



## Caregivers' views of older adult fall risk and prevention during hospital-to-home transitions

Geoffrey J. Hoffman (PhD, MPH) (Assistant Professor)<sup>a,\*</sup>, Clayton J. Shuman (PhD, RN) (Assistant Professor)<sup>b</sup>, Mary Montie (PhD)<sup>c</sup>, Christine A. Anderson (PhD, RN) (Clinical Associate Professor)<sup>b</sup>, Marita G. Titler (PhD, RN, FAAN) (Professor)<sup>b</sup>

<sup>a</sup> University of Michigan School of Nursing, 400 N. Ingalls, Room 4352, Ann Arbor, MI 48109-5482, United States of America

<sup>b</sup> University of Michigan School of Nursing, United States of America

<sup>c</sup> Detroit Medical Center, United States of America

### 1. Introduction

Falls are costly but preventable events commonly affecting U.S. older adults (Hoffman, Hays, Shapiro, Wallace, & Ettner, 2017). As many as one in three older adults experience a fall each year (Hausdorff, Rios, & Edelberg, 2001), and mortality from falls is increasing (Burns & Kakara, 2018). While the settings for effective fall prevention interventions are primarily outpatient ones, the risk of a fall is greatest following a hospitalization (Davenport et al., 2009), suggesting a need for greater attention to care transitions. Falls account for 15% of post-discharge readmissions (J. E. Mahoney et al., 2000). This heightened risk for older patients may reflect the characteristics of patients who are admitted to the hospital as well as the fall-related care and resources that are provided during hospital discharge. Because patients admitted to the hospital can suffer from an exacerbation of a chronic illness, they may enter and exit the hospital with diminished functional capacity, which is a risk factor for falls (Deandrea et al., 2010). However, the care provided in the hospital may also influence discharged patients' subsequent fall risks, due to the stress and deconditioning of the hospital experience (Krumholz, 2013) that can create temporary vulnerability for the patient. Patients' limited awareness of their personal fall risk and fall prevention practices following discharge has also been linked to the quality of care experienced while the patient was hospitalized (Meyer et al., 2017; Shuman et al., 2016).

While these gaps suggest the importance of reconsidering hospital discharge practices, critical stakeholders' perspectives that may be relevant for such a redesign are at present unexamined. For instance, while it is plausible that family caregivers have important roles to play in transitional care processes involving patient safety, little is known about caregivers' experiences during the discharge process for family members deemed at risk for a fall. Research has emphasized caregivers' roles during transitional care, helping with patient-provider communication and care recipient self-care (Coleman et al., 2004), although in practice, caregivers report feelings of exclusion during discharge

(Dossa, Bokhour, & Hoenig, 2012).

Research findings suggest that caregivers may co-develop fall prevention strategies with care recipients (Horton & Arber, 2004), helping to reduce fall risks (Hoffman, Hays, Wallace, et al., 2017), and that caregivers are emotionally invested in older family members' safety issues (Davey, Wiles, Ashburn, & Murphy, 2004). It is unknown, however, whether caregivers feel engaged by nurses or other clinicians and are knowledgeable about fall risk and prevention following hospital discharge when fall risk is high.

Previous investigators have examined patient perspectives on hospital practices regarding fall prevention, suggesting that patients do not often recall discussions about falls during their discharge (Meyer et al., 2017; Shuman et al., 2016) and that patients often leave the hospital for home unaware of evidence-based fall prevention practices (Hill et al., 2011). Gaps in provider knowledge and practices for fall prevention have also been broadly observed (Smith et al., 2015). With an understanding that broad dissemination of fall prevention information may influence provider practice and reduce population-wide fall risk (Tinetti et al., 2008), the Centers for Disease Control and Prevention (CDC) has developed and disseminated materials for "Stopping Elderly Accidents, Deaths and Injuries" (STEADI), as a way to address knowledge and practice gaps in fall prevention. However, whether hospital clinicians use the STEADI brochures in practice is uncertain.

In this study, we build on the existing literature by investigating the perspectives of family caregivers of older patients who were recently discharged from the hospital and considered at risk for falling while hospitalized. We aimed to describe (1) caregivers' perceptions of their recently hospitalized care recipients' risk for falls, factors contributing to care recipient fall risk, and actions that can be taken to prevent care recipient falls at home; (2) caregivers' perceptions of information received at the care recipients' discharge to prevent falls at home; and (3) whether caregivers were aware of and perceived as useful three fall prevention brochures produced by the CDC (2018). With this approach, we can provide insights into caregivers' participation with fall

\* Corresponding author.

E-mail address: [gjh@umich.edu](mailto:gjh@umich.edu) (G.J. Hoffman).

prevention efforts at the hospital and home, with implications for nursing practice during patient transitions. Because nurses deliver fall prevention and education in hospitals, during discharge (e.g., transitional care instruction), and in community settings, they are uniquely positioned to engage caregivers in fall prevention efforts during care transitions.

## 2. Research design

### 2.1. Participant recruitment

Following Institutional Review Board approval from the (University of Michigan) informal caregivers (see Fig. S1 in the Supplementary Appendix) were recruited as part of a broader project that additionally explored care recipient transitional fall perceptions (Shuman et al., 2019). Recruitment was conducted on three adult medical-surgical floors in a medium-sized community medical center in southeast Michigan. Caregiver eligibility requirements were that an individual was designated as a primary family caregiver by the patient who met the eligibility criteria for the study (Shuman et al., 2019): (1)  $\geq 65$  years of age, (2) identified as moderate-to-high risk for falls during hospitalization (Morse Fall Scale score  $\geq 25$ ; (Morse, Morse, & Tylko, 1989); (3) discharged to home; (4) English-speaking; and (5) able to participate in an interview within four weeks of hospital discharge. To recruit caregiver participants, we identified and initiated contact with eligible patients and their family caregivers prior to patients' hospital discharge. Eligible patients and caregivers who expressed an interest in taking part in the study were then referred to an investigator who validated participant inclusion criteria, explained the study in detail, and obtained written informed consent. Caregivers were interviewed privately, not in the presence of the care recipient, by one researcher trained in semi-structured interview methods. In our companion study, 40 care recipients were initially screened and 16 were enrolled. Of the 24 who chose not to enroll, 15 were not interested in the study, 4 did not have an available caregiver, 3 patients were discharged to a rehabilitation facility, and 2 did not give a reason. Of the 16 enrollees, 5 withdrew—4 were too ill to continue and one had a scheduling conflict. Two enrollees were lost to follow-up and did not complete the scheduled interview. For the 9 interviewed care recipients, their nine caregivers consented to participate and completed the interview. Their average age was 73 years (range: 53–80), five (56%) were male, and all were non-Hispanic Caucasian.

### 2.2. Data collection procedures

Face-to-face caregiver interviews were conducted in the home by a trained research assistant using a semi-structured interview guide (see Appendix Table S1) that was pre-tested with several volunteers. Interviews were tape recorded and included the following topics: 1) caregiver perceptions of the patient/care recipient's overall risk for falls; 2) fall prevention information caregivers received from health care providers at the patient's discharge; and 3) caregiver perceptions of three fall educational brochures from the CDC STEADI initiative (CDC, 2018). The three STEADI brochures were entitled "Check for Safety," "Stay Independent," and "What You Can Do to Prevent Falls." Questions about these pamphlets were asked to understand whether hospital providers utilized these broadly available pamphlets. Because of the sensitivity surrounding the topic of falls, the inclusion of such questions was also intended as a means to allow for participants to guide the discussion, or comment on their fall prevention practices, while examining the prevention suggestions covered in the brochures.

### 2.3. Data analysis

Two researchers transcribed verbatim all audio recordings. Transcripts were checked by comparing them with the audio files to

ensure accuracy. Data were analyzed iteratively using the constant comparative methods of Glaser and Strauss (Corbin & Strauss, 1990; Glaser & Strauss, 1967). Transcripts were individually coded by a team of four researchers to identify concepts repeatedly observed in caregivers' responses, or minor themes. Comparing these concepts within and across the interviews, team members individually identified combinations of minor themes that clustered together to organize minor themes into major themes. The full study team then met and compared these initial themes until consensus on major and minor themes was reached across all team members.

We aimed to ensure trustworthiness of our analysis and interpretation through several checks on study team conduct (Lincoln & Guba, 1985). First, caregivers were engaged by the study team beginning in the hospital prior to the care recipient's discharge and continuing after discharge through telephone contact. Second, the trained research assistant took time to establish trust and rapport in the subjects' home prior to beginning the interview. Third, the dependability of the research assistant's conduct and data collection (consent documentation, interviews, and field notes obtained by the interviewer) was closely monitored by the principal investigator. Last, during data analysis, discussion and debate among team members was used to facilitate consensus on the intent of participants' responses to interview questions and the naming of minor and major themes (Lincoln & Guba, 1985).

## 3. Results

Six major themes were identified: (1) limited formal fall prevention resources at transitions; (2) low perceived transitional fall risk; (3) prioritizing care recipient autonomy in addressing transitional fall risk; (4) caregiver engagement at transitions, emphasizing risk avoidance; (5) perceiving falls as a family matter; and (6) caregiver perceptions about transitional fall prevention education. Each was supported by minor themes (Table S2).

### 3.1. Limited formal fall prevention resources at care transitions

Sources of knowledge about falls were discussed by caregivers. A first minor theme involved gaps in fall prevention information during hospital-to-home transitions. None of the caregivers recalled receiving written materials or oral discussion regarding fall prevention during their care recipient's hospital discharge and none had previously seen the STEADI documents. When asked if doctors or nurses talked to them about falls at home, caregivers responded in the negative ("Not a lot, no.") or that non-specific, generalized information was given ("...just to take it easy, no crash landing"; "[they said] that she didn't have much strength and how she would have to walk with a cane"). Caregivers expressed being aware of their care recipients' fall-risk designation during hospitalization but had not been engaged by clinical staff about it. For example, several caregivers noticed a fall risk sign on the door of care recipients' hospital rooms but were unsure, as one caregiver stated, "what qualifies" a patient as a fall risk. Another caregiver felt that "they [clinicians] should have talked to me about that." One caregiver felt she was not heard when she requested a physical therapy referral for her mother, and was unable to obtain a referral for the therapy: "The thing that got me ..., the night before she got discharged, I said to the doctor, can we have physical therapy come to the house? And they didn't offer that... And I really think with these elderly people that they need that."

A second minor theme involved reliance on informal fall prevention information and assistance. Caregivers noted that, while fall prevention was not brought up at the hospital discharge, fall education and safety modifications had been provided in informal ways. For instance, several caregivers mentioned how friends' falls had impacted their fall-related behavior: "Yeah, we have known people who have fallen and it causes serious problems... so we are very, very careful." "I've had a few lady friends who have broke [sic] both their ankles." Others had developed

tips for improving care recipient safety through their own experiences, with a number of caregivers having previously experienced falls themselves. A husband caregiver described his advice to his recently discharged wife (“take small steps and slow steps”), after discussing the lessons he had drawn from his own prior fall experiences. Others described information and help from family members. One caregiver described help received from a sister who was a registered nurse, who had done “a real thorough assessment of the house here and what she [the care recipient] should and shouldn't be doing.” Another caregiver's daughter had initiated safety modifications at his home, taking out “a lot of the carpets, so she [the care recipient] wouldn't trip on it,” and also removed trip hazards (mats) in the bathroom.

### 3.2. Low perceived transitional fall risk

Caregivers did not perceive care recipients to be at substantial risk for falls, minimizing concerns about physical risks and prior falls. The first minor theme was that caregivers did not perceive recipients to be at high risk for falls. When asked to rate care recipients' overall chances of falling at home, with different language caregivers consistently evaluated risks as low: “pretty low,” “5%,” “small,” and “very low.”

The second minor theme was that the perceptions of low fall risk were based upon caregivers' view that potential risks were addressed because of caregivers' close supervision of the care recipient or because of home safety modifications. “Well, [the risk of falling is] small now because somebody is always with her. If I'm not here... [another caregiver] comes in to take care of her so she never makes a transfer alone since that fall in 2015,” one caregiver indicated. Another noted that, “I think I pretty much have it all under control and I'm not so worried about that [care recipient falling]... If I go anywhere like even in the evenings I always have my phone and I'm not usually gone longer than two hours that I haven't called to check on her.” Beyond close supervision, another reason for low perceived risk involved home safety equipment: “I don't think the chances of her falling are very high now, especially with the ramp... She gets up and down better... I think that ramp will reduce it [risk of falling] quite a bit.”

The third minor theme was a de-emphasis of prior falls as cause for concern. Many care recipients had experienced a fall, according to caregivers: one experienced a broken leg from a fall and was in the hospital for three weeks and rehabilitation for nine weeks. One caregiver reported of a care recipient: “She's fallen this year at least 3 times, maybe 4.” However, caregivers indicated that prior falls were aberrations and not a cause for long-term concern about fall risk. For instance, one caregiver described a care recipient's prior fall as “strictly a medical induced [sic] issue; now, she's back to normal,” suggesting that any fall risk was temporary. Another caregiver similarly portrayed a fall as a “one-time thing. He has since been to the doctor... he's doing really well.” Caregivers also described falls as resulting from environmental risks (e.g., “uneven surfaces” or a slippery bathroom floor) as opposed to persistent functional limitations or sedentary behaviors that, according to caregivers, also characterized many care recipients.

### 3.3. Reconciling physical limitations and fall risk with a desire for autonomy

Strategies to preserve care recipients' independence and autonomy in light of their decreased function or disability encompassed a major theme. The first minor theme was a perceived decrease in the care recipients' independence, resulting from aging-related functional decline. When asked about care recipient fall history and risk, caregivers often noted the effects of this decline on care recipients' instrumental and social activities. “Being in the wheelchair sets limitations that she's undergoing right now. She used to cook a lot more;” “It's the doctor's appointments, it's the mail that she gets, it's the phone calls that she just... she's not quite sure how to handle [them];” In many cases, these disabilities had resulted in increased reliance on assistance for

instrumental support: “He doesn't mow the lawn [anymore]. We have that done;” “I usually have to help him get up and dressed in the morning.” Social activities had also been limited by disability. Describing a care recipient who had a stroke, one caregiver said, “She bowled... but I don't know if she will be able to do that now” and “I'm thinking down the road, she'll be able to cut the grass but ... I don't know that for sure.”

The second minor theme involved promoting care recipient autonomy while addressing care recipient fall risk. Caregivers in many cases highlighted the importance of staying independent in the face of fall risks, both for their care recipients and for themselves. They intimated the existence of a trade-off between this independence and risk: that it was worth entertaining some risk if it meant the care recipient could have more independence. For instance, one caregiver said, “So when you say am I worried about falling? No, but I do fall. So, do we want to stay independent? Absolutely.” Another caregiver noted, “You don't want to push them to the cane either—you want them to be independent.” Several caregivers said they introduced temporary restrictions on care recipients' activity following hospitalization, as a means for improving the care recipient's safety: “I didn't allow him to go upstairs when he [care recipient] came home simply for the reason I didn't know what strengths it was [the medication taken by the care recipient]... I just didn't want to take that chance that he might slip.” These restrictions were as often counterbalanced by efforts to expand care recipients' independence by providing a means to work around physical limitations. For many caregivers this involved introducing home safety adaptations (ramps, railings, grab bars, removal of clutter) that expanded care recipients' range of mobility. For another caregiver, this involved encouraging her care recipient to accept certain limitations but to appreciate those activities where independence was still possible: “I told her, instead of looking at the ‘I can't anymore’ list, she needs to focus on the ‘I can still’ list.”

### 3.4. Caregiver engagement at transitions, emphasizing risk avoidance

Caregivers were highly engaged with care recipients' safety practices, including environmental management and general strategies of risk avoidance and surveillance. A first minor theme was caregivers' heavy engagement with fall prevention. Caregivers commonly discussed making home modifications (e.g. barrier-free counters), installing home safety equipment (e.g. grab bars), and helping care recipients use them. In addition, they mentioned often helping care recipients with management of personal safety equipment (canes, walkers, wheelchairs) and managing how to best adapt to environmental challenges, such as doing errands, going to the doctor, or addressing home safety risks: “She only goes to places that she has a cart... We went to the doctor's... We used a wheelchair, because it's on the third floor, and it's quite a bit of walking and she didn't think she could do it, so we put her in a wheelchair;” “Well I just make sure that we don't have any scatter rugs in the kitchen or the dining room.” Another caregiver explained, “We have been trying to eliminate the causes of falling,” by putting in new toilets, grab bars, and a railing outside on the front steps of the house. Other caregivers mentioned providing everyday help around the home such as “I take him to the back porch to sit” or reducing fall risk by “pulling the car here [close to the front of the house], and near these stairs so it's shorter [to the front door].”

A second minor theme was caution as a primary fall prevention strategy. Caregivers indicated that they employed a cautious approach in managing care recipient fall risk. Such an approach did not always address specific risks of care recipients, such as through identifying opportunities to manage functional limitations or sedentary behaviors that could increase fall risk. Instead, caregivers commonly emphasized caution or outright avoidance of what they considered potentially risky activities, such as mowing the lawn, going shopping alone, or traveling to visit family members. “I think he is also cautious. He doesn't want to do it [fall] and ... we generally don't do risky things,” said one

caregiver. “We slowed down on a lot of stuff to tell you the truth... If we go shopping ..., she can last about an hour... And then she's worn out, so we call it a day,” another caregiver explained. “Most of her life has been sedentary, to put it very finely,” said another caregiver, who also noted that “now she [his care recipient] won't even come down the stairs [to the basement, where he spends time].” In addition to avoiding perceived risks, caregivers also emphasized their omnipresence for certain care recipient activities: “I'm with her the whole time,” one caregiver noted in explaining how she can quickly respond to any need of her care recipient in the home. Others expressed similar thoughts, regarding support inside or outside the home: “I'm usually standing behind him picking it [oxygen cord] up just to make sure;” “When we go out of the house, when we go shopping ... like I said, I watch where she steps and how she steps.”

### 3.5. Perceiving falls as a family matter

Caregivers emphasized the mutual nature of household safety assessment and prevention, referencing their own prior fall histories and current fall risks. They commonly explained that aging-related health limitations and fall risks affected both members of the caregiver-care recipient dyad, and not only the care recipient. Also, prevention efforts were mutually engaged, with potential benefit for both caregiver and care recipient. A first minor theme was caregivers' perceptions of their own limitations and risks, as caregivers considered the safety implications of their own (and not just their recipients') health limitations. One caregiver worried that future hip replacement surgery would limit his ability to care for his wife. Another described how her own physical limitations prevented helping her husband after a fall, as she was unable to lift him off the ground and had to instead call 911 for assistance. When discussing the CDC brochures, one caregiver brought up her own medical history, noting that she now did flexibility classes at her local senior center after her doctor had told her to do balance exercises. Another mentioned how he and his wife were “kinda oriented in a lot of that kind of stuff [fall prevention information]” in part due to his own experiences with falls (he described a prior fall resulting from “dragging my feet too much” on an outdoor sidewalk).

A second, related minor theme was prioritization of dyadic as opposed to individual, care recipient-specific safety, suggesting that fall-related safety was a family-centered affair. Caregivers often referred to ‘us’ or ‘we’ rather than ‘I’ when asked to discuss their care recipient's risks or activities: “I think we've done, probably everything we can do to avoid that [fall hazards].” They also generally described safety efforts as jointly implemented, or reflected on their own safety hazards when discussing efforts to help care recipients: “I'm a wreck. I need a left knee replacement... She probably needs it [a replacement] more than I do,” said one caregiver who contextualized his wife's limitations by discussing his own. This family context was also evident in discussions of fall prevention: “We just built this ramp. It's been done about a week now. I don't think the chances are high she'll fall... Because I fell out of my bathtub, hit the door and smacked, well, rattled my brains;” “Basically, when we built this 15 years ago, I sort of built it halfway compliant for old age... I have a spinal cord injury myself and so I was thinking... that's why the door handles are levers and the switches are... kind of compliant...” Another caregiver noted that, following a fall injury of hers that occurred at a wedding reception, she and her husband were both conscious of one another's fall risk: “We watch each other.”

### 3.6. Caregiver perceptions about transitional fall prevention education

Caregivers were receptive to certain fall prevention educational material from the CDC brochures. The first minor theme was the receptivity of caregivers to prevention tips that were practical in nature. Specifically, caregivers expressed a positive response to practical, step-by-step illustrations of household fall prevention and safety tips. This

included an appreciation for practical illustrations of environmental safety hazards. One of the brochures in particular, “Check for Safety” with room-by-room safety suggestions, was well received: “It would give me an idea to the knowledge that I have, it might give me a... make me aware of something that I overlooked;” “It's interesting how this one goes room by room;” “It gives you an idea of maybe where to put things;” “But, missing lights over a stairway, these are all good things to mention to someone that may not have thought about it.” A caregiver who had previously expressed strong confidence in his fall-related knowledge (“Do I know a lot about this stuff? You bet your sweet bippy I do.”) also positively responded to the brochure: “I'm laughing and smiling 'cause I got to remember that I don't know everything. And it's helpful to remind yourself of this.” The brochure also elicited further impressions about fall safety and prevention from the care recipient, including discussion of family-specific home safety issues (burnt-out lighting, torn carpeting, loose handrails, retrieval of items located on high shelves) that had not been raised earlier in interviews.

The second minor theme was the preference for positively framed guidance that focused on maintaining independence, as opposed to the threat of falling. Caregivers were less receptive to a brochure that presented a fall risk calculator and personal health risk factors. The overt focus on risks and repercussions of falls was considered excessive in its risk portrayal, with one respondent reporting, “It's not a knock on this brochure...but a lot of these brochures go to the extremes.” Conversely, the “Check for Safety” brochure was perceived as emphasizing the value of independence: “I like how right away it gets your attention. Right away, you know this is going to be helpful because this ... it's about being independent, and staying independent... I like that it ends about being stronger and better about yourself because that is what's all about.”

## 4. Discussion

In this study caregivers were often co-managing fall prevention and surveillance of care recipient safety, with their support informed by efforts to safeguard the care recipients' and their own health and autonomy. Yet, despite their heavy involvement as well as their openness to and interest in educational materials that provided practical safety tips, caregivers reported not having received formal fall prevention education or engaging in fall safety discussions with hospital staff during the patient's discharge. While caregivers employed the use of caution as a fall prevention strategy once the patient transitioned from the hospital to home, and they regularly engaged in environmental modification strategies to improve home safety, they were less engaged with evidence-based fall prevention strategies that aim to improve care recipient mobility and physical activity. Together, these findings suggest that caregivers play an important role in older adult fall prevention, particularly at the vulnerable hospital-to-home transition, yet may benefit from more engagement with providers during and after the patient discharge.

Prior researchers have persuasively shown the heavy involvement of family members in managing health-related issues of older adults (Hoffman, Burgard, Mendez-Luck & Gaugler, 2018; Mejia & Gonzalez, 2017), particularly at care transitions. The high regard for preserving independence and maintaining functioning of older adults, in the face of aging-related disability, has also been demonstrated in the separate contexts of caregiving and falls (Faes et al., 2010; D. F. Mahoney, LaRose, & Mahoney, 2015). The present study adds to this literature by providing evidence of family-centered, caregiving strategies that prioritize care recipient autonomy in the context of fall prevention at care transitions for at-risk older adults. After the hospital discharge, caregivers were engaged partners in household safety management, helping with myriad instrumental activities as well as installation of safety features in the home. In choosing to engage in safety modifications and instrumental support, caregivers also heavily weighted the

importance of care recipients' autonomy, so that residual risk (after investing in prevention efforts) was allowed if it meant support for the independence and dignity of the care recipient. At the same time, caregivers' fall prevention approach following the care transition was family-centered, as caregivers were also invested in and informed about fall prevention efforts through their own safety concerns and personal histories with falls, which contributed to how they thought about and addressed their care recipients' risks. This mutually engaged fall prevention, and 'watching out for one another' (even though only one party was the ostensible "caregiver") was a critical part of caregivers' conception of post-hospitalization fall prevention. Altogether, these findings indicate that caregivers' approaches to safety for at-risk care recipients are family-oriented and deeply considered efforts that prioritize autonomy in the face of disability.

While family caregivers were highly engaged with fall prevention during the transition period, they indicated they were not presented with formalized fall prevention education at the hospital discharge. This finding is largely consistent with findings from the prior literature that has shown that patient education regarding falls during hospitalizations has been of a limited nature (Meyer et al., 2017; Shuman et al., 2016). While caregivers in the present study had accumulated fall prevention knowledge from informal sources—whether their own or friends' and family members' prior falls and through their own personal research—they mostly did not report receiving oral or written information about falls (including the CDC's STEADI brochures) during the care recipient's discharge, despite care recipients' designations as fall risks at the hospitalization. Moreover, they had not been informed as to why care recipients had been designated as fall risks while hospitalized. To the contrary, caregivers reported receiving general precautions about safety (to "take care"), which comported with many of their precautionary fall prevention techniques that they later employed following the care recipient's discharge. It is possible that providers discussed fall issues with caregivers but that caregivers did not remember these conversations and were not fully engaged; however, if so, this would further reinforce the need for more effective and engaging means of communication (such as use of the STEADI brochures) (Shuman et al., 2016), given that caregivers engaged in frank and detailed discussions about specific home fall risks and prevention activities (including home safety tips that were new to them) when presented with the pamphlets. In light of our findings, clinicians should consider engaging at-risk older adults and their caregivers with practical tips on fall prevention that highlight maintaining independence (rather than discussing safety threats that may discourage activity-taking, which over the long-term may lead to greater fall risk and reduced care recipient autonomy). Caregivers' inclusion in such discussions of falls at the hospital discharge might bolster opportunities for improving evidence-based patient safety practices following discharge.

A focus on the evidence base for falls and their prevention is of particular importance. The sample of care recipients in the present study were all assessed as being at high risk for a fall, with most having experienced one or more recent falls (including injurious ones), yet caregivers consistently evaluated care recipient fall risk as low or very low. Furthermore, while many of the care recipients had vibrant social lives despite having temporary or permanent disability, few were engaged in evidence-based fall prevention activities such as balance and strength training (Gillespie et al., 2012) while others were described by caregivers as sedentary. Certainly, older individuals just discharged from the hospital may have limited functional capacity, yet such prevention activities are particularly effective for frailer older adults who are closest to losing independent functioning (Robertson, Campbell, Gardner, & Devlin, 2002). While potentially beneficial in the shorter-term by avoiding fall risk "opportunities," the risk-averse prevention strategy of employing caution that was described by the majority of caregivers can be deleterious for long-term independence. Such risk aversion resulting in sedentary behavior could come at the expense of physical activity and social engagement, leading to longer-term

physical deconditioning and frailty (Boltz, Resnick, Chippendale, & Galvin, 2014). Efforts to safeguard care recipient health during transitions might be strengthened if providers offered evidence-based support. To the extent that this lack of engagement allows patients and family members to underestimate fall risk and avoid activity (which can lower short-term risk), the more the longer-term functioning and autonomy of care recipients may be put at risk.

Inferences from the study's findings are limited by several factors. First, generalizability was limited by restricted racial/ethnic demographic make-up and primarily spousal caregiving relationships of study participants. Given the importance of cultural beliefs to aging and preferences for caregiving (Zubair & Norris, 2015), these findings may reflect a relatively homogeneous viewpoint of a particular racial/ethnic group. Second, the study presents caregiver views regarding recently discharged care recipients; therefore, perceptions of risk and fall prevention may reflect relatively cautious attitudes due to recent acute health incidents. However, the role for caregivers in fall prevention may be particularly critical during transitional periods when older care recipients are most vulnerable to threats to physical injury from falls.

These limitations notwithstanding, our study provides new insights into the role of caregivers in fall prevention, with clinical practice and research implications. Given their engagement and co-management of safety and prevention efforts, a clinical implication is that nurses should include caregivers as partners in fall prevention. The inpatient setting can serve as a hub to connect patients and caregivers to home visiting nurses for engaging caregivers in delivering fall prevention, and to community-based agencies and programs that promote independence, strength, and balance. This idea is not new, as the functional recovery of recently discharged older adults has received increasing attention (Boltz et al., 2014; Buurman, Parlevliet, van Deelen, de Haan, & de Rooij, 2010). An innovative family-centered intervention to promote post-acute functional and cognitive recovery in hospitalized older adults demonstrated that a hospital-based approach can be practicable for attaining such goals (Boltz et al., 2014). It improved patient functional recovery and caregiver outcomes but not patients' gait and balance, known risk factors for falls, likely due to the program's lack of emphasis on fall prevention.

A research implication of our findings is that insights from such promising clinical work as well as from the fall prevention and transitional care literatures, may be merged and further examined—to build evidence for a transitional care fall prevention system of care (Shuman et al., 2019). A family-centered transitional fall prevention model addressing patient and family education, home modification and safety, and educational information encouraging functional recovery and activity engagement could connect at-risk older patients to needed educational and interventional resources to help tackle the growing public health issue of older adult falls.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.apnr.2019.03.006>.

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