

Reflections on Hip Fracture Recovery From Older Adults Enrolled in a Clinical Trial

Gerontology & Geriatric Medicine
Volume 3: 1–8
© The Author(s) 2017
Reprints and permissions:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/2333721417697663
journals.sagepub.com/home/ggm



**Sarah Stott-Eveneshen, MA¹, Joanie Sims-Gould, PhD¹,
Megan M. McAllister, BSc¹, Lena Fleig, PhD²,
Heather M. Hanson, PhD³, Wendy L. Cook, MD, MHSc^{1,4},
and Maureen C. Ashe, PhD, PT¹**

Abstract

This study describes patients' perspectives on recovery during participation in a randomized controlled trial that tested a postoperative hip fracture management program (B4 Clinic), compared with usual care, on mobility. Semistructured qualitative interviews were conducted with 50 older adults with hip fracture (from both groups) twice over 12 months. A total of 32 women (64%) and 18 men (36%) participated in the study with a mean age at baseline of 82 (range = 65–98) years. A total of 40 participants reported recovery goals at some point during their recovery from hip fracture but only 18 participants realized their goals within 12 months. Recovering mobility, returning to prefracture activities, and obtaining stable health were the most commonly reported goals. Participants described good social support, access to physiotherapy, and positive perspective as most important to recovery. These factors were influenced by participants' knowledge, resources, and monthly contact with study staff (perceived as a form of social support). The most frequently reported barriers to participants' recovery were the onset of complications, pain, and limited access to physiotherapy. Potential implications of these findings include design and modification of new or preexisting fracture programs, prioritizing patient engagement and enhanced knowledge for future clinical research in hip fracture recovery.

Keywords

recovery, older adults, physiotherapy, goal setting

Manuscript received: June 6, 2016; **final revision received:** November 11, 2016; **accepted:** February 1, 2017.

Introduction

Hip fractures are the most common type of injury requiring hospitalization for men and women aged 65 and older. In Canada, \$1.1 billion is spent annually on the direct hospital costs of treating hip fractures (Alzahrani, Gandhi, Davis, & Mahomed, 2010), a figure that is expected to double by 2041 in parallel with the aging of the population (Wiktorowicz, Goeree, Papaioannou, Adachi, & Papadimitropoulos, 2001). Following hip fracture, patients transition to and from a variety of health care settings including acute, rehabilitation, home care, and long-term residential care. To support these transitions, patient engagement is of paramount importance, as patients who are prepared to manage their symptoms, are motivated to adhere to health promoting behaviors, participate in decision making, communicate with health care providers, understand quality of care, and can navigate the health care system tend to have better health outcomes (Coulter & Ellins, 2007; Hibbard &

Greene, 2013). Conversely, for older adults with complex care needs, poorly executed care transitions can lead to greater use of hospital, emergency, postacute, and ambulatory services (Coleman, 2003; Forster, Murff, Peterson, Gandhi, & Bates, 2003).

Much of the literature on hip fracture care has focused on measuring morbidity and mortality after fracture and outcomes of rehabilitation programs. More recently, studies have utilized a qualitative approach to describe

¹The University of British Columbia, Vancouver, Canada

²Freie Universität Berlin, Germany

³University of Calgary, Alberta, Canada

⁴Providence Health Care, Vancouver, British Columbia, Canada

Corresponding Author:

Maureen C. Ashe, Department of Family Practice, Centre for Hip Health and Mobility, The University of British Columbia, 7F-2635 Laurel Street, Robert H.N. Ho Research Centre, Vancouver, British Columbia, Canada V5Z 1M9.
Email: maureen.ashe@ubc.ca



patients' experiences recovering from hip fracture (Griffiths et al., 2015; Schiller et al., 2015; Taylor, Barelli, & Harding, 2010; Ziden, Scherman, & Wenestam, 2010; Ziden, Wenestam, & Hansson-Scherman, 2008) and to identify key messages for developing patient-centered clinical practice (Schiller et al., 2015). Where qualitative research has been conducted in a post-hip fracture rehabilitation setting, the perspectives obtained have mostly been those of clinicians (Leach, Cornwell, Fleming, & Haines, 2010; Taylor, Harding, Dowling, & Harrison, 2010). The objective of this study was to build upon this work by describing patients' perspectives on participating in a post-hip fracture management program (Cook et al., 2011) 6 and 12 months postenrolment using an evaluative, patient-centered approach. As the incidence of hip fracture increases, it is critical to identify ways to enhance patient engagement in their recovery to optimize the utilization of health care resources and improve patient outcomes. This study describes participants' recovery goals, the facilitators and barriers in their pursuit of these goals, and their recommendations for rehabilitation programs.

Method

Intervention

This qualitative study was conducted within a single-center randomized control trial (RCT) comparing two different delivery modes of postoperative hip fracture management—a Specialized Hip Fracture Follow-Up Clinic (the B4 Clinic) and Usual Care (Cook et al., 2011). The aim of the B4 Clinic intervention was to address secondary prevention of injuries by focusing on bone health, brain function, balance, and bladder function (Clinical Trials Registration NCT01254942). Those randomized to the intervention group received access to an enhanced postfracture follow-up clinic of outpatient management of falls and fracture risk. The clinic was led by a geriatrician who provided postfracture assessment and management, including referrals to additional health professionals where required (e.g., occupational therapist, social worker, etc.). Intervention participants were also assessed by a physiotherapist who recommended an exercise program and/or a home exercise program. Subsequent onsite outpatient physiotherapy (PT) visits were provided when recommended. Study participants receiving usual care received the usual orthopedic and rehabilitation postoperative treatment for hip fracture. All study participants received monthly phone calls by trained research assistants to ask questions about quality of life, use of health care resources, and engagement in physical activity.

Data Collection

The participants were community-dwelling older adults aged 65+ years, living in Metro Vancouver, who had a

hip fracture in the 3 to 12 months before baseline data collection. Those who were unable to walk at least 10 meters (with or without a mobility aid), diagnosed with a type of dementia prior to their recruitment into the study, or discharged to a residential care facility were not eligible to participate. Informed written consent was obtained from all study participants for all elements of the study at baseline. This study was approved by the university and hospital review boards.

Of the 53 participants who enrolled in the B4 trial, 50 agreed to participate in the qualitative component. Participants were equally distributed between the intervention group ($n = 25$) receiving the B4 Clinic services and the control group ($n = 25$) receiving usual care. Three trained interviewers completed open-ended, over-the-phone interviews with participants at 6 months (mid-point) and 12 months (final) after recruitment. While 6 months is often cited as the expected recovery time for recovery from hip fracture, we chose to conduct a secondary interview at 12 months to include the experiences of those who may not be recovered at the earlier time point. Participants verbally re-consented their participation at the start of their 6-month interview with the option to cease participation at any time. On average, the interviews lasted approximately 20 min each (range = 5-30 min). Participant responses were recorded as detailed field notes throughout the interview in the form of verbatim quotes and summarized responses. Follow-up prompts were used during the interviews to encourage participants' expansion in their responses when the initial interview question elicited a brief response. The interview guides administered at each interview are presented in Table 1. At each point of data collection, 48 participants agreed to complete the interview, with 45 participants participating in both interviews (participants did not need to complete both interviews to be included in the analyses). Participants' reasons for declining to participate in one or both interviews were either health-related ($n = 3$) or disinterest ($n = 2$). Prior to their initial interview, demographic information was collected from each participant as part of the clinical trial data collection.

Data Analysis

Detailed field notes were de-identified, assigned a pseudonym, and organized into a question-and-answer format prior to importing into NVivo 10, a computer-assisted data management and analysis program (QSR International Pty Ltd., Australia). A deductive analytic approach was used to create a coding framework aligned with the aim of each interview question, including participant goals and expectations for their recovery, their ability to resume their prefracture activities, and their reasons for joining the study. Three cycles of coding were conducted to ensure the descriptive codes assigned to the text were representative of participant responses. The first cycle employed a structural approach to create

Table 1. Interview Guide Questions at 6- and 12-Months.

| 6 months | 12 months |
|---|---|
| What was your original expectation of your hip fracture recovery process? | Why did you decide to join this study after you broke your hip? |
| Have you been able to resume all of your prefracture activities? | Have you been able to achieve your goals regarding your recovery and return to your prefracture activities? |
| Do you have any goals for returning to your usual activities? | What, if any, benefit did you get out of your involvement in the study? |
| Related to your participation in the study, what can we do better moving forward? | Related to your participation in the study, what could we have done better? |

a broad coding framework based on each interview question. The second cycle involved applying a focused coding procedure to the broad coding framework created during the first cycle, with a particular emphasis on the use of evaluation codes (describing/comparing positive and negative features of a program) and values codes (reflecting participants' attitudes/beliefs; Saldana, 2009). In the third cycle, the coding framework was simplified into thematic categories. An analytic log was kept throughout data analysis to record coding procedures, rationale, and initial reflections. Coding queries were further used to examine similarities and differences between participants' goals, recovery expectations, recovery experience, and reasons for joining the study. The study team met 3 times throughout data analysis to discuss the coding and preliminary findings, thus informing the subsequent cycle of coding until final themes were identified.

Results

A total of 32 women (64%) and 18 men (36%) participated in the qualitative study with a mean age of 79 (range = 65-98) years. Participant demographics are presented in Table 2. Three themes were derived from multiple open-ended interviews with participants that capture the evaluative aim of the interview guides: (a) recovery goals, (b) access to information and resources, and (c) social support and the participant experience. These themes describe the experience of being a patient in the B4 Clinic and a research participant in a clinical study. While minimal differences in responses were observed between participants in the intervention and control group, they were not distinct enough to warrant direct comparisons between the two groups. As such, participant responses are discussed collectively with differentiation made only where responses saw notable differences between the two groups, such as in discussion of participants' access to information and resources. Participant recommendations for future research studies are also presented.

Recovery Goals

A total of 40 (80%) participants reported setting goals for themselves during their recovery but only 18 (36%)

met their goals within 1 year after enrollment. For some participants, these goals were specific (e.g., improving sleep habits, driving again, being able to do housework independently), yet fluid to change depending on how their recovery was progressing. The majority of participants who identified goals for themselves described targets that were more broad and fixed throughout their recovery. Recovering their mobility (60%), returning to prefracture activities (22%), and obtaining stable health (16%) were the most common goals identified. Participants described a good social support network (34%), access to PT (34%), and a positive attitude (22%) as factors that supported their postoperative recovery and ability to implement their recovery goals. The most frequently described barriers to recovery were the onset of complications (20%), pain (12%), and limited access to PT (10%; $n = 3$ control and $n = 2$ intervention participants).

Access to Information and Resources

Participants described a variety of reasons for joining the study. While some ($n = 8$, 16%) joined purely for altruistic reasons, others did so for reasons that were unique to a clinical setting. Approximately one in four (22%) participants joined the study to access more information on the progress of their recovery, and how they compared with others. Not knowing what to expect during their recovery was described as a barrier to recovery by six participants (12%). This led to participants seeking out additional sources of information to supplement the information provided by their surgeon, such as the results obtained from the RCT quantitative assessments (e.g., performance on the Short Physical Performance Battery) that could supplement their knowledge of how to support their recovery.

The access to information is important . . . [there is a need] to promote the recovery programs, because many of us don't know what to do or what is to be expected. Many of us are older and living alone; we can't know what to do or where to go by ourselves. (Ruth, aged 82 years, living with a spouse, control group)

Participants who received information about their recovery primarily from their surgeon more frequently

Table 2. Demographic Characteristics of Study Participants.

| Participant demographics | n (total = 50) |
|--|----------------|
| Sex | |
| Women | 32 (64%) |
| Men | 18 (36%) |
| Marital status | |
| Married | 27 (54%) |
| Widowed | 8 (16%) |
| Separated/divorced | 5 (10%) |
| Single | 10 (20%) |
| Living arrangement | |
| Living alone | 21 (42%) |
| Living with someone (spouse, friend, or family member) | 29 (58%) |
| Completed high school | |
| Yes | 45 (90%) |
| No | 5 (10%) |
| Education | |
| Some postsecondary | 9 (18%) |
| Completed postsecondary | 33 (66%) |
| Comorbidity (2+ chronic condition diagnoses) | |
| No chronic conditions | 11 (22%) |
| 2-4 chronic conditions | 26 (52%) |
| 5-6 chronic conditions | 10 (20%) |
| 7+ chronic conditions | 3 (6%) |

described their recovery as taking longer or being more painful than they had expected. Those who obtained additional anecdotal information about what to expect for their recovery from internet message boards or experienced friends and family members, were more likely to describe the recovery experience as being what they anticipated.

... my expectations were whatever the surgeon told me ... that sometimes they take the screws out and sometimes they don't. And that was it; I didn't know what else to ask ... (Robert, aged 84 years, living with a spouse, control group)

For some participants, not knowing what to ask their surgeon left them with unanswered questions about their recovery they did not know they had.

Never having had the experience, I didn't know what to expect and had high hopes of running around again back to normal after six months. But as I moved to rehab I realized I would have to be patient ... I didn't think I would still be using a walker more than 14 months after [surgery] ... (Ethel, aged 90 years, living alone, control group)

For other participants, the opportunity to access PT was described as a primary motivator for joining the study and the most instrumental factor in their recovery. In the intervention group, some participants expressed appreciation for the PT received through the study but believed

the timing of when they received these services did not align with their recovery needs. Frank, a member of the intervention group, had greater access to PT than those assigned to the control group. However, because the recruitment of participants occurred at least 3 months after their hip fracture surgery, there was an initial post-operative period where participants' access to resources were dependent on what was available to them through the health care system or private resources (usual care). Many participants described a lack of access to PT during this time.

I feel it [PT] is absolutely necessary. Encouraging rehab programs to get people the ability to access it as soon as they can, to get rehab ... I wasted 3 months. I went home in a wheelchair and it was the extent of the rehab ... (Ruth, aged 82 years, living with a spouse, control group)

Those who received PT later on in their recovery as a result of their participation in the study described the delay in the receipt of these services as a barrier to their recovery.

[I] wasn't sure what to expect when I broke it ... I saw other people in the hospital recovering faster. I believe it was because they were getting more physiotherapy and more intense physiotherapy after the hospital ... I would have liked to have had more physiotherapy but couldn't afford it. I was eventually able to find something, but it would have been better to have had it sooner ... I jumped at the study hoping for extra physiotherapy. (Frank, aged 69 years, living alone, intervention group)

Participants were informed prior to their participation in the study that those randomized into the control group had the option of participating in the B4 clinic after the study was completed. Among the 25 participants assigned to the control group, 18 (72%) accepted the offer of a referral to the clinic at the end of the study.

Social Support and the Participant Experience

Some participants reported joining the study as a way of motivating themselves to adhere to their rehabilitation exercises. All participants received monthly phone calls from study staff to review their level of activity, use of health care resources, and occurrence of any adverse events (i.e., falls). More than half (54%) of the participants described these phone calls as a source of social support during their recovery and a benefit of their participation in the study. "It was nice to have someone rooting for me [and] gauging my level of activity" (Vivian, aged 66 years, living with a spouse, control group). Although the description of study staff as a source of social support was greater among those living alone, it was still common among the 29 (58%) participants who were married or living with a family member or friend.

For some participants, the encouragement provided by study staff and expression of concern over their frequency of falls or fall risk helped them enhance their awareness of such risks, keep a positive attitude toward their recovery, and reduce feelings of loneliness. Etta (aged 83 years, living alone, control group) described how the questions asked during the monthly phone calls made her feel that the study staff, "... seemed interested in my well-being and made me more aware of my surroundings." Henry (aged 73 years, living with a spouse, control group) commented on how the calls made him feel that he was, "talking to someone who knew the [recovery] process and felt reassured [by them]." The encouragement of study staff during the phone calls also enhanced participants' beliefs in their capabilities to achieve recovery goals by their own intrapersonal characteristics (i.e., self-efficacy), and to stay motivated to maintain their rehabilitation exercises. Frank (aged 69 years, living alone, intervention group) described how "sometimes when [there is] no pain in [the] hip, the study reminds me to do exercises ..."

Participant Recommendations for Future Studies

Participants provided several recommendations for future research in this area. Many participants, particularly those who were assigned to the intervention group, expressed their belief in the value of the services provided through the B4 Clinic (i.e., geriatrician and PT) and believed they should be available to more patients. Most participants became informed about the study through a health practitioner or family member who had seen a poster advertising the study on a hospital wall. It was recommended that future studies make greater efforts to inform participants about studies where clinical services are offered. Among those who joined as a means of accessing the health care resources available to the intervention group, it was recommended that recruitment occur earlier on in the recovery period to obtain the greatest benefit from the services provided.

Discussion

A limitation of the current body of knowledge on hip fracture care is the lack of guidelines for best practice for community-based rehabilitation programs, resulting in a breadth of interventions (Chudyk, Jutai, Petrella, & Speechley, 2009). While several studies have provided insight into the patient experience of recovering from hip fracture (Griffiths et al., 2015; Schiller et al., 2015; Ziden et al., 2010), few have done so in relation to the program being delivered. We used an evaluative approach to describe participants' perspectives on the experience of participating in a postoperative hip fracture care program within an RCT at 6- and 12-months after recruitment into the study. Similar to other studies,

recovering mobility and prefracture functional ability were the most commonly described goals by participants (Young & Resnick, 2009). However, only 36% of participants who set recovery goals for themselves met them within 1 year after recruitment. The study results also suggest that clear and comprehensive communication with health care providers and access to rehabilitation services (i.e., PT) early on in the post-hip fracture recovery period are important factors in older adults' implementation of recovery goals.

Factors described by participants as barriers to their goal obtainment and recovery from hip fracture extend previous research and include the onset of complications, pain, and difficulty accessing PT (Gorman et al., 2013). Pain is one of the most inhibitive factors for engaging in supportive rehabilitation activities and is attributed to worse recovery of functional ability (Gorman et al., 2013) and risk of depression after hip fracture (Arinzon, Shabat, Peisakh, Gepstein, & Berner, 2010; Morrison et al., 2003). Age, comorbidity, and limited access to rehabilitation services and information about the recovery process have also been found to hinder recovery and negatively affect patient outcomes (Gorman et al., 2013).

The importance of access to PT early on in participants' recovery from hip fracture intersects with previous studies that have found that good clinical outcomes, clear and comprehensive communication of recovery information (Bishop & Cregan, 2015), exercise, staying motivated, setting recovery goals, and social support (Young & Resnick, 2009) are important factors in supporting patients' recovery. The role of PTs in patients' recovery often extends beyond the physical rehabilitation provided, serving as a source of social support and motivation for patients. For some participants, their access to the multidisciplinary clinic was an important factor in their recovery and a significant benefit of their participation in the study. For others, maintaining a positive attitude was most important in their recovery.

Positive attitudes toward recovery have also consistently been shown to support patients' recovery (Young & Resnick, 2009). Previous research has shown that patients with a more positive attitude tend to show more signs of resiliency (Wiles, Wild, Kerse, & Allen, 2012) and have better functional outcomes (Fredman, Hawkes, Black, Bertrand, & Magaziner, 2006). In our study, some participants attributed their positive attitude to the perceived progress of their recovery and the objective health gains. It may be that those who are more optimistic about their ability to cope after hip fracture are motivated to take advantage of the rehabilitation supports available to them for a longer period of time than those who get discouraged if not fully recovered after doing their exercises (Taylor, Barelli, & Harding, 2010). Having social support through the encouragement of family members and research staff helped to facilitate

this positive thinking and keep participants motivated and engaged in their rehabilitation journey.

Key components of patient engagement include preparation (e.g., seeking additional knowledge prior to beginning a treatment plan), action (e.g., making all the required appointments), and engagement in healthy behaviors (e.g., exercise, proper nutrition, adequate sleep; Gruman et al., 2010). Following discharge from the hospital, it is patients' level of engagement in their recovery that results in the behaviors that support their recovery (e.g., adhering to a rehabilitation plan). According to the British Columbia Ministry of Health (2011) Patients as Partners initiative,

Patients, families and caregivers are partners in health care when they are supported and encouraged to participate in their own health care; participate in decision making about that care; participate at the level they choose and participate in quality improvement and health care redesign in ongoing and sustainable ways. (p. 2)

Goal setting can help patients stay motivated throughout their recovery and enhance engagement in rehabilitation activities (Leach et al., 2010; Young & Resnick, 2009). Complementing goal-setting with self-regulatory strategies (e.g., action and coping planning) can further maximize rehabilitation outcomes, such as engagement in recommended exercises (Fleig, Lippke, Pomp, & Schwarzer, 2011).

A strength of this work is the illustration of researchers' and clinicians' role in the post-hip fracture patient experience. While not an initial intention of the study design, the procedure of collecting data from participants through the monthly phone calls may have inadvertently served as a cointervention for some study participants. Several participants described the role of the calls in their feelings of empowerment to engage in physically active health behaviors (e.g., gardening and walking outside) and their enhanced awareness of fall risks, helping them reduce their risk of future fractures (Young & Resnick, 2009). In addition to the monthly phone calls, conducting the two semistructured interviews further facilitated several aspects of behavior change (Michie, van Stralen, & West, 2011), particularly a change in participants' knowledge (i.e., the health consequences of hip fracture), the identification of barriers to their recovery (i.e., enablement), and the prompting of participants to review their recovery goals. This provision of social support by study staff reflects a middle ground in the types of support available to participants; between the emotional and tangible (e.g., assistance with daily activities) support of family members and health care practitioners. A potential implication of this finding is the opportunity for health care practitioners to follow-up with patients postoperatively over the phone as a means of boosting self-efficacy, facilitating the use of self-management strategies (e.g., goal-setting), and offering an additional source of social support to patients

to enhance their engagement in recovery-promoting behaviors (Langford et al., 2015).

There are some limitations to this study. First, the education level of study participants is high, with 33 (66%) participants having completed postsecondary education. While this characteristic may differentiate the participants from the "typical" older adult, the findings are supported by those of other studies in this area and build upon this knowledge base to enhance understanding of the post-hip fracture recovery period. Second, as this study took an evaluative approach to understanding participants' experience in the study and B4 Clinic, phone interviews were shorter in length than what is typical for a semistructured interview. While this satisfies the targeted aim of the interview guide, it is possible that having more time to reflect on their experience may have enhanced participants' opportunity to share a different level of insight in their responses. Although we had a few challenges with administering the phone calls, this approach permitted us to capture information from more participants.

Conclusion

This study sheds light on the patient perspective of recovering from hip fracture and further aims to inform the design and modification of new or preexisting post-hip fracture recovery programs. Insights gleaned from participant experiences enhances the ability of clinical researchers to develop procedures and resources aimed at increasing patient capacity and engagement in behaviors that best support their recovery. A potential implication of this study is the development of a resource for patients outlining common questions patients have about their recovery from hip fracture and the accompanying answers from clinicians to address their questions early on in the recovery. Enhancing communication between clinicians and patients of their recovery goals and the factors that facilitate their obtainment of them may further enhance the accuracy of the information patients receive about their recovery from hip fracture and their access to supportive services (e.g., geriatrician, PT, and occupational therapist). A roadmap to recovery from hip fracture begins with a better understanding of the patient perspective.

Acknowledgments

The authors extend sincere thanks to the study participants for their generosity with their time. Dr. Sims-Gould is supported by a CIHR New Investigator award and a MSFHR Scholar award.

Authors' Note

This study has been approved by the University of British Columbia's Clinical Research Ethics Board (#H09-01291) and all study procedures have been performed in accordance with the ethical standards laid out by the institutional review board.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The authors gratefully acknowledge financial support from the Canadian Institute of Health Research (CIHR) grant (FRN 99051) and career award support for Dr. Ashe from CIHR, the Michael Smith Foundation for Health Research (MSFHR), and the Canada Research Chairs program.

References

- Alzahrani, K., Gandhi, R., Davis, A., & Mahomed, N. (2010). In-hospital mortality following hip fracture care in southern Ontario. *Canadian Journal of Surgery*, 53, 294-298.
- Arinzon, Z., Shabat, S., Peisakh, A., Gepstein, R., & Berner, Y. N. (2010). Gender differences influence the outcome of geriatric rehabilitation following hip fracture. *Archives of Gerontology and Geriatrics*, 50, 86-91. doi:10.1016/j.archger.2009.02.004
- Bishop, A. C., & Cregan, B. R. (2015). Patient safety culture: Finding meaning in patient experiences. *International Journal of Health Care Quality Assurance*, 28, 595-610. doi:10.1108/IJHCQA-03-2014-0029
- British Columbia Ministry of Health. (2011). *Patients as Partners first annual report: Nothing about me without me*. Retrieved from http://www.cfhi-fcass.ca/sf-docs/default-source/researcher-on-call/PasP_AnnualReport_Final.pdf
- Chudyk, A. M., Jutai, J. W., Petrella, R. J., & Speechley, M. (2009). Systematic review of hip fracture rehabilitation practices in the elderly. *Archives of Physical Medicine and Rehabilitation*, 90, 246-262.
- Coleman, E. A. (2003). Falling through the cracks: Challenges and opportunities for improving transitional care for persons with continuous complex care needs. *Journal of the American Geriatrics Society*, 51, 549-555.
- Cook, W. L., Khan, K. M., Bech, M. H., Brasher, P. M., Brown, R. A., Bryan, S., . . . Ashe, M. C. (2011). Post-discharge management following hip fracture—Get you back to B4: A parallel group, randomized controlled trial study protocol. *MC Geriatrics*, 11, 30.
- Coulter, A., & Ellins, J. (2007). Effectiveness of strategies for informing, educating, and involving patients. *British Medical Journal*, 335, 24-27. doi:10.1136/bmj.39246.581169.80
- Fleig, L., Lippke, S., Pomp, S., & Schwarzer, R. (2011). Intervention effects of exercise self-regulation on physical exercise and eating fruits and vegetables: A longitudinal study in orthopedic and cardiac rehabilitation. *Preventive Medicine*, 53, 182-187. doi:10.1016/j.ypmed.2011.06.019
- Forster, A. J., Murff, H. J., Peterson, J. F., Gandhi, T. K., & Bates, D. W. (2003). The incidence and severity of adverse events affecting patients after discharge from the hospital. *Annals of Internal Medicine*, 138, 161-167.
- Fredman, L., Hawkes, W. G., Black, S., Bertrand, R. M., & Magaziner, J. (2006). Elderly patients with hip fracture with positive affect have better functional recovery over 2 years. *Journal of the American Geriatrics Society*, 54, 1074-1081. doi:10.1111/j.1532-5415.2006.00786.x
- Gorman, E., Chudyk, A. M., Hoppmann, C. A., Hanson, H. M., Guy, P., Sims-Gould, J., & Ashe, M. C. (2013). Exploring older adults' patterns and perceptions of exercise after hip fracture. *Physiotherapy Canada*, 65, 86-93. doi:10.3138/ptc.2012-01BH
- Griffiths, F., Mason, V., Boardman, F., Dennick, K., Haywood, K., Achten, J., . . . Costa, M. (2015). Evaluating recovery following hip fracture: A qualitative interview study of what is important to patients. *BMJ Open*, 5(1), Article e005406. doi:10.1136/bmjopen-2014-005406
- Gruman, J., Rovner, M. H., French, M. E., Jeffress, D., Sofaer, S., Shaller, D., & Prager, D. J. (2010). From patient education to patient engagement: Implications for the field of patient education. *Patient Education & Counseling*, 78, 350-356. doi:10.1016/j.pec.2010.02.002
- Hibbard, J. H., & Greene, J. (2013). What the evidence shows about patient activation: Better health outcomes and care experiences; fewer data on costs. *Health Affairs*, 32, 207-214. doi:10.1377/hlthaff.2012.1061
- Langford, D. P., Fleig, L., Brown, K. C., Cho, N. J., Frost, M., Ledoyen, M., . . . Ashe, M. C. (2015). Back to the future—Feasibility of recruitment and retention to patient education and telephone follow-up after hip fracture: A pilot randomized controlled trial. *Patient Prefer Adherence*, 9, 1343-1351. doi:10.2147/PPA.S86922
- Leach, E., Cornwell, P., Fleming, J., & Haines, T. (2010). Patient centered goal-setting in a subacute rehabilitation setting. *Disability and Rehabilitation*, 32, 159-172. doi:10.3109/09638280903036605
- Michie, S., van Stralen, M. M., & West, R. (2011). The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science*, 6, Article 42. doi:10.1186/1748-5908-6-42
- Morrison, R. S., Magaziner, J., McLaughlin, M. A., Orosz, G., Silberzweig, S. B., Koval, K. J., & Siu, A. L. (2003). The impact of post-operative pain on outcomes following hip fracture. *Pain*, 103, 303-311.
- Saldana, J. (2009). An introduction to codes and coding. In *The coding manual for qualitative researchers*, Chap. 1, pp. 1-31. Los Angeles, CA: Sage.
- Schiller, C., Franke, T., Belle, J., Sims-Gould, J., Sale, J., & Ashe, M. C. (2015). Words of wisdom—Patient perspectives to guide recovery for older adults after hip fracture: A qualitative study. *Patient Prefer Adherence*, 9, 57-64. doi:10.2147/PPA.S75657
- Taylor, N. F., Barelli, C., & Harding, K. E. (2010). Community ambulation before and after hip fracture: A qualitative analysis. *Disability and Rehabilitation*, 32, 1281-1290. doi:10.3109/09638280903483869
- Taylor, N. F., Harding, K. E., Dowling, J., & Harrison, G. (2010). Discharge planning for patients receiving rehabilitation after hip fracture: A qualitative analysis of physiotherapists' perceptions. *Disability and Rehabilitation*, 32, 492-499. doi:10.3109/09638280903171568
- Wiktorowicz, M. E., Goeree, R., Papaioannou, A., Adachi, J. D., & Papadimitropoulos, E. (2001). Economic implications of hip fracture: Health service use, institutional care

- and cost in Canada. *Osteoporosis International*, 12, 271-278. doi:10.1007/s001980170116
- Wiles, J. L., Wild, K., Kerse, N., & Allen, R. E. (2012). Resilience from the point of view of older people: "There's still life beyond a funny knee." *Social Science & Medicine*, 74, 416-424. doi:10.1016/j.socscimed.2011.11.005
- Young, Y., & Resnick, B. (2009). Don't worry, be positive: Improving functional recovery 1 year after hip fracture. *Rehabilitation Nursing*, 34, 110-117.
- Ziden, L., Scherman, M. H., & Wenestam, C. G. (2010). The break remains—Elderly people's experiences of a hip fracture 1 year after discharge. *Disability and Rehabilitation*, 32, 103-113. doi:10.3109/09638280903009263
- Ziden, L., Wenestam, C. G., & Hansson-Scherman, M. (2008). A life-breaking event: Early experiences of the consequences of a hip fracture for elderly people. *Clinical Rehabilitation*, 22, 801-811. doi:10.1177/0269215508090204