F=84), "medication" (F=25), "unsteady gait" (F=18), and "comorbidities" (F=18) as the intrinsic factors causing falls in an acute care hospital setting. These findings complement the quantitative responses. According to Abraham (2016), confusion, unsteady gait, and medications were four top intrinsic factors contributing to patient falls. Huang et al. [10] also noted that the elderly often experience increased poly-pharmacy use contributing to falls particularly if not monitored appropriately. Sanders et al. [14] in their study also noted that the use of multiple drugs elevated patient's risk for falls. The themes identified by the

Table 4: Qualitative Responses included.

» Often a sitter is needed, but there are no sitters available.
» Bed alarms help but often the patient is too quick and will be out of bed by the time the alarm sounds.
» Nurses are discouraged from asking the physician for a "sitter" order.
» Charge nurse or supervisor will tell you there is not enough staff to pull someone to be a sitter.
» Multiple high acuity patients assigned to one RN.
» Inadequate patient to staff ratio.
» Bed alarms help but often the patient is too quick and will be out of bed by the time the alarm sounds.
» Not remembering to put on bed alarms.
» Improper training.
» Not asking if patient needs help to go to the bathroom before leaving room for both RN and Tech.
» Not assessing fall risk Q-Shift.
» Not reminding patient to use call light for help with toilet needs.
» Not placing commode close to bed.
» With more staff falls could/may be prevented.
» Personally, I think a fall can happen with any patient no matter how hard we try to prevent it. There's always that chance even with an independent patient.
» Fall risk signs should be bigger and more visible.
» With one PCP assigned to 14 patients, it is often difficult to get to the room to help the patient as soon as they hit the call light. Often the patient hits the call light and they can't wait to go to the bathroom, so they try on their own.
» After a PCP places a patient in the restroom, often, the patient may get up and want to go back to bed on his or her own rather than wait for help, and this becomes a fall risk.
» No help moving patients who require two people to move.
» Lack of knowledge of risk factors such as changes in blood pressure.
» When a float associate forgets to put patient on bed alarm
» When we have confused pts. or pts. that don't follow directions.
» Multiple medications: especially new medications or sleep aid medications.
» Lack of walking patients several times per day and working as a team to accomplish this.
» Patients left unattended in the bathroom.
» Isolation rooms that hinder staff from getting to fall risk patients quickly.
» People not wanting to lose their ability to be independent, will be less likely to call staff for help and assistance.

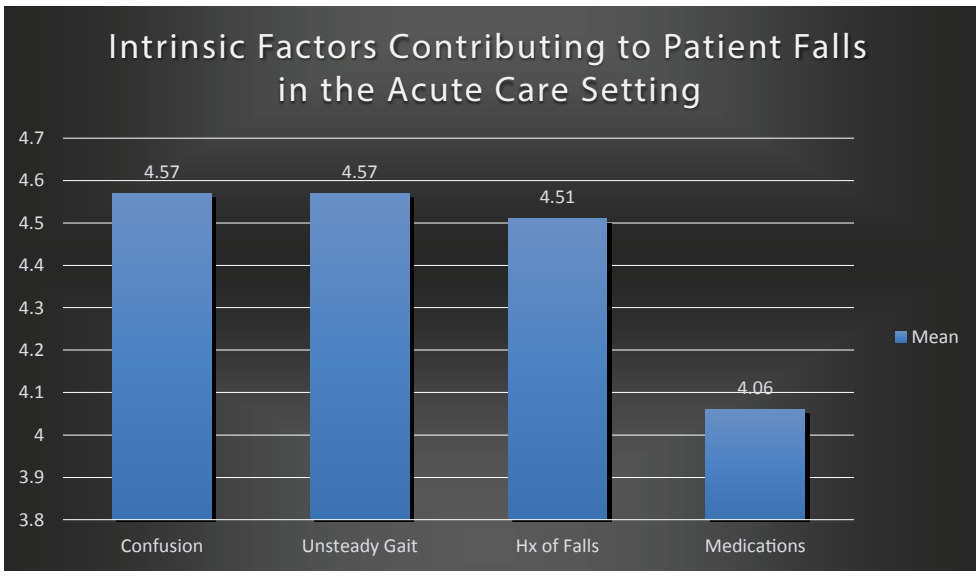

Figure 1: Intrinsic factors contributing to patient fall in the acute care setting.

N=148. Scale=5-point Likert type.

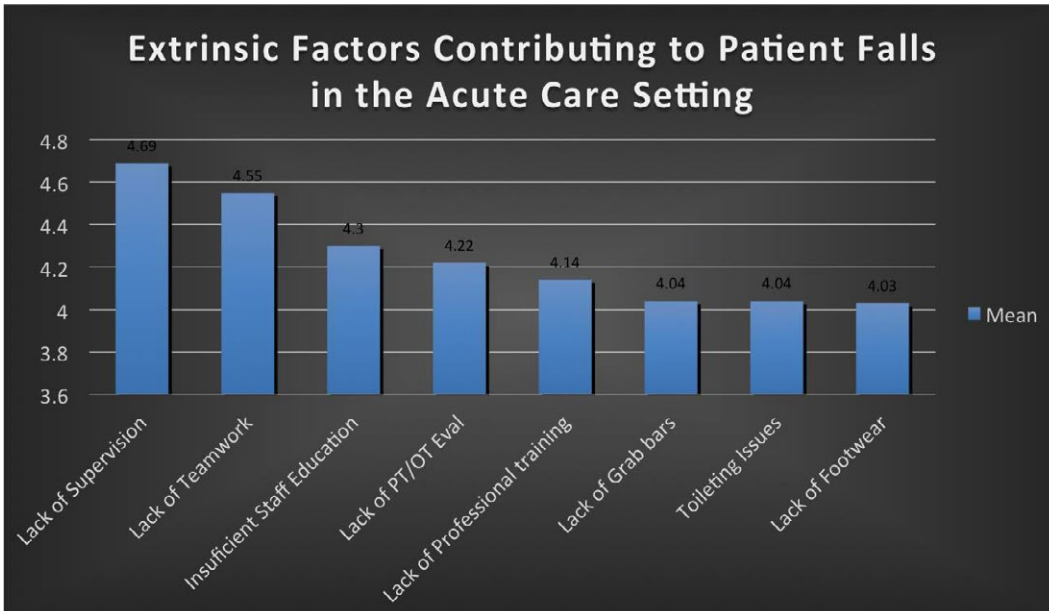

Figure 2: Extrinsic factors contributing to patient fall in the acute care setting. N=148. Scale=5-point Likert-type.

participants in this study are supported by literature and contribute to the existing knowledge base.

It is also evident that the participants in the current study identified the top four qualitative extrinsic themes, "lack of staffing and patient supervision" (F=88), "lack of or not using safety equipment and unsafe milieu" (F=56), "lack of teamwork" (F=24), and "toileting issues" (F=12) as factors contributing to falls. Abraham [16] identified the following as extrinsic risk factors for falls on an inpatient psychiatric unit: lack of teamwork, deficient physical therapy evaluation, and lack of supervision, toileting issues, and staffing ratios as factors that contributed to falls and addressing them would help prevent patient falls. Tzeng and Yin [6] also linked patient falls with staffing shortage and identified inadequate supportive devices in bathrooms, and the design of furnishings, nature of floor surfaces, inadequate lighting, and improper footwear, which relates best to safety equipment and milieu themes from the qualitative data in this study. Notably, nothing can replace the wisdom of accrued work experience, in regards to timely response to patient needs to prevent falls.

Implications

The study findings can benefit caregivers improve the quality of care provided, and ultimately decrease the number of patient falls in the acute care setting. Participating in the research study allowed staff

to self-reflect and self-report their perceptions regarding patient falls. Completing the inpatient acute care unit patient falls survey may in, and of itself, increase staff knowledge regarding both intrinsic and extrinsic factors that impact fall risk.

Implications for leadership

Based upon the study findings hospital staff and administration may use the information to implement change in the clinical setting. Providing acute care setting data unique to their staff and patient population may increase positive outcomes. For example, an ad-hoc committee could be set up to review the findings and determine how they might be applied to the acute care setting. The findings could also be used to design and implement an action plan for change to help reduce patient falls. Tang et al. [12] noted that the extent to which the intrinsic factors contribute to patient falls is an important element to implementation planning as supported by the literature.

Staff training using evidence-based research can help yield positive results that address patient falls. It is envisioned that the perceptions would be strategized to develop practical clinical interventions. Possible interventions include MDT fall risk assessments, patient and family caregiver's participation in MDT, and ongoing frontline staff education in fall prevention.

Formulation of an active follow-up task force and active involvement of management may enhance quality and safety strategies are in place to address and reduce falls and fall-related costs. The literature reviewed suggested a multidisciplinary team approach is required to monitor needs, and control patient falls. According to Everhart et al. [3], frontline staffs have a pivotal role in developing functional action plans for fall prevention and reduction. A benefit to the administration from the research study findings would be to revisit and evaluate the safety issues raised, remodel, and make policy revisions that address the intrinsic and extrinsic factors related to patient falls. There is nothing better than a staff that is willing to participate in research that enables better patient safety milieu and improve the quality of care at a reduced cost.

Implications for hospital staff

Front line staff gains ownership of fall prevention programs when they contribute to identifying intrinsic and extrinsic factors that contribute to patient falls. They feel responsible for ensuring the successful implementation of the fall reduction interventions that result in the provision of a safer milieu that reduce patient falls. Other issues include cost related to injuries when patients fall, additional time spent completing paper work, additional need for assigned care as well as litigations related to patient falls.

The multi-disciplinary approach to fall prevention is a buffer that begins upon admission and continues throughout the length-of-stay. Ongoing patient daily assessments identifying change in condition and communicating these changes in condition is a practical approach to reducing patient falls, improving patients' quality of life and holding front line staff responsible for protecting the patients from harm. The study participants tended to agree with Tang et al. [12] who suggested that each patient admitted to the acute care setting receive a thorough assessment that includes intrinsic factors for fall. This is possible when leadership has supportive policies and procedures that promote a culture of safety.

The provision of adequate staffing enables supervision to address the basic biological and physiological needs that account for most falls in acute care hospital settings. If a patient is in need of using the toilet, he or she uses the call light to alert the nursing staff. Delayed response, because of inadequate staffing, may lead the patient to ignore safety needs such as putting on appropriate footwear or using the grab bars mounted on the walls to walk to the bathroom. The patient may fall and sustain a fracture.

This illustrates how physiological needs take precedence over safety and other higher-level needs such as love and belonging, self-esteem, and later self-actualization [7]. The provision of adequate staffing would enable answering of call lights in a timely fashion, facilitate hourly rounds reducing call light usage and presumably prevent falls. Creating a culture of safety is far more important than overlooking potential harm to patients and the cost of treatment for injuries sustained from falls.

Limitations

Survey instruments have varying degrees of weakness depending upon the truthfulness of research participant's responses to the survey instrument used. The instrument was not capable of measuring participant truthfulness to survey questions and the value they perceived to their personal practice. Another limitation was using a survey where participants were unable to ask questions or clarification of the tool itself. The use of one acute care hospital limited the generalizability of the study results; however, staff from three acute care units was involved in the study. A possible recommendation would be to replicate the study in a different environment using multiple hospitals and with a larger sample size.

Conclusion

The top 4 intrinsic factors contributing to falls as agreed by the participants in order of mean were confusion, unsteady gait, history of falls, and taking multiple medications. The top 3 extrinsic contributing fall risk factors were identified as lack of supervision, lack of teamwork, and inadequate staff education. In conclusion, the safety of patients who are confused, have unsteady gait, have fallen before, or on multiple medications need to be supervised using a team approach, with staff who are trained in caring for fall risk patients.

Abraham [16] surveyed managers of psychiatric inpatient programs using the same questionnaire. The managers indicated that teamwork was of very high priority in preventing patient falls in psychiatric inpatient units. They had also indicated that unsteady gait and history of falls were the top indicators for patient falls. However, it is interesting to note in the current study of front line staff in the acute care units, confusion was a very high priority for causing patient falls, and lack of staffing and inadequate supervision were the reasons given. It can be concluded that managers assumed there was sufficient staffing but not enough teamwork. The frontline staff assumed that there was adequate teamwork; however, there was not enough staff to supervise and help prevent patient falls.

References

1. Spetz J, Brown DS, Aydin C (2015) The economics of preventing hospital falls. J Nurs Adm 45: 50-57.
2. Zavotsky K, Hussey J, Easter K, Incalcaterra E (2014) Fall safety agreement: A new twist on education in the hospitalized older adult. Clinical nurse specialist: Clin Nurse Spec 28: 168-172.
3. Everhart D, Schumacher JR, Duncan RP, Hall AG, Neff DF, et al. (2014) Determinants of hospital fall rate trajectory groups: A longitudinal assessment of nurse staffing and organizational characteristics. Health Care Manage Rev 39: 352-360.

4. Hempel S, Newberry S, Wang Z, Booth M, Shanman R, et al. (2013) Hospital fall prevention: A systematic review of implementation, components, adherence, and effectiveness. J Am Geriatr Soc 61: 483-494.

5. Tzeng HM, Yin CY, Anderson A, Prakash A (2012) Nursing staff's awareness of keeping beds in the lowest position to prevent falls and fall injuries in an adult acute surgical inpatient care setting. Medsurg Nurs 21: 271-274.

6. Tzeng HM, Yin CY (2009) Perspectives of recently discharged patients on hospital fall-prevention programs. J Nurs Care Qual 24: 42-49.

7. Maslow AH (1943) A theory of human motivation. Psychological Review 50: 370-396.

8. Severo IM, Almeida MD, Kuchenbecker R, Vieira DV, Weschenfelder ME, et al. (2014) Risk factors for falls in hospitalized adult patients: An integrative Revista da Escola de Enfermagem da USP 48: 540-554.

9. Bennett A, Gnjidic D, Gillett M, Carroll P, Matthews S, et al. (2014) Prevalence and impact of fall-risk-increasing drugs, polypharmacy, and drug-drug interactions in robust versus frail hospitalized fall patients: A prospective cohort study. Drugs Aging 31: 225-232.

10. Huang AR, Mallet L, Rochefort CM, Eguale T, Buckeridge DL (2012) Medication-related falls in the elderly: Causative factors and preventative strategies. Drugs and Aging 29: 359-376.

11. Tousignant M, Corriveau H, Roy PM, Desrosiers J, Dubuc N, et al. (2013) Efficacy of supervised tai chi exercises in fall prevention for frail older adults: A randomized controlled trial. Disabil Rehabil 35: 1429-1435.

12. Tang WS, Chow YL, Koh SS (2014) The inter-rater reliability test of the modified MORSE FALL SCALE among patients greater or equal to 55 years old in an acute care hospital in Singapore. Int J Nurs Pract 20: 32-38.

13. Kim H, Yoshida H, Suzuki T (2014) Falls and fractures in participants and excluded non-participants of a fall prevention exercise program for elderly women with a history of falls: 1-year follow-up study. Geriatr Gerontol Int 14: 285-292.

14. Sanders NA, Ganguly JA, Jetter TL, Daccarett M, Wasmund SL (2012) Atrial fibrillation: An independent risk factor non-accidental falls in older patients. Pacing Clin Electrophysiol 35: 973-979.

15. Blackwood J, Shubert T, Forgarty K, Chase C (2016) Relationships between performance on assessments of executive function and fall risk screening measures in community-dwelling older adults. J Geriatr Phys Ther 39: 89-96.

16. Abraham S (2016) Managing patient falls in psychiatric inpatient units. Health Care Manag 35: 21-27.

17. Nitz JC, Johnston V (2014) An argument for a universal definition and method of recording falls. Physical Therapy Reviews 19: 131-135.

18. Alligood MR, Tomey AM (2010) Nursing theorists and their work (7th ed.). Maryland Heights, Missouri: Mosby Elsevier, USA.

19. Schmidt NA, Brown JM (2015) Evidence-based practice for nurses: Appraisal and application of research (2nd ed.). Sudbury, MA: Jones & Bartlett Learning.

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