Exploring Older Adults' Patterns and Perceptions of Exercise after Hip Fracture

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ABSTRACT

Purpose: To identify exercise patterns and perceived barriers, enablers, and motivators to engaging in exercise for older adults following hip fracture. **Method:** Telephone interviews were conducted with older adults (aged 62–97 y) within 1 year after hip fracture. Participants were asked about basic demographic information; level of mobility before hip fracture; current level of mobility; and barriers, enablers, and motivators to participating in exercise. **Results:** A total of 32 older adults successfully recovering after hip fracture completed the telephone interviews. Participants reported few problems with their mobility, and all were engaging in exercise. There were few reported barriers to exercise; the most common were health-related concerns (pain, fatigue, illness, or injury). The most frequently reported enablers were intrinsic factors (determination, seeing improvements, and making exercise part of their daily routine); in particular, the most common motivator to exercise was recovery of function to improve mobility and complete daily and leisure activities. **Conclusions:** This study highlights the responses of a group of older adults recovering well after hip fracture. Older adults engage in exercise despite the potential limitations associated with a hip fracture. Participants' responses underscore the importance of intrinsic factors and suggest avenues for future investigation.

Key Words: aged; exercise; hip fractures; motivation; motor activity.

RÉSUMÉ

Objectif : Déterminer, chez les aînés, les modèles, les obstacles, les éléments facilitateurs et les facteurs de motivation à l'activité physique à la suite d'une fracture de la hanche. **Méthode :** Des entrevues téléphoniques ont été réalisées auprès d'adultes de 62 à 97 ans dans l'année qui a suivi leur fracture de la hanche. On a demandé aux participants des renseignements démographiques de base, leur degré de mobilité au moment de l'entrevue ainsi que les obstacles, les éléments qui facilitaient chez eux l'activité physique et ce qui les motivait à demeurer actifs. **Résultats :** Au total, 32 personnes ayant bien récupéré à la suite d'une fracture de la hanche ont répondu à l'entrevue téléphonique. Les participants ont fait part de légers problèmes de mobilité et tous faisaient de l'exercice. Peu d'obstacles à la pratique d'activité physique ont été signalés; les plus courants avaient trait à leur état de santé (douleur, fatigue, maladie ou blessure). Les éléments facilitateurs le plus souvent évoqués étaient des facteurs intrinsèques (détermination, perception d'une amélioration et exercice bien intégré aux habitudes quotidiennes); plus particulièrement, l'élément de motivation le plus courant relatif à l'exercice était le fait qu'il permettait de retrouver sa fonction afin d'améliorer sa mobilité, d'accomplir des tâches quotidiennes et de participer à des activités de loisir. **Conclusions :** Cette étude vient mettre en lumière les réponses d'un groupe d'aînés qui reprennent des forces à la suite d'une fracture de la hanche. Les aînés font de l'exercice malgré les limites possibles associées à une telle fracture. Les réponses des participants venaient souligner l'importance de facteurs intrinsèques et suggéraient des avenues d'investigation future.

Hip fracture is a serious event for older Canadians; following a fracture, there is an increased risk of mobility disability¹ as well as of falling² and of sustaining a second hip fracture.³ More than 27,000 hip fractures occur each year in Canada;⁴ after hip fracture, approximately one in five older adults may die,⁵ and half of the survivors

may never recover their pre-fracture mobility.¹ Recovery after hip fracture is predicted by many factors, including pre-fracture cognition and/or functional status, surgical treatment, age, comorbidities, and complications following the fracture.^{6,7} Previous studies have highlighted that after hip fracture older adults experience different path-

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ways of recovery that involve a variety of treatment options and outcome expectations.¹ It is important to regain pre-fracture strength, balance, and mobility (the ability to walk safely and independently)⁸ both for participation in daily activities and to prevent a second fracture.⁹ Physiotherapists are instrumental in facilitating the functional recovery of mobility among older adults after hip fracture, both in hospital and after discharge, by directly promoting active lifestyles and providing therapeutic recommendations.

The role of physical activity and sedentary behaviour in mobility after hip fracture is not fully understood. Physical activity includes several domains, such as activities of daily living (ADL) and household tasks, transportation, and leisure-time physical activity (exercise, sports, etc.).¹⁰ *Exercise* involves activities that are planned, structured, and repetitive and are performed with the aim of improving or maintaining physical fitness.¹⁰ *Sedentary behaviours*, in contrast, are activities of low energy expenditure, such as sitting.¹¹ Importantly, participating in physical activity, specifically exercise, promotes recovery and prevents secondary fractures¹² by building strength and balance. The majority of research investigating exercise in older adults after hip fracture has focused on the in-patient phase of recovery and rehabilitation. A Cochrane review by Handoll and colleagues investigated exercise interventions to improve mobility after hip fracture and found inconclusive evidence in both the hospital setting and the post-discharge phase.¹³ After discharge from hospital, an active lifestyle is important to continue recovery and maintain functional status.¹⁴ Some studies have shown that extended physiotherapy^{15,16} and/or community-based exercise classes¹⁷ can enhance recovery, but there is limited evidence on the exercise behaviour of older adults after formal rehabilitation has ended. Resnick and colleagues objectively described the physical activity patterns of older adults 2 months after hip fracture and found that they were accumulating only limited amounts of moderate-intensity physical activity—an average of 2–13 min/d (measured with accelerometry), depending on the analysis.¹⁸ Therefore, it is unlikely that these participants were engaging in significant amounts of exercise (a subcategory of physical activity). Such findings highlight the need to address the important issue of physical activity after hip fracture, and physiotherapists can play a key role in facilitating older adults' active living (including exercise) following formal in-patient rehabilitation through therapeutic recommendations.^{15,19}

Because many challenges are associated with long-term adherence to exercise programmes,²⁰ it is important to understand why older adults do or do not engage in exercise after hip fracture. Age and comorbidities have been found to be associated with the number of steps taken by older adults 2 months after hip fracture.¹⁸ Furthermore, Resnick and colleagues have identified a

variety of intra- and interpersonal factors that influence the success of group exercise programmes after hip fracture, including realistically assessing self-efficacy and outcome expectations, having social support, and addressing fear of falling.²¹ Our study goes beyond an investigation of specific structured programmes, both research-based group exercise programmes and programmes based in formal rehabilitation settings, to investigate exercise after hip fracture in a real-world setting. The study aims to describe older adults' exercise behaviours after hip fracture to characterize patterns and perceptions; we anticipate that this information will inform both physiotherapy practice and future research studies. Therefore, our primary aim was to identify whether or not older adults were participating in exercise within the first year after discharge from hospital following hip fracture. We also aimed to describe the barriers, enablers, and motivators they perceived to engaging in exercise after hip fracture.

METHODS

Our study was a mixed-methods investigation of older adults' exercise patterns and perceptions following hip fracture. Our participants were community-dwelling adults age ≥ 60 who had sustained a hip fracture within the previous 3–12 months and lived in the greater Vancouver region. Family caregivers were also invited to take part in the study if the older adult was unable to participate (because of cognitive impairment, hearing issues, language barrier, etc.). The local hospital and university Ethics Review Boards approved the study, and all participants provided written informed consent.

We identified potentially eligible older adults who had sustained a hip fracture between December 2007 and May 2009 from a database maintained by the orthopaedic department at a local hospital. Individuals were contacted if their hip fracture had occurred in the previous 3–12 months, a point at which most participants would no longer be in formal rehabilitations programmes. Of 303 older adults identified from the database, 260 potential participants met the eligibility criteria and were sent a letter outlining the study and the consent form. Within 2 weeks after the invitations were sent, we telephoned potential participants to determine whether they were willing to participate in the study; a maximum of three attempts were made to contact each individual. Once a signed consent form was received, we scheduled the telephone interview and mailed a package to participants in preparation for the interview, which contained copies of the response options for the assessment scales. During the interviews, we collected demographic information and data on level of mobility before hip fracture; current mobility level; rehabilitation services offered and used after hip fracture; and participation in exercise and physical activity. We also asked open-ended questions on the barriers, enablers, and motivators to participating

in exercise. In the family caregiver proxy interviews, we did not ask the open-ended questions.

The interview, which used both established questionnaires specific to older adults and open-ended questions, was designed to capture self-reported pre-fracture and current levels of function, as well as exercise (excluding formal physiotherapist visits) and sedentary behaviour. Although we aimed to use questionnaires previously validated with the target population, some areas (in particular, hip-fracture history and use of rehabilitation services) were not represented by existing outcome measures, and we therefore had to develop our own questions. Before beginning the study, we piloted these questions with five community-dwelling older adults who had previously sustained hip fractures, using in-person cognitive interviewing,²² a technique that asks participants to “think aloud” and to discuss the specific questions posed. In this way, we determined whether questions were being asked in the intended way and whether interviewees were able to fully understand them.

Descriptive information

During the telephone interviews we asked participants questions about their hip fracture; their current state of health; their history of falls; their self-reported confidence with increasingly demanding mobility tasks; and what mobility aids, if any, they used before the fracture, immediately afterwards, and at the time of the interview. The assessments included in the interview were selected to capture a comprehensive picture of respondents and their health.

Primary measures

Physical activity, exercise, and sedentary behaviour

We determined the amount of physical activity people engaged in by using the Community Healthy Activities Model Program for Seniors (CHAMPS) questionnaire to calculate kcal/wk spent in moderate to vigorous physical activity.²³ The 41-item CHAMPS questionnaire was developed specifically for older adults and is designed to be self-administered or completed over the phone.²³ It is reliable, as measured by a 2-week test–retest interval ($r = 0.76$),²⁴ and valid (moderately correlated with functional measures; $r = -0.22$ to 0.59).^{23,24} It is also responsive to change in older adults before and after engaging in an exercise programme (effect size = 0.38).²³ For our study, we determined exercise participation by asking, “Have you attended exercise classes in the community since your hip fracture?”; “Have you been exercising on your own since your hip fracture?” and, if so, “What have you been doing (e.g., walking, home programme, etc.)?” Sedentary time was determined by average self-reported sitting time.

Secondary measures

Perceived health and lower-extremity function

We assessed participants’ perceived current state of health with the EuroQol quality of life questionnaire

(EQ5D),^{25,26} which includes a question on self-rated health out of 100 (higher scores represent better health) and is appropriate for administration over the phone.²⁷ The EQ5D provides a composite health score based on five domains (mobility, self-care, usual activities, pain/discomfort, and anxiety/depression) and is scored out of 1 (0 = worst possible health, 1 = best possible health). This measure is reliable in older adults, with a test–retest reliability of $r = 0.67$,²⁸ and is responsive to change in older adults after hip fracture (standardized effect size = 1.37 ; standardized response mean = 0.90).²⁹

We also administered the Lower Extremity Measure (LEM).³⁰ Developed specifically for people after hip fracture to characterize the difficulty a person has in several domains of basic and instrumental ADL, the LEM has previously been administered over the phone.³⁰ The 29 items are scored out of 100 (higher scores indicate less difficulty in performing ADL). In previous studies, the LEM was significantly correlated with scores on the timed up-and-go (TUG) test, a measure of functional mobility ($r = -0.53$), and showed high test–retest reliability (intraclass correlation coefficient = 0.85).³⁰ It also has good construct validity (people with comorbidities had lower LEM scores than people without comorbidities) and responsiveness to change (scores on the LEM increased with increased time since fracture).³⁰

Self-efficacy and locus of control

We used the Activities-specific Balance Confidence (ABC) scale³¹ to assess participants’ confidence in their ability to perform increasingly demanding mobility tasks without falling or losing balance. The ABC scale can be assessed over the phone; it consists of 16 items and is scored out of 100 (higher scores represent higher confidence in performing tasks).³² This measure is reliable in community-dwelling older adults, with high test–retest reliability ($r = 0.92$);³¹ has also been shown to be valid in older adults after hip fracture; and is correlated with gait speed ($r = 0.65$)³³ and measures of balance confidence within 6 months after hip fracture ($r = 0.74$).³⁴ Previous studies have highlighted that the ABC score is a significant determinant of return to pre-fracture function.³⁵ We also used questionnaires to elicit participants’ beliefs about locus of control—internal control, external control (including doctors or other people), and chance—in relation to mobility after the hip fracture; each domain was scored out of 10 (higher scores represent more control).³⁶

Barriers, Enablers, and Motivators to Exercise

We also asked three open-ended questions about the barriers, enablers, and motivators for engaging in exercise: “What makes it more difficult to keep exercising?” (barriers); “What makes it easier for you to keep exercising?” (enablers); and “What motivates you to exercise?” (motivators).

Statistical Analysis

The survey components were analyzed separately and merged for interpretation. Our quantitative data analysis included calculation of means and standard deviations, or medians and inter-quartile ranges (IQR) if data were skewed. Analysis of the open-ended questions began with two authors (EG, AMC) independently reading, re-reading, and coding the results by topic to identify the common themes. We discussed these initial themes and generated overall topic categories by consensus.³⁷ Rigour was established through peer debriefing (via team meetings and smaller focused discussion about the developing categories) and a decision log kept during data collection.³⁸ We then tabulated the frequencies of each category. Together, these results were used to better understand respondents' engagement in exercise.

RESULTS

We identified 303 older adults who had been hospitalized following hip fracture within the specific time frame of our study. Of these, 43 did not meet the inclusion criteria (≥ 60 years old, hip fracture within the previous 3–12 months, resident of the greater Vancouver region). A total of 260 letters were sent out to potentially eligible participants; 148 (56.9%) could not be contacted by mail or telephone (e.g., mail was returned to sender, number was no longer in service or wrong, or our telephone message was not returned). Of those contacted, 80 (71.4%) declined to participate; reasons for non-participation included inability to participate due to cognitive impairment or not speaking English (37) and lack of interest (41). Two participants withdrew from the study. The majority of survey respondents (22, 68.8%) were women, with a mean age of 83 (range 62–97) years and median time since hip fracture of 194 days (approx. 6 mo). The majority of participants (27, 84.3%) reported that their hip fracture resulted from a fall; 18 of the fractures occurred indoors, and 18 occurred when the participant was alone. Prior to the hip fracture, only 7 participants used a mobility aid (cane = 6; walker = 1); all used a mobility aid at hospital discharge, and at the time of interview 23 participants were using a mobility aid (cane = 13; walker = 6; cane and walker = 3; cane and scooter = 1). Seven participants (22%) had experienced a fall since their hip fracture (see Table 1).

Primary measures

Physical activity, exercise, and sedentary behaviour

Overall physical activity was determined by the median (IQR) weekly CHAMPS score; the score for moderate to vigorous physical activity (MVPA) was 415 (0–1889) kcal. All participants reported currently engaging in exercise; walking was the most frequently reported activity. Of 32 participants, 24 (75.0%) stated that the exercise they were currently engaging in had been prescribed or suggested to them by a health care professional, usually a

Table 1 Participant Demographic and Descriptive Characteristics of Exercise Behaviours*

Characteristics	Score/Response
Sex	
M	10
F	22
Mean (range) age, y	83 (62–97)
Median (IQR) time since hip fracture, d	194 (146–250)
Mobility aid before fracture	
Y	7
N	25
Mobility aid at time of interview	
Y	23
N	9
Fallen since hip fracture	
Y	7
N	25
Median (IQR) ABC score, /100 ($n = 31$)	86.0 (45.6–92.5)
Median (IQR) CHAMPS, kcals ($n = 25$)	415 (0–1889)
Median (IQR) EQ5D score, /1	0.83 (0.78–1.00)
Median (IQR) EQ5D VAS, /100 ($n = 30$)	82.5 (67.5–96.3)
Median (IQR) LEM score, /100	88.3 (71.7–93.8)
Engaged in exercise	
Y	32
N	0
Group-based	
Y	7
N	25
Individual home exercise programme	
Y	30
N	2
Median (IQR) sitting time, min/d ($n = 26$)	300 (240–420)
Locus of control, /10 ($n = 29$)	
Median (IQR) Internal score	8 (6–10)
Median (IQR) Chance score	4 (2–6.5)
Median (IQR) Doctors score	8 (6–8)
Median (IQR) Other People score	7 (4–8)

* $n = 32$ unless otherwise indicated.

ABC = Activities-specific Balance Confidence scale; CHAMPS = Community Healthy Activities Model Program for Seniors; EQ5D = EuroQol quality of life questionnaire; LEM = Lower Extremity Measure; VAS = visual analogue scale.

physiotherapist. The median (IQR) time spent in sedentary behaviours was 300 (240–420) min/d, equivalent to approximately 5 h/d.

Secondary measures

Perceived health and function

All values for these outcomes are presented as median (IQR).

Overall, participants rated their health status as good. On the visual analogue scale, health status was rated as 82.5 (67.5–96.3); total EQ5D score was 0.83 (0.78–1.00), and LEM was high at 88.3 (71.7–93.8). Only about one-fifth of participants (7, 21.8%) had used a mobility aid prior to their hip fracture, but the majority (23, 71.9%) were using a mobility aid at the time of the interview (see Table 1). Only 2 participants (6.3%) were receiving home-care physiotherapy at the time of the interview.

Self-efficacy and locus of control

The median (IQR) ABC score was high at 86.0 (45.6–92.5). When asked about their control over their mobility, participants perceived both a high internal locus of control (8 [6–10]) and a high external locus of control for their doctors (8 [6–8]; see Table 1).

Barriers, enablers, and motivation to exercise

Of the 29 participants who completed these open-ended questions on barriers to exercise, 13 (44.8%) reported no barriers to engaging in exercise. Of those who did report barriers (16, 55.2%), the most common were related to their health (8, 27.6%), including pain and fatigue, ill health, or injury. Other factors that prevented participants from engaging in exercise included the environment (5, 17.2%; e.g., weather, lack of transportation) and intrinsic factors (4, 13.8%) such as lack of motivation.

The 26 participants who answered questions relating to enablers to engaging in exercise reported intrinsic factors (11, 42.3%), the recovery of function (7, 26.9%), and good health (2, 7.6%).

Intrinsic factors acting as enablers included *determination* (“my own will power”; 93yo woman, 135 d since fracture); *seeing improvements* (“thinks it is getting better ... if I can see the results it keeps me going”; 97yo man, 133 d since fracture); and *making activity part of the daily routine* (“have been doing it [exercise] since I was a kid, [it is] part of my life. I don’t want to sit in a chair all day and feel sad for myself”; 92yo man, 193 d since fracture).

Other factors cited as enablers included *recovery of function* and *health*. Furthermore, when specifically asked to identify what motivated them to exercise, participants frequently mentioned the return of function (22, 75.9%).

Among the 29 participants who provided responses on motivation to engage in exercise, the return of personal mobility, such as walking, was especially prevalent as a source of motivation reported by participants:

I want to be back to my normal self for walking and don’t want to think about my hip ... I just want to be like I was. (79yo woman, 171 d since fracture)

I need to be able to walk alone. (86yo woman, 147 d since fracture)

[I want] to be able to walk, at least with the cane, and not use a walker. (90yo woman, 189 d since fracture)

Other activities that motivated participants to exercise included being able to complete daily and leisure activities (9, 31.0%): “I want to be able to walk to church and see friends” (77yo woman, 184 d since fracture).

Many responses to our open-ended questions demonstrated a positively oriented perspective, focusing on what was working well for participants as they took part in exercise. Participants appeared to have an easier time describing what motivated and enabled them to engage in exercise. Taken together, the quantitative measures

and participants’ responses to the open-ended questions enhance our understanding of the exercise behaviours reported by older adults recovering after hip fracture.

DISCUSSION

A hip fracture is a serious event with far-reaching consequences for older adults and their families. Functional recovery is important to prevent further decline and improve quality of life. Our study captured the responses of a group of older adults who reported doing well after hip fracture and explored their exercise behaviours and their perceptions around exercise. The majority of respondents reported no problems with mobility, and only a few had sustained a fall since their hip fracture; these findings reflect the fact that our participants were older adults recovering successfully after a hip fracture. Participants reported regularly engaging in exercise, primarily walking. Many participants did not report any barriers to exercise; among those who did, the most frequently reported barriers were health focused. Enablers to exercise included intrinsic factors such as determination, seeing improvements in mobility, and making exercise part of their daily routine. Motivators commonly reported were recovery of function (especially improvements in walking) and the ability to complete daily and leisure activities. Participants’ comments reflect a strengths-based approach to describe what has contributed positively to their recovery.³⁹

Previous research has reported detrimental consequences after hip fracture, including death and disability.^{1–3,5} Participants in our study, on the other hand, reported encouraging outcomes after hip fracture. They scored high on self-reported measures of health and mobility such as the LEM, which has been correlated with performance measures of physical function.³⁰ Moreover, their EQ5D scores (a measure of quality of life) were higher than previously reported values for older adults in general⁴⁰ and in a study of older adults 4 months after hip fracture.²⁹ Their median ABC score, representing balance confidence, was 86.0%, higher than in other studies after fracture: Sihvonen and colleagues³⁴ reported an average ABC score of 59.5% for older adults within 6 months after hip fracture, and Whitehead and colleagues³³ reported a mean score of 50% at 4 months after hip fracture. An ABC score <65% has been identified as an indicator of older adults at risk of falling.⁴¹ This group was also highly motivated, as measured by their high internal locus of control. Further, participants had a median 415 kcal/wk of MVPA—comparable to older adults after hip fracture who are in a structured exercise programme,⁴² though substantially less than the 1486 kcal/wk previously reported in healthy older adults.²³

Study participants elaborated on the barriers and enablers they encountered to engaging in exercise. All participants reported exercising, and the majority reported

no barriers to doing so; when barriers were reported, they were related to physical health (pain, fatigue, injury, and/or illness), consistent with previous research on functional recovery and structured exercise after hip fracture.^{43–45} This finding has important implications for practice, in that older adults with more activity restrictions than our study participants are likely to face more barriers. While research is needed to understand the barriers perceived by older adults who face greater struggles in recovery, the responses from our sample demonstrate that successful recovery from hip fracture is attainable; thus, our findings can serve as a catalyst for future research agendas. Knowledge of what worked for those who have recovered well after hip fracture is a potential starting point for developing targeted interventions and key guiding cues for use by rehabilitation therapists and health professionals.

With respect to enablers to exercising after hip fracture, this group of older adults reported intrinsic factors such as determination, seeing improvements, and making exercise part of their daily routine. These responses are consistent with the fact that participants also reported a high internal locus of control for their mobility. Shaw and colleagues showed that, 1 month post hip fracture, having a more internal locus of control was associated with less disability and greater independence in daily living.⁴⁶ Determination,⁴³ seeing improvements,⁴⁴ and making exercise part of one's daily routine⁴³ have also been identified in previous research as factors related to functional recovery and participation in group exercise programmes after hip fracture. When participants were asked specifically about motivators to exercise, their responses highlighted the importance of exercise for participation in life activities. Many of the motivators they described relate to function, which has important implications for physiotherapy practice because recognizing and capitalizing on this motivational force could have a significant impact during rehabilitation.

Our participants reported doing well after hip fracture, even though the majority had not returned to pre-fracture mobility status. They appeared to exhibit great resilience, defined as the ability to achieve, retain, or regain a level of physical or emotional health after illness or loss.⁴⁷ How and why these older adults possess resilience and determination to get back to their pre-fracture state are questions that need to be explored further in the context of hip fracture recovery. The consequences of a hip fracture can have an immediate impact on functional ability, and exploring how older adults successfully accommodate to these limitations⁴⁸ could help inform future practice. Exercise plays an important role in this process, as it can reduce impairment and potentially increase participation in life activities. Participants in our study reported receiving an exercise programme after discharge from hospital and told us that their current exercise regimen was based on the prescriptions/suggestions of physiotherapists. Therefore, there is an opportu-

nity for physiotherapists to facilitate exercise adherence and progression after formal rehabilitation services end, particularly within this group who, as their responses demonstrate, are so highly motivated to get back to their pre-fracture state.

LIMITATIONS

A strength of our study is that it incorporates older adults' own perceptions of their experiences after hip fracture, with a particular focus on what was working well for their recovery. However, the study has some limitations. Our recruitment rate was low, in part because we were unable to contact a large proportion of potential participants. Thus, our study participants are likely to be those with the best outcomes in the target population. In addition, we were not able to compare responders with non-responders. The generalizability of our results is limited by the bias resulting from non-participation due to low English language proficiency or cognitive impairment, despite the invitation to have a family caregiver participate as a proxy. Nonetheless, our findings do provide insight into the experiences of a specific subgroup of older adults who have done well after hip fracture. Although exercise participation rates may be low after hip fracture, our respondents reported few barriers to exercising; it is difficult to determine, however, whether respondents *experienced* few barriers or whether they *reported* few of the barriers they experienced. Perhaps future studies could more effectively understand perceived barriers by rewording the question presented to participants (e.g., by asking what barriers exist to participating in *more* physical activity). We also note limitations associated with self-report measures; however, our study used a combination of validated questionnaires and open-ended questions to identify factors needing further elaboration. Incomplete data are due to (1) the fact that the open-ended questions were not appropriate for the proxy (family caregiver) to answer; and (2) the fact that some participants did not wish to finish a lengthy interview. Despite these limitations, our study provides novel information on older adults' engagement in exercise after hip fracture.

CONCLUSION

Limited research has been done outside the formal rehabilitation setting, and this study provides insights into factors that facilitate a successful recovery after hip fracture for community-dwelling older adults. Despite the potential limitations associated with a hip fracture, this group of older adults engaged in exercise, and their responses highlight the importance of intrinsic factors.

KEY MESSAGES

What is already known on this topic

Hip fracture is a serious event for older adults that can lead to mobility disability. Engaging in exercise is

important for functional recovery and, in turn, reducing the risk of a fall or second hip fracture.

What this study adds

Older adults in this study engaged in exercise despite potential limitations associated with hip fracture. Their responses provide insight into factors that facilitate recovery after hip fracture and, in particular, underscore the importance of intrinsic factors.

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