Examine the Perceived Risk of Falls Among Patients Receiving Acute Care

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Abstract:

Purpose: In an effort to lower the number of falls that occur among hospitalized patients, several facilities have begun introducing various fall prevention programs. However, the efficacy of fall prevention programs is diminished if patients do not consider themselves to be at risk for falls and do not follow recommended procedures. The goal of this study was to characterize how patients in four different acute care specialist services felt about their risk of falling while in the hospital. **Methods**: One hundred patients admitted to the study hospital with a Morse Fall Scale score of 45 or higher were given the Patient Perception Questionnaire, a tool designed to assess a patient's perception of their own fall risk, fear of falling, and motivation to take part in fall prevention efforts. Scores on the Morse Fall Scale were gathered through a historical assessment of medical records. Descriptive statistics, Pearson's correlation coefficients, and independent sample t tests were used to examine the data. **Results**: The average age was 65, and around half (52%) were men and half (48%) were women. Based on their ratings on the Morse Fall Scale, all 100 participants were classified as being at high risk for falls. However, only 55.5% of the individuals agreed with this assessment. The likelihood that a patient would seek assistance and the degree to which they feared falling both declined as their faith in their mobility improved. Patients hospitalized after a fall exhibited considerably lower confidence scores and greater fear scores than patients who had not been injured in a fall. **Conclusions**: Patients who have a high fall risk assessment score may not believe they are at risk for falls and may not take any steps to reduce their risk. The prevalence of falls in hospitals might be mitigated by the creation of a fall risk assessment technique that takes into account both objective and subjective factors.

Keywords: *falls, hospitalized patients, prevention programs, risk, injured, healthcare, suffer.*

Introduction

Hospitalized patients still fall, despite the widespread use of fall risk prediction technologies and hospital fall prevention programs (LeLaurin, & Shorr, 2019). Previous research has shown that between 2 and 7 percent of all hospitalized patients experience at least one fall while in acute care. Even within a same hospital, the prevalence of falls is likely to differ between medical and surgical wards (Halfon et al., 2001; Schwendimann et al., 2006). Longer

hospital stays, fewer home releases, and higher healthcare expenses have all been linked to patient falls that occur during their hospitalization (Halfon et al., 2001; Bouldin et al., 2013; Hill et al., 2019; Morello et al., 2015). Hospitals and healthcare networks prioritize fall prevention due to the detrimental effects that patient falls may have on individuals, families, and the institution itself.

Patients who suffer a fall in the hospital typically have at least one of the established risk factors for falls. The risk of falling while hospitalized increases with decreased physical functioning or balance, weakness in the lower extremities, the beginning of new delirium, polypharmacy, and the introduction of new, recognized fall-inducing medicines (LeLaurin, & Shorr, 2019; Chu et al., 1999; Shuto et al., 2010). It seems sense that the presence of additional risk factors would raise the probability of a fall.

There have been many attempts to minimize the number of falls and the risk of falls among hospitalized patients through fall prevention programs, but these efforts have had only little effectiveness. Care institutions and hospitals were the focus of Cameron and colleagues' recent Cochrane review of trials on fall prevention measures. Patient education, physical therapy, medication review, bed alarms, identification bands for high-risk patients, and even changes to the flooring were among the nine interventions used. Few conclusive results were found for the effectiveness of individual therapies in reducing fall risk or fall rates. While there was some indication that multifactorial therapies reduced fall rates, this data was inconclusive. Both the fall rate and the danger of falling were found to be "uncertain" in relation to the findings drawn by the researchers.

Hospitalized patients frequently fail to identify that they are at risk for falling, despite our awareness of fall risk factors and the broad deployment of a number of fall prevention initiatives. Patient adherence might be negatively impacted when fall prevention programs don't take into account patient participation. Reducing in-hospital falls requires an understanding of how patients perceive their own fall risk and how that affects their motivation to implement preventative measures.

Purpose

The aim of this study was to describe patient perceptions of fall risk among hospitalized patients across four acute care specialty services.

Methods

Design, Setting, and Sample

One hundred patients hospitalized to a prominent academic medical facility in the Midwest participated in an observational, cross-sectional cohort research. This sample size was arrived at after doing a power analysis. Each of the four specialties included in the sample (medicine, neurology, cancer, and surgery) contributed 25 individuals. Patients were considered for inclusion if they had a score of 45 or above on the Morse Fall Scale, were cognitively intact, and were willing to provide their verbal assent. Patients were not included if they were illiterate, had a severe hearing loss without access to hearing aids, suffered from severe dementia, or had an altered mental status that prevented them from understanding the survey or communicating verbally. Everyone who took part in the study gave their verbal approval to do so. Before starting to collect data, the project was approved by the human research protection office of the organization conducting the study.

Data Collection

After receiving verbal agreement, a member of the study team interviewed each participant, asking questions about their basic demographics (age, gender, and race), as well as their fall history in the previous year, their present mobility, and their previous mobility. The electronic health record was used to get the patient's hospital stay length and the most recent score on the Morse Fall Scale.

Instruments

Using the patient's fall history, the existence of a secondary diagnosis, the use of an ambulation assistance, the use of an intravenous (IV) or

heparin lock, the patient's gait state, and the patient's mental condition, the Morse Fall Scale calculates the patient's fall risk (Morse et al., 1989; Morse, Morse, & Tylko, 1989). Total scores can be anything from 0 to 125, with higher numbers indicating a greater danger. Scores more than 45 indicate a high risk of falling, scores between 25 and 45 indicate a moderate risk, and scores less than 25 indicate a low risk; the Morse Fall Scale is administered every 12 hours at the research location. The stated values for the scale's sensitivity, positive predictive value, specificity, and negative predictive value are 78%, 10%, 83%, and 99.2%, respectively, while the interrater reliability score is 0.96 (Morse, Morse, & Tylko, 1989). Visit [www.ahrq.gov/patient-safety/settings/hospital/fall-prevention/toolkit/morse-fall-scale.html to use the tool](www.ahrq.gov/patient-safety/settings/hospital/fall-prevention/toolkit/morse-fall-scale.html).

Patients also filled out the Patient Perception Questionnaire, which Twibell and coworkers created as a survey instrument to gauge patients' perspectives on falls, including their certainty in the likelihood of falling, fear of falling, anticipation of fall outcomes, and intent to participate in fall prevention activities. The principal developer of the instrument gave us permission to utilize it in our research (Twibell et al., 2015). The tool consists of three scales and three single questions: the Confidence to Perform Without Falling Scale, the Intention to Engage in Fall Prevention Scale, and the Fear of Falling While Hospitalized Scale. (The Consequences of Falling While Hospitalized Scale, a fourth scale, was left out of our calculations.) Individual questions assess "perceived likelihood of falling while hospitalized, perceived likelihood of injury if they did fall while hospitalized, and perceived fear of falling (Twibell et al., 2015)."

Responses on the Confidence and Intention scores range from 1 (strongly disagree) to 5 (strongly agree) on a five-point Likert scale. Answers on the Fear scale are rated from 1 (not at all concerned) to 4 (extremely concerned) on a four-point Likert scale. There is a five-point Likert scale used to rate each of the three separate questions, with 1 representing a low likelihood and 5 representing an extremely high one. Acceptable concept and criterion-related validity have been demonstrated for all three measures, with Cronbach's ranging from 0.90 to 0.95 (Twibell et al., 2015).

Data Analysis

Descriptive statistics were used to examine the demographic data. Means and standard deviations were computed for continuous data, whereas frequencies and percentages were determined for categorical variables. Because this was an observational, cross-sectional study, we tallied up the results from all of the instruments used to assess the participants' awareness of the risk of falls. Overall and service area connections between self-assurance, action, and fear of falling were estimated using the Pearson correlation coefficient. Patients admitted because of a fall, patients admitted because of a fall during the last three months, and patients admitted because of a fall within the previous year all had their scale scores compared using independent sample t tests. All statistical analysis was performed in IBM SPSS version 25. The threshold for significance was determined to be P 0.05.

Results

Patients' ages ranged from 32 to 93, with a mean of 65, and there were 52 men and 48 women in the group. More than two-thirds (67%) of the participants reported at least one fall in the previous 12 months (mean number of falls, 2.75) and almost half (49%) reported at least one fall in the preceding three months (mean number of falls, 1.48) before admission. More than a third (39%) of those surveyed reported having been injured as a result of a fall. These injuries varied from minor scratches and bruises to more serious ones such as broken bones in the arms, legs, hips, or spine. Nearly all participants (98%) said they could move around their houses without help before their current admission; 49% of those people used a cane or walker. Over half (51%) of those who were able to go outside their houses did so while utilizing a mobility aid

like a cane or walker. See Table 1 for a breakdown of patient demographics.

Table 1. Patient Characteristics (N = 100)

Characteristic	Value
Age in years, mean (SD)	
Overall	65.3 (11.8)
Medicine	63.7 (13.3)
Neurology	66.6 (9.7)
Oncology	68.4 (9.7)
Surgery	62.6 (13.8)
Gender, n (%)	
Male	52 (52)
Female	48 (48)
Race, n (%)	
White	81 (81)
Black	19 (19)
Length of stay in days, mean (SD)	7.7 (8)
History of falling in past year, n (%)	67 (67)

The average score on the Morse Fall Scale was 67.7 (range: 50-95), suggesting a high risk of falling for all individuals. Only 55% of respondents who were answered this question on the Patient Perception Questionnaire really believed they were at risk for falling. Fall fear perception was different across hospital departments. Patients in the neurology subgroup indicated the highest level of concern about falling (60%) compared to those in the oncology category (48%). For specifics, please refer to Table 2.

Table 2. Fall Risk Assessment Results

Specialty Area	Morse Fall Scale Score, mean (SD)[a]	Patients Perceiving Self at Risk, %[b]
Overall	67.7 (11.5)	55
Medicine	67.6 (12.3)	56
Neurology	67 (10.8)	60
Oncology	65.8 (11.6)	48
Surgery	70.4 (11.5)	56

Note: a - Score > 45 = high risk. b - Based on responses to the **Patient Perception Questionnaire**.

Table 3. Patient Perception Questionnaire Results

Scale	Specialty Area	Score, mean (SD)
Confidence to Perform Without Falling[a]	1. Medicine 2. Neurology 3. Oncology 4. Surgery	1. 24.7 (8.7) 2. 20 (10.1) 3. 25.4 (10.2) 4. 18.5 (8.3)
Intention to Engage in Fall Prevention[b]	1. Medicine 2. Neurology 3. Oncology 4. Surgery	1. 28.7 (13.5) 2. 34.3 (10.8) 3. 29.8 (12.1) 4. 35.7 (9.6)
Fear of Falling While Hospitalized[c]	1. Medicine 2. Neurology 3. Oncology 4. Surgery	1. 15.9 (9) 2. 17.9 (9.7) 3. 13.4 (7.2) 4. 19.2 (8.2)

Note: a - Items scored 1-5; higher score = more confidence; maximum possible score = 35. b - Items scored 1-5; higher score = greater intention to engage; maximum possible score = 45. c - Items scored 1-4; higher score = greater fear; maximum possible score = 28.

There were no statistically significant differences between Patient Perception Questionnaire scores and medical specialties for any of the other questions. When asked how worried they were about falling while hospitalized, the vast majority of participants (72%) said they weren't worried at all or were just little worried, while only 13% said they were very worried. Seventy-two percent responded "not at all likely" or "slightly likely" when asked how likely they

thought they were to be hurt if they fell while hospitalized. While 26% said they would never ask for help using the restroom, 52% said they were very likely to ask for help. Half of the people who filled out the Confidence survey said they were certain they could get themselves to the restroom without any assistance or falling. Details may be found in Table 3.

There were no significant associations between the Morse Fall Scale's Confidence scale score (r = 0.169) and Intention scale score (r = 0.123), both generally and by speciality area. The score on the Fear scale was positively correlated with the Morse Fall Scale (r = 0.2225), but only slightly.

Correlations between the scale scores of the Patient Perception Questionnaire are shown in Table 4 using Pearson's r. The confidence and intention scale scores, as well as the confidence and fear scale scores, were found to have inverse associations. This suggests that patients were less likely to seek assistance and worried about falling as their confidence in their abilities to move about improved. The results showed a strong positive association between the Intention and Fear scale scores, suggesting that patients' intentions to seek assistance grew in tandem with their levels of fall anxiety.

Table 4. Correlations Among Patient Perception Questionnaire Scale Scores (Pearson Correlation Coefficients)[a]

Variable	Intention Scale	Fear Scale	Confidence Scale
Intention Scale	1	0.570 n = 99	−0.551 n = 99
Fear Scale	0.570 n = 99	1	−0.839 n = 100
Confidence Scale	−0.551 n = 99	−0.839 n = 100	1

Note: Where n < 100, a response was missing. *All correlations are significant at $P < 0.001$.

Table 5 shows that responses to the Patient Perception Questionnaire varied depending on whether or not the respondent had fallen within a certain time limit. There were non-significant differences in Confidence and Intention scale scores and Fear scale scores between individuals who reported a history of falls over the last 12 months and those who had not fallen. Patients who reported a fall within the last three months had higher ratings on the Intention and Fear scales and lower scores on the Confidence scale, but these differences were not statistically significant. Finally, compared to those admitted for other causes, those admitted owing to a fall reported considerably lower Confidence and significantly higher Fear scale ratings. They also scored higher on the Intention scale, but not significantly so.

Table 5. Comparison of Mean Scores for Patient-Reported Fall Categories

Scale	Any Fall Past 12 Months			Any Fall Past 3 Months[a]			Admission Due to a Fall[a]		
	No Fall (n = 33) Mean (SD)	Fall (n = 67) Mean (SD)	P	No Fall (n = 50) Mean (SD)	Fall (n = 48) Mean (SD)	P	No Fall (n = 86) Mean (SD)	Fall (n = 13) Mean (SD)	P
Confidence scale	23.2 (8.6)	21.6 (10.2)	0.42	23.5 (9.3)	21.2 (9.9)	0.25	22.9 (9.7)	15.7 (6.9)	0.003b
Intention scale	33.3 (11.5)	31.6 (12)	0.52	31.9 (12.2)	32.2 (11.6)	0.89	32 (11.9)	34.9 (9.2)	0.34
Fear scale	14.9 (7.8)	17.4 (9.1)	0.15	15 (8.1)	17.7 (9.1)	0.12	15.8 (8.7)	22.5 (6.7)	0.009b

Note: a - Where total n < 100, one or more responses were missing. b - Significant finding.

Discussion

The results of this study highlight a discrepancy between clinical fall assessment results and patients' self-reported fall risk. All research participants had significant fall risk according to their Morse Fall Scale ratings, however only around half or less of them were aware of this. Consistent with previous study, we found that patients overestimated their risk of falling. Most patients (88%) who were identified as being at risk for falls did not perceive themselves to be at risk for falls, according to research conducted by Sonnad and colleagues among patients on acute care hospital units and finding no correlation between formalized fall risk assessment results and the patient's perception of fall risk (Sonnad et al., 2014). Similar to what was seen by Kuhlenschmidt et al. and Twibell et al., 33% and 55% of study participants, respectively, disagreed with the nurses' evaluations that they were at high risk for falls (Twibell et al., 2015; Kuhlenschmidt et al., 2015). Patients often overestimate their risk of falling while hospitalized due to a lack of knowledge about fall prevention and the false belief that they are safer in the hospital than at home, as was found in a study by Heng and colleagues (Heng et al., 2021).

Lack of patient awareness of their elevated fall risk may reduce their motivation to take preventative measures. The results of our study showed a negative link between the Confidence and Intention scale scores, suggesting that patients were less likely to seek assistance while hospitalized if they were more confident in their ability to do mobility activities without falling. Patients who expressed high confidence in their abilities to complete mobility tasks also indicated low intention to participate in fall prevention programs, as was discovered by Twibell and colleagues (Twibell et al., 2015). According to research conducted by Radecki and coworkers, patients who were warned that they were at a high risk of falling often disregarded this warning (Radecki, Reynolds, & Kara, 2018). Patients at high risk for falls may still participate in dangerous activities if they believe they have adequate mobility, according to the study's authors.

We discovered that participants' levels of fear of falling were positively correlated with their levels of intention to take steps to reduce their risk of falls. Individuals whose hospitalization was the result of a fall also scored lower on the Confidence and higher on the Fear scales than those whose hospitalization was the result of some other cause. Patients who had fallen within the previous three months or who had sustained an injury due to a fall within the previous 12 months were also more likely to engage in fall prevention measures, as shown by Kiyoshi-Teo and colleagues (Kiyoshi-Teo et al., 2019). This shows that patients who have recently fallen or been harmed in a fall may have a heightened fear of falling, which may influence their participation in fall prevention measures. Hospitalized patients who thought their high fall risk was transient or changeable were more likely to take part in fall prevention activities than those who thought it was permanent or unmodifiable, according to another study by Kiyoshi-Teo and colleagues (Kiyoshi-Teo et al., 2020).

Patients may learn more and have a better understanding of their individual risk of falling while in the hospital if their education is tailored to their unique perspectives on that risk. Unless the patient was admitted because of a fall, we found that a history of falls was not substantially connected with the patient's sense of risk. Patients in the hospital for an acute illness have a higher risk of falling, therefore it's important to communicate this risk with both the patient and their family.

Acute care unit patients in the aforementioned study by Kuhlenschmidt and coworkers underwent formal fall risk assessments by nurses, were surveyed about their own perceptions of fall risk, and were then classified into one of four fall risk categories based on the combined data from the nurse assessments and patient surveys (Kuhlenschmidt et al., 2016). Patients who were given information according to their risk level reported a marked increase in

awareness of the dangers of falls. However, the patient's self-assurance or readiness to seek for help did not improve as a result of the educational intervention, even though the patient was more aware of the need of preventing falls. After implementing a personalized fall prevention education program, Hill and colleagues found substantial decreases in the fall and injury rates among patients in hospital rehabilitation units (Hill et al., 2015). Patient education as part of a hospital's fall prevention program was shown to be effective in a recent scoping assessment by Heng and colleagues (Heng et al., 2020). Researchers concluded that education should "take into account individual falls risks and environmental context" after finding that no single style of teaching was helpful for all patients across all studies.

Health care practitioners should include the patient and family in fall prevention education, explain risk factors that put the patient at risk for falls, and utilize a variety of teaching methods (including in-person talk, handouts, and videos) to ensure that the patient retains the information. Fall rates in hospitals might be decreased by providing patients with such tailored education about the risks of falling while hospitalized.

Limitations

There are a number of caveats to this study. A small convenience sample was used from a single big academic hospital, and only patients with high Morse Fall Scale scores were included. As a result, it's possible that the findings don't apply to all patient groups. Second, it's probable that not all participants were honest when filling out the Patient Perception Questionnaire. Since the nurses' Morse Fall Scale scores were collected retroactively, we were unable to evaluate their reliability.

Implications for practice and research

This study's findings corroborate those of others that have looked at how patients' estimates of their own fall risk differ from the reality of that risk due to their physiological condition and the hospital setting (Twibell et al., 2015; Sonnad et

al., 2014; Kuhlenschmidt et al., 2016; Heng et al., 2021). It is evident that there is a need for education and interventions aimed at preventing falls. Patients may not realize they are at danger of falling even when in the hospital, which can be shown by asking them about their impression of fall risk during an educational session. Patient understanding of their true fall risk may be improved by tailored education that takes into account both the patient's perceived fall risk and the physiological and environmental fall risk variables. Patients who are actively involved in their care are more likely to accept and engage in fall prevention initiatives, such as seeking assistance with mobility chores.

Patient-reported fall risk, as well as physiological and environmental fall risk variables present during hospitalization, should be included into a fall risk screening instrument in future studies. Evaluations of fall risk might be improved with the use of such a tool. Research into treatments to involve patients and family in successful risk reduction and fall prevention during acute care hospitalization would be greatly aided once the tool's reliability and validity have been demonstrated.

Conclusions

The results of this study highlight the discrepancy between clinical fall risk assessment results and patients' personal perception of such risk while patients are hospitalized. Even while in a hospital setting, patients who are unaware of their heightened fall risk may not take the necessary precautions. Patients' own assessments of their own fall risk should be factored in with clinical assessments when determining a patient's overall fall risk. Reducing fall rates in the acute care context may be possible with the implementation of interventions that successfully address each patient's perception of danger in addition to physiological and environmental risk factors.

References

Bouldin, E. L., Andresen, E. M., Dunton, N. E., Simon, M., Waters, T. M., Liu, M., Daniels, M. J., Mion, L. C., & Shorr, R. I. (2013). Falls among adult patients hospitalized in the United States: prevalence and trends. *Journal of patient safety*, *9*(1), 13–17. https://doi.org/10.1097/PTS.0b013e3182699b64

Cameron, I. D., Dyer, S. M., Panagoda, C. E., Murray, G. R., Hill, K. D., Cumming, R. G., & Kerse, N. (2018). Interventions for preventing falls in older people in care facilities and hospitals. *The Cochrane database of systematic reviews*, *9*(9), CD005465. https://doi.org/10.1002/14651858.CD005465.pub4

Chu, L. W., Pei, C. K., Chiu, A., Liu, K., Chu, M. M., Wong, S., & Wong, A. (1999). Risk factors for falls in hospitalized older medical patients. *The journals of gerontology. Series A, Biological sciences and medical sciences*, *54*(1), M38–M43. https://doi.org/10.1093/gerona/54.1.m38

Halfon, P., Eggli, Y., Van Melle, G., & Vagnair, A. (2001). Risk of falls for hospitalized patients: a predictive model based on routinely available data. *Journal of clinical epidemiology*, *54*(12), 1258–1266. https://doi.org/10.1016/s0895-4356(01)00406-1

Heng, H., Jazayeri, D., Shaw, L., Kiegaldie, D., Hill, A. M., & Morris, M. E. (2020). Hospital falls prevention with patient education: a scoping review. *BMC geriatrics*, *20*(1), 140. https://doi.org/10.1186/s12877-020-01515-w

Heng, H., Slade, S. C., Jazayeri, D., Jones, C., Hill, A. M., Kiegaldie, D., Shorr, R. I., & Morris, M. E. (2021). Patient Perspectives on Hospital Falls Prevention Education. *Frontiers in public health*, *9*, 592440. https://doi.org/10.3389/fpubh.2021.592440

Hill, A. M., Jacques, A., Chandler, A. M., Richey, P. A., Mion, L. C., & Shorr, R. I. (2019). In-Hospital Sequelae of Injurious Falls in 24 Medical/Surgical Units in Four Hospitals in the United States. *Joint Commission journal on quality and patient safety*, *45*(2), 91–97. https://doi.org/10.1016/j.jcjq.2018.08.005

Hill, A. M., McPhail, S. M., Waldron, N., Etherton-Beer, C., Ingram, K., Flicker, L., Bulsara, M., & Haines, T. P. (2015). Fall rates in hospital rehabilitation units after individualised patient and staff education programmes: a pragmatic, stepped-wedge, cluster-randomised controlled trial. *Lancet (London, England)*, *385*(9987), 2592–2599. https://doi.org/10.1016/S0140-6736(14)61945-0

Kiyoshi-Teo, H., Northrup-Snyder, K., Cohen, D. J., Dieckmann, N., Stoyles, S., Winters-Stone, K., & Eckstrom, E. (2019). Older hospital inpatients' fall risk factors, perceptions, and daily activities to prevent falling. *Geriatric nursing (New York, N.Y.)*, *40*(3), 290–295. https://doi.org/10.1016/j.gerinurse.2018.11.005

Kiyoshi-Teo, H., Northrup-Snyder, K., Robert Davis, M., Garcia, E., Leatherwood, A., & Seiko Izumi, S. (2020). Qualitative descriptions of patient perceptions about fall risks, prevention strategies and self-identity: Analysis of fall prevention Motivational Interviewing conversations. *Journal of clinical nursing*, *29*(21-22), 4281–4288. https://doi.org/10.1111/jocn.15465

Kuhlenschmidt, M. L., Reeber, C., Wallace, C., Chen, Y., Barnholtz-Sloan, J., & Mazanec, S. R. (2016). Tailoring Education to Perceived Fall Risk in Hospitalized Patients With Cancer: A Randomized, Controlled Trial. *Clinical journal of oncology nursing*, *20*(1), 84–89. https://doi.org/10.1188/16.CJON.84-89

LeLaurin, J. H., & Shorr, R. I. (2019). Preventing Falls in Hospitalized Patients: State of the Science. *Clinics in geriatric medicine*, *35*(2), 273–283. https://doi.org/10.1016/j.cger.2019.01.007

Morello, R. T., Barker, A. L., Watts, J. J., Haines, T., Zavarsek, S. S., Hill, K. D., Brand, C., Sherrington, C., Wolfe, R., Bohensky, M. A., & Stoelwinder, J. U. (2015). The extra resource burden of in-hospital falls: a cost of falls

study. *The Medical journal of Australia, 203*(9), 367. https://doi.org/10.5694/mja15.00296

Morse, J. M., Black, C., Oberle, K., & Donahue, P. (1989). A prospective study to identify the fall-prone patient. *Social science & medicine (1982), 28*(1), 81–86. https://doi.org/10.1016/0277-9536(89)90309-2

Morse, J., Morse, R., & Tylko, S. (1989). Development of a Scale to Identify the Fall-Prone Patient. *Canadian Journal on Aging / La Revue Canadienne Du Vieillissement, 8*(4), 366-377. https://doi.org/10.1017/S0714980800008576

Radecki, B., Reynolds, S., & Kara, A. (2018). Inpatient fall prevention from the patient's perspective: A qualitative study. *Applied nursing research: ANR, 43*, 114–119. https://doi.org/10.1016/j.apnr.2018.08.001

Schwendimann, R., Bühler, H., De Geest, S., & Milisen, K. (2006). Falls and consequent injuries in hospitalized patients: effects of an interdisciplinary falls prevention program. *BMC health services research, 6*, 69. https://doi.org/10.1186/1472-6963-6-69

Shuto, H., Imakyure, O., Matsumoto, J., Egawa, T., Jiang, Y., Hirakawa, M., Kataoka, Y., & Yanagawa, T. (2010). Medication use as a risk factor for inpatient falls in an acute care hospital: a case-crossover study. *British journal of clinical pharmacology, 69*(5), 535–542. https://doi.org/10.1111/j.1365-2125.2010.03613.x

Sonnad, S. S., Mascioli, S., Cunningham, J., & Goldsack, J. (2014). Do patients accurately perceive their fall risk?. *Nursing, 44*(11), 58–62. https://doi.org/10.1097/01.NURSE.0000454966.87256.f7

Twibell, R. S., Siela, D., Sproat, T., & Coers, G. (2015). Perceptions Related to Falls and Fall Prevention Among Hospitalized Adults. *American journal of critical care : an official publication, American Association of Critical-Care Nurses, 24*(5), e78–e85. https://doi.org/10.4037/ajcc2015375