Feature Article

Older hospital inpatients' fall risk factors, perceptions, and daily activities to prevent falling☆

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ABSTRACT

Purpose: To identify associations among patient fall risk factors, perceptions, and daily activities to improve patient engagement with fall prevention among hospitalized older adults.
Background: The risk of falling increases for older patients but few researchers have reported patient-centered measures on this topic.
Methods: Surveys and chart reviews of inpatients aged $\geq$ 65 with Morse Falls Scale scores of $\geq$ 45. Measurements included validated tools and the modified Fall Behavioral Scale-Inpatient (FaB-I).
Results: A fall within 3 months before hospitalization was associated with an increased level of importance to preventing falls and higher FaB-I score (more fall prevention behaviors) but decreased level of confidence related to preventing falls ($p < 0.05$). Perception measures (concern: $r = 0.52$; patient activation: $r = 0.46$) were positively associated with FaB-I ($p < 0.001$).
Conclusions: Addressing patient-centered measures such as perceptions of and daily activities for fall prevention could add value to existing fall prevention programs.

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Introduction

In the United States, more than 700,000 people fall in hospitals each year.[1] Older adult falls are a significant safety and financial concern for hospitals as a third of these falls are preventable[2] and hospitals are no longer reimbursed by the Centers for Medicare & Medicaid Services (CMS) for fall related injuries.[1] Fall rates are as high as 8.9 falls per 1,000 bed-days[3] and patients may be traumatized or develop a fear of ambulating[4,5] even if they do not sustain a physical injury. Even more, these fears have the potential to negatively impact their quality of life.[6] Significant efforts have been made to decrease inpatient falls and fall-related injuries, however despite this, no clear strategies have emerged[2,7] and an innovative approach to fall prevention is critically needed. Although patient engagement strategies have been shown to improve patient safety,[8] approaches to better engage and partner with patients have not been applied to fall prevention in acute care settings.[7]

Current hospital fall prevention programs often lack effective patient engagement strategies. Inpatient fall prevention approaches tend to be clinician-driven,[7] focusing on what clinicians do *to* the patient (e.g., patient wristband alerts to indicate high fall risk patients, bed alarms). There is a gap in knowledge about what clinicians and patients can *do together* to prevent falling and understanding hospitalized older adults' perspectives and experiences is one way to help fill this gap. Programs rarely aim to understand and address patients' experiences and values, or how patients' carry out day-to-day activities such as toileting; furthermore, few researchers have examined older adults' perspectives on fall prevention. This lack underscores the importance of addressing older adults' experiences such as feelings of vulnerability, desire to maintain autonomy and independence, and interpretation of risks related to falls.[9] Specifically,

studies have found that hospitalized older adults take risks that may lead to falls to test their physical abilities.[10] Fall prevention approaches could be modified to accommodate these perceptions to better engage patients in safety.

Another approach to enhance patient engagement with fall prevention is to understand patients' day-to-day activities that may prevent or precipitate falls. Falls often occur when hospitalized older adults are carrying out their daily activities, such as getting out of bed or using the bathroom.[11] In fact, toileting is associated with 10−20% of inpatient falls, which is disproportionally high given the time spent on this activity.[11] Additionally, as a fall risk, hospitalized patients often have tethers (e.g., intravenous lines) and are surrounded by wheeled equipment and furniture (e.g., overhead tables). The ways in which patients carry out their daily activities could be better addressed to promote fall prevention.

Patient engagement in fall prevention may help to reduce falls in acute care settings. The goal of this pilot study was to understand hospitalized older adults' perceptions and daily activities to identify effective strategies to engage older adults in fall prevention during their hospitalization. Our hypotheses were: 1) patients who have fall risk factors (age, number of diagnoses, fall risk medications, dependent mobility, and fall history) will be more likely to attribute a higher level of importance to fall prevention (Level of Importance);[12,13] have higher Fall Efficacy Scale International-Short (FES-I)[14] score; have increased Fall Behavioral Scale (FaB)[15] scale score; report lower level of confidence to prevent a fall (Level of Confidence);[12,13] and have lower Patient Activation Measure (PAM)[16] score compared to patients without these risk factors. 2) Each fall prevention perception measure (Level of Importance,[12,13] FESI,[14] and PAM[16])—with the exception the Level of Confidence[12,13]—will be positively correlated with FaB.[15]

Materials and methods

Setting

The study was conducted on three medical-surgical units at a Veterans Health Administration (VA) hospital in a northwestern state in the United States. The study procedures were conducted in addition to routine fall prevention education and intervention at this facility. The IRB of VA Portland Health Care System/Oregon Health & Science University approved this study.

Sample

This study used baseline data from our larger study focused on fall prevention with hospitalized older adults. The goal of this study was to describe baseline characteristics of study participants. The study inclusion criteria were: aged 65 or older, had been hospitalized for at least 24 h on a medical-surgical unit, and their most recent nursing documentation indicated a Morse Fall Scale score of 45 or higher, indicative of a high fall risk.[17] In addition, patients had to be alert and oriented to time, place, and person, and able to carry on a conversation in English as documented in their medical record. Critical care and psychiatric units were excluded as routine hospital fall prevention interventions differ on these units.

Data collection

All newly admitted patients to the study units between January and August 2016 received an invitation letter as a part of their hospital admission packet. Additionally, study team members approached potential participants who met the inclusion criteria to seek their interest and identify a time to administer the surveys at the patients' bedside. Study staff administered survey questions by reading items to patients and entering responses into a secure REDCap[18] database.

Patients were not given incentives in exchange for their participation in this study. In addition to survey data, a chart review was conducted to gather demographic variables such as age, gender, education, diagnoses, medications, and mobility. The numbers of diagnoses and medications were used as surrogate measures of disease burden.

Measures

Study personnel asked participants about the number of falls they experienced in previous three months and, more distally, the number of falls in the past year. A fall was defined "as an event which results in a person coming to rest inadvertently on the ground or floor or other lower level."[20] Participants were asked about falls in the past three months in addition to the standard measure of number of falls in the past year, as this time period is often used in clinical practice and has less recall bias. When a fall was indicated, the study team assessed the time, place, type of fall, and the level of injury as defined by the National Dataset of Nursing Quality Indicators (NDNQI).[21]

The level of importance and confidence patients felt for fall prevention in their current hospitalized state were assessed with a 10-point scale (0 = not at all to 10 = extremely).[22,23] Fears or concerns about falling were measured by the Fall Efficacy Scale International-Short (FESI-S), a 7-item measure that assesses patients' self-efficacy related to falling during daily activities (e.g., getting dressed, walking up or down a slope, going out to a social event). Participants were asked to "circle the opinion closest to your own to show how concerned you are that you might fall if you did this activity" or to *predict* their own level of concern if they do not do the activity, using a 4-point Likert-type scale (1 = not at all concerned to 4 = very concerned).[14] Fear of falling is both a predictor for and a consequence of a fall. The FESI-S has been used in several studies[24] and did not require modification, as it is appropriate for hospitalized individuals.

Patients' level of activation, patients' willingness and ability to make independent actions to manage their health and care[25] was measured using the Patient Activation Measure (PAM)[16]— a validated and highly regarded tool.[26,27] The most current version is a 10-item instrument with questions such as "when all is said and done, I am the person who is responsible for managing my health conditions."[28] Respondents indicate degree of agreement using 4-point Likert-type scale (1 = strongly disagree to 4 = strongly agree). This scale was not modified, as questions were applicable to hospitalized patients.

Patients' daily activities to prevent falling were measured by the modified Falls Behavioral Scale-Inpatient (FaB-I) that was modified for inpatients based on a measure that assesses protective strategies to prevent falling and risky behaviors that facilitate a fall[15] for community-dwelling older adults. The original scale has a content validity index of 0.93, Cronbach's alpha of 0.84, and test-retest reliability ICC of 0.94 ($p < 0.01$).[15] The stem question asks how much each statement describes the things that they do in their current daily life using Likert-type scale responses (1 = never to 4 = always doing) for a statement such as "I get help when I need to reach something very high."[29] To adapt the measure, eight questions not relevant to the hospital setting were removed (i.e., going outside, using a ladder) and four questions relevant to an inpatient setting were added (I hold onto things to stabilize myself, I check to see what things are attached to myself before getting up, I'm often in a hurry to go use the toilet, I use the call light to get assistance anytime I need to stand). The final FaB-I consisted of 18 questions. Permissions from authors to use or modify all study instruments were obtained prior to data collection.

AHRQ High Fall Risk Medication Score[30] was used to assess the risks of falls due to medications. Scores of 1−3 are assigned to each high fall risk medication that a patient uses. For example, analgesics are assigned a risk score of 3, whereas diuretics are assigned a risk score of 1. A score of ≥ 6 is considered high risk for falling.[30] Cognitive status was quantified by the Montreal Cognitive Assessment-Basic

(MOCA-Basic) scores.[19] MOCA-Basic score of 18 to 25 indicate mild cognitive impairment whereas scores between 26 and 30 are considered normal.

Data analysis

All quantitative analyses were computed using R software.[31] Descriptive analyses included frequencies and distributions. Fall risk factors were grouped based on mean (e.g., number of diagnoses and medications), theoretically meaningful groups for comparison (e.g., "*young*" versus "*old*" older adults,[11] independent versus dependent mobility, fall history and type), or as defined in the literature (e.g., high fall risk medication profile versus low fall risk medication profile). Specifically, age was categorized into "young" older adult (age < 75) and "old" older adult (age ≥ 75) for comparison. Two tailed *t*-tests were used to compare groups with alpha of 0.05. Partial correlations were used to identify the relationships between fall perception measures and the behavior measure. Control variables included age, mobility, fall history,[11] number of diagnoses,[32] and high fall risk medication score.[30] Partial correlations were conducted because they align with testing the associations between the variables without arbitrarily treating one of them as an explicit outcome variable in each comparison.

Results

Demographics

One hundred twenty hospitalized patients who met the screening criteria were contacted. Of these, 71 patients consented, 31 patients declined to participate, and 18 patients expressed interest but were unable to participate due to scheduling conflicts. Four patients were consented but withdrawn from the study due to changes in health or for other personal reasons. In total, 67 patients were enrolled in the study. Participants were mostly inpatient males (97%), with an average age of 73.1 years old (SD = 6.4) and an average hospital stay of 4.3 days (SD = 4.0) at the time of data collection. The sample had an average Morse Fall Scale score of 68.4 (SD = 15.4) and mean AHRQ Fall Risk Medication Score was 9.2 (SD = 4.4) indicating a high risk for falling. Participants on average, had 10 diagnoses (SD = 4.8), were on 15 medications (SD = 6.5), and had a MOCA-Basic score of 25.6 (SD = 2.89) signaling normal cognition. In the previous 3 months, 52.3% of participants had experienced a fall (mean number of falls = 1.33) and 67.2% had experienced a fall in the past year (mean number of falls = 3) (Table 1). Most participants had documentation indicating that they received education on fall prevention on admission (83.5%) or within 24 h of the study data collection (91.0%).

Fall prevention perceptions and activities by fall risk factors

Table 2 illustrates group differences in fall-related perception measures and the behavior measure by fall risk factors. For fall prevention perceptions, the level of confidence to prevent a fall was most associated with recent, repeat, or injurious fall histories (*p* = 0.044, *p* = 0.017, *p* = 0.033, respectively). Additionally, concern about falling was associated with mobility status (*p* < 0.001). Other comparisons with age, number of diagnoses, and AHRQ High Fall Risk Medication Score did not demonstrate significant differences in fall prevention perceptions.

For fall prevention activities, participants who had injurious falls in the past year, or a fall of any kind within 3 months, reported more frequent use of fall preventative behaviors while hospitalized (*p* = 0.015 and *p* = 0.037, respectively). Other factors such as AHRQ High Fall Risk Medication Score, mobility status, fall history in the

Table 1
Participants' baseline characteristics (*N* = 67).

Characteristics	Participants *n* (%)	Mean ± SD
Demographics		
Male	65 (97.0)	
Age *(years)*		73.1 ± 6.4
Time since admission *(days)*		4.3 ± 4.0
Admission due to a fall	8 (11.9)	
Number of diagnosis		10 ± 4.8
Dependent mobility (requiring personal assistance)	29 (43.3)	
Morse fall scale		68.4 ± 15.4
Montreal cognitive assessment basic score		25.6 ± 2.89
Fall prevention education during admission		
Documented at admission	56 (83.6)	
Documented in the most recent 24 hours of the hospital stay	61 (91)	
Medications		
Number of routine medications		15.2 ± 6.5
Patients with AHRQ fall risk medications[a]	65 (97.0)	
AHRQ fall risk medication score[b]		9.2 ± 4.4
Score: 6 ≥ (Higher risk for falling)	51 (76.1)	
Fall history[c]		
Previous 3 months		
≥ 2 fall	17 (25.4)	
1 fall	18 (26.9)	
Injurious fall[d]	22 (32.8)	
Previous 1 year (inclusive of 3 months)		
≥ 2 fall	30 (44.8)	
1 fall	15 (22.4)	
Injurious fall[d]	29 (43.3)	

Note: AHRQ: Agency for Healthcare Research and Quality, SD: Standard Deviation.
[a] as part of their routine or as needed medications.
[b] for routine & as needed medications.
[c] Unit of measurement is person.
[d] Injurious fall includes count of persons with minor, moderate, or severe injuries.

past year, and repeated falls did not demonstrate a difference in the frequency of daily activities to prevent falling while in the hospital.

Fall prevention perceptions and daily activities to prevent falling

Participants reported the level of importance for fall prevention as high at 9.1 (10 = extremely important), but confidence in preventing themselves from falling was lower at 7.2 (10 = extremely confident). The mean FESI-S score was 17.8 (28 = having most concerns related to falling), meaning patients had, on average, moderate concern with regards to falling. Patients reported a moderate level of engagement in their healthcare with an average score of 64.3 (100 = most activated to engage with their healthcare) and indicated they typically employed fall prevention practices with mean FaB-I score of 3.0 (4 = always implementing fall prevention behaviors). The fall prevention activities patients reported engaging in least often were talking to someone about fall prevention (*M* = 2.2), using the call light to get assistance to stand (*M* = 2.5), and taking time (not hurrying) to use the toilet (*M* = 2.7) (Table 3). Cronbach's alphas calculated for FESI-S, FaB-I, and PAM from this study were 0.89, 0.76, and 0.68, respectively indicating acceptable internal consistency[33] for these measures in a pilot study.

Some perceptions about fall prevention and frequency of daily activities to prevent falling were correlated (Table 4). The frequency of the fall prevention behavior measure, FaB-I, was positively correlated with two of the perception measures: concern about falling (FESI-S, *r* = 0.52, *p* < 0.001) and patient activation (PAM, *r* = 0.46, *p* < 0.001). This indicates that patients who had concerns about falling and those who were actively managing their health in general were more likely to be engaged in daily activities that would keep them safe from falling. However, level of patient confidence or

Table 2
Difference between groups for fall prevention perceptions and daily activities by risk factors.

	n	Importance[a] Mean, SD	Confidence[b] Mean, SD	Falls efficacy scale international -short[c] Mean, SD	Patient activation measure[d] Mean, SD	Fall behavioral scale-inpatient[e] Mean, SD
Overall	67	9.12 (2.03)	7.23 (2.54)	17.81 (6.62)	64.33 (13.64)	2.96 (0.43)
Age						
Older aged (≥ 75)	20	8.75 (3.04)	7.67 (2.22)	16.00 (6.58)	62.20 (7.24)	2.87 (0.52)
Younger aged (< 75)	45	9.25 (1.39)	7.05 (2.67)	18.59 (6.56)	65.23 (15.56)	3.00 (0.40)
p		0.456	0.353	0.160	0.292	0.363
Disease burden						
Higher disease burden (diagnosis ≥ 13)	26	9.04 (2.37)	7.58 (2.65)	16.80 (6.38)	65.97 (12.75)	3.09 (0.36)
Lower disease burden (diagnosis < 13)	39	9.18 (1.80)	7.00 (2.48)	18.47 (6.77)	63.35 (14.21)	2.89 (0.46)
p		0.798	0.392	0.325	0.450	0.067
More medication use (routine medications > 14)	30	9.10 (2.22)	7.29 (2.51)	18.10 (6.11)	64.93 (14.13)	3.02 (0.42)
Less medication use (routine medications $< = 14$)	35	9.14 (1.90)	7.18 (2.61)	17.56 (7.11)	63.83 (13.40)	2.91 (0.44)
p		0.934	0.868	0.745	0.753	0.340
AHRQ high fall risk medication score[e]						
Higher risk	51	9.20 (1.80)	7.19 (2.75)	18.32 (6.36)	64.28 (15.01)	3.03 (0.40)
Lower risk	14	8.86 (2.80)	7.36 (1.74)	15.85 (7.48)	64.49 (8.05)	2.75 (0.48)
p		0.673	0.783	0.290	0.944	0.064
Cognition[f]						
Mild cognitive impairment	35	9.45 (1.70)	7.16 (2.68)	17.81 (6.44)	66.34 (14.44)	3.05 (0.44)
Normal cognition	23	8.62 (2.42)	7.43 (2.37)	17.69 (7.08)	62.52 (11.39)	2.84 (0.40)
p		0.137	0.676	0.949	0.245	0.066
Mobility status[g]						
Dependent	28	8.96 (2.3)	7.1 (2.85)	21.14 (6.17)	67.07 (14.68)	3.08 (0.45)
Independent	25	8.96 (2.15)	7.52 (2.47)	14.38 (5.71)	64.33 (13.87)	2.88 (0.42)
p		0.994	0.573	**<0.001**[*]	0.497	0.114
Fall history (previous 3 months)						
≥ 1 fall	35	9.71 (0.68)	6.56 (2.60)	19.06 (6.32)	65.51 (13.87)	3.08 (0.37)
0 fall	31	8.57 (2.75)	7.86 (2.33)	16.77 (6.74)	63.32 (13.67)	2.84 (0.47)
p		**0.034**[*]	**0.044**[*]	0.173	0.531	**0.037**[*]
Repeat faller (previous 1 year)						
≥ 2 fall	29	9.34 (1.63)	6.26 (2.70)	19.52 (6.23)	65.07 (13.09)	3.18 (0.35)
0 or 1 fall	35	9.02 (2.29)	7.94 (2.21)	16.91 (6.69)	63.28 (15.53)	2.96 (0.52)
p		0.523	**0.012**[*]	0.122	0.786	0.063
Injurious fall (previous 1 year)[h]						
Injury	29	9.57 (1.07)	6.37 (2.72)	18.69 (6.78)	67.38 (14.69)	3.10 (0.39)
No Injury	33	8.79 (2.57)	7.81 (2.28)	17.58 (6.51)	62.4 (12.88)	2.83 (0.44)
p		0.118	**0.033**[*]	0.52	0.169	**0.015**[*]

Note: Sample sizes differ slightly for each of the analyses due to missing data.
[a] Importance: 0−10 scale. 10 is most important.
[b] Confidence: 0−10 scale. 10 is most confident.
[c] Falls Efficacy Scale International Short: 0−4 scale. 4 is very concerned. Score of 28 indicates most concern about daily activities for fall prevention.
[d] Patient Activation Measure: 1−4 scale. 4 is strongly agree (most activated in healthcare management).
[e] Fall Behavioral Scale-Inpatient. 1−4 scale. 4: always doing XXX.
[f] Mild cognitive impairement is defined as MOCA-B score of 18−26, normal cognition is defined as MOCA-B score of 27−30 = > 6 is defined as higher risk for fall thus evaluation is recommended.
[g] Dependent requires a person to assist.
[h] injury indicates at least one minor injury.
[*] : $p < 0.05$ with t-test.

importance in preventing falls was not significantly correlated to frequency of daily fall prevention behaviors (confidence, $r = -0.024$, $p = 0.883$; importance, $r = 0.146$, $p = 0.368$). Within perception measures, the importance of fall prevention was correlated with concern for falling (FESI-S, $r = 0.30$, $p = 0.042$). However, there were no other significant correlations within perception measures.

Discussion

This pilot study has identified valuable associations among patients' fall risk factors, fall prevention perceptions, and behaviors. These results are foundational for future studies that examine patient-oriented outcomes such as perceptions and behaviors related to fall prevention. Fall history had the most impact on perceptions and activities related to fall prevention. In prior studies, there were mixed results on the association between fall history (falls within the past year) and fall prevention activities.[15,34] Among the fall risk factors examined in this study, only the recent falls (falls within the past 3 months) and the injurious falls (within the past year) were associated with increased fall prevention activities. Thus, with patients

who had a recent or injurious fall, asking about changes in fall prevention behaviors may be appropriate and meaningful. Nurses can then assess the nature of these behaviors and may encourage patients to continue these fall prevention behaviors.

Perceptions related to fall prevention—concerns about falling and patient activation—were positively associated with the frequency of fall prevention behaviors. This finding was similar to Filiatrault and colleagues[34] who found that more protective behaviors were associated with increasing concern about falling in community-dwelling adults. In addition, our findings align with published literature describing the relationship between patient activation and positive health outcomes.[35] Together, these findings suggest that concerns individuals may have about falling in addition to how engaged they may be in the management of their own health are critical to promoting daily activities to prevent a fall. Interestingly, the individual's reported level of confidence to prevent falling was not correlated with the fall prevention activity measure score. Strategies to increase confidence to prevent falling are limited. A study by Parry and colleagues which uses cognitive behavior therapy to improve confidence in fall prevention[36] is one of these approaches.

Table 3
Fall behavioral scale-inpatient questions and responses (N = 67).

	Questions	Mean ± SD
1.	I talk with someone I know about things I do that might help prevent a fall	2.2 ± 1.06
2.	I use call-light to get assistance anytime I need to stand	2.5 ± 1.25
3.	I'm often *not* in a hurry to go use the toilet*	2.7 ± 0.97
4.	I bend over to reach something only if I have a firm handhold	2.8 ± 1.21
5.	I made changes to make the light better	2.9 ± 1.27
6.	I check to see what things are attached to myself before getting up	3.0 ± 1.10
7.	I get help when I things are beyond easy reach	3.0 ± 0.93
8.	I notice spills on the floor	3.1 ± 0.93
9.	When I stand up I pause to get my balance	3.1 ± 1.10
10.	I do things at slower pace	3.2 ± 0.93
11.	I hold onto things to stabilize myself	3.2 ± 0.90
12.	I use a walking stick or walking aid when needed	3.2 ± 1.07
13.	I *do not* hurry to answer the phone*	3.3 ± 1.00
14.	I *do not* hurry when I do things IN GENERAL*	3.3 ± 0.76
15.	When I am feeling ill I take special care of how I get up from a BED and move around	3.3 ± 1.05
16.	When I am feeling unwell I take particular care doing everyday things	3.3 ± 0.92
17.	I *do not* turn around quickly*	3.3 ± 0.91
18.	I use a light if I get up during the night	3.5 ± 0.91

Note: 1−4 possible scores. 4 = always. 1 = never.

* : reverse coded. Protective behaviors for fall prevention are represented for the purpose of this table. For example, "I'm often in a hurry..." (actual survey item) is presented in this table as "I'm often *not* in a hurry."

Hospitalized individuals with a recent fall, rated *importance* for fall prevention higher but their level of *confidence* to prevent a fall lower than those with no recent falls, indicating that a recent fall event has a bi-directional impact. This finding adds to the knowledge that a fall event is not only associated with increased risk of future falls[37] but also has an impact on perceptions about fall prevention. Discussing and exploring the impact of a fall, then promoting a sense of confidence may be valuable for engaging recent fallers in fall prevention.

Use of the FaB-I demonstrated that patients were reluctant to use their call light for mobility or to talk about fall prevention and may hurry to use the toilet. These topics affect patients daily and must not be overlooked. Evaluation of daily activities for hospitalized older adults can lead to meaningful and practical suggestions about hospital fall prevention. As health care moves toward providing more patient-centered care, behavioral fall risk factors—which are modifiable by patients—may have greater implications. The modified FaB-I was a useful and valid tool to examine day-to-day fall prevention

activities in a hospital setting; however, further refinement and testing of FaB-I will be beneficial.

Limitations

This was a pilot study using a small sample size, which limits the generalizability of the study findings. Only descriptive characteristics and baseline differences are reported in this manuscript. Participants were predominantly male, in part due to data collection that occurred in a VA hospital. Furthermore, participants represented high fall risk inpatients. Only patients with normal cognition or mild cognitive impairment were included, so findings may not be applicable to patients with dementia.[38] Responses such as frequency of fall prevention activities may be positivity biased due to social desirability as study staff collected data through in-person, bedside surveys. Study findings are limited by the participants included and the scales used, despite efforts to capture key perceptions and behaviors. Inpatient status may have influenced findings as the confounding effects of hospitalization on an individual's perceptions or behaviors could not be examined. For example, participants may have believed that fall prevention was important because they were acutely ill or because fall prevention was frequently mentioned by bedside nurses. As inpatients, they may have been more cautious about their functional capacity and less hesitant to ask for help or avoid quick movements. Further research exploring the impact of hospitalization on perceptions and behaviors related to fall prevention is warranted.

Despite the limitations, this study was innovative in exploring patients' perceptions and daily activities that are critical to facilitating patient-centered fall prevention programs. Future longitudinal studies with larger samples that examine both inpatient and outpatient fall prevention strategies will be valuable to understand how perceptions and behaviors change with different health trajectories and settings.

Conclusions

Results suggest that frequency of daily activities to prevent falling was positively associated with concern about falling and level of health activation. In addition, a recent fall experience seems to have a mixed impact on individuals' perceptions and behaviors such that they value fall prevention more and incorporate more fall prevention behaviors, but report less confidence in their ability to prevent a fall. Study measures such as FESI-S, PAM, confidence and importance ratings and FaB-I were useful in capturing perceptions and behaviors of hospitalized older adults at risk for falling. Using these measures to enhance patient engagement with fall prevention may be beneficial to the existing fall prevention programs.

Table 4
Partial correlations controlling for age, number of diagnosis, AHRQ fall risk medication score, mobility, and fall history (n = 44−50).

	Importance[a]	Confidence[b]	Falls efficacy scale international -short[c]	Patient activation measure[d]	Fall behavioural scale-inpatient[e]
Importance	1.000	0.089	0.301*	0.061	0.146
Confidence		1.000	−0.072	−0.117	−0.024
FESI-S			1.000	0.140	0.517**
PAM				1.000	0.456**
FaB-I					1.000

Note: Sample sizes differ slightly for each of the analysis due to missing data.
a Importance: 0−10 scale. 10 is most important.
b Confidence: 0−10 scale. 10 is most confident.
c Falls Efficacy Scale International Short: 0−4 scale. 4 is very concerned. Score of 28 indicates most concern about daily activities for fall prevention.
d Patient Activation Measure: 1−4 scale. 4 is strongly agree (most activated in healthcare management).
e Fall Behavioral Scale-Inpatient. 1−4 scale. 4: always doing XXX.
* p < 0.05.
** p < 0.01.

Acknowledgments

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