Patient perspectives of recovery after hip fracture: a systematic review and qualitative synthesis

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**ABSTRACT**

**Purpose:** The purpose of the current review is to synthesize the evidence of patients’ perspectives of recovery after hip fracture across the care continuum.

**Methods:** A systematic search was conducted, focusing on qualitative data from hip fracture patients. Screening, quality appraisal, and a subset of articles for extraction were completed in duplicate. Themes were generated using a thematic synthesis of data from original studies.

**Results:** Fourteen high-quality qualitative studies were included. Four review themes were identified: recovery as participation, feelings of vulnerability, driving recovery, and reliance on support. Patients considered recovery as a return to pre-fracture activities or “normal” enabling independence. Feelings of vulnerability were observed irrespective of the time since hip fracture and only diminished when recovery of function and activities enabled participation in valued activities, e.g., outdoor mobility. Participants expressed a desire to engage in recovery with realistic expectations and the benefits of meaningful feedback reported. While reliance on healthcare professionals decreased towards a later stage of recovery, reliance on social support persisted until recovery was perceived to have been achieved.

**Conclusion:** Patient perspectives highlighted hip fracture as a major life event requiring health professional and social support to overcome feelings of vulnerability and enable active engagement in recovery.

**IMPLICATIONS FOR REHABILITATION**

- Rehabilitation professionals should ensure expectations and goals are set early in the recovery process.
- Rehabilitation professionals should ensure goals set with patients are tailored to the individual’s pre-fracture activities or “normal” promoting independence.
- Rehabilitation professionals should monitor goals ensuring they are providing support, motivation, and managing expectations across the care continuum.
- Rehabilitation professionals should address patients’ feelings of vulnerability, particularly in the absence of social support, and ensure appropriate ongoing input to maximize recovery.

**Introduction**

In the United Kingdom (UK), an estimated 70,000 older adults experience hip fractures each year [1]. These fractures contribute to reduced mobility and independence affecting an individual’s health-related quality of life [2]. Outcomes are often even worse for those with pre-existing conditions, such as dementia [3]. In 98% of cases, older adults with hip fractures undergo surgery and subsequent rehabilitation in hospitals and the community [4]. These interventions target a theoretical construct of “recovery” from hip fracture to determine the endpoint for care.

Recovery may be perceived differently depending on an individual’s role in the recovery process and more specifically, the point at which their role is completed. For example, a surgeon may consider recovery as “from fracture” achieved with fixation and bone healing or arthroplasty [5] while physiotherapists may consider recovery as the attainment of pre-fracture function (e.g., mobility, activities of daily living) [6]. These definitions of recovery highlight the time at which these professionals withdraw their care, rather than the time at which a patient and/or carer may consider themselves “recovered.”

More contemporary definitions of recovery were driven by the International Classification of Functioning with healthcare professionals, hospital administrators, and policymakers acknowledging the need to consider the role of body functions and structures as well as activities and participation in recovery [7]. For hip fracture, previous quantitative research identified several domains of recovery including physical, instrumental, cognitive, affective, and social domains [8]. Researchers highlighted variation in the time for recovery by domain informing a need for ongoing targeted

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healthcare professional support in the year post-fracture [8]. This early research was based on quantitative evaluation using standardised outcome measures. While beneficial, in isolation it limits the potential for person-centred care as patients were not allowed to contribute by expressing their perspectives of recovery after hip fracture.

In 2011, a literature review of older adults’ recovery from hip fracture suggested patient recovery outcome is influenced by physical function and psychosocial factors [9]. Since this time, there has been an influx of qualitative evidence exploring both patient and carer’s perspectives of recovery at different stages after hip fracture [10–13]. This evidence adds depth to previous understanding of quantitative trajectories for recovery [11,12] as well as patient and carer’s perspectives of care received in support of recovery after hip fracture [10,13]. This evidence has been recognized through the publication of reviews synthesizing the evidence related to care about hip fracture from the informal carer’s perspective [14] and the patient’s perspective of community-based rehabilitation [15].

The purpose of the current review is to build upon previous work by considering patients’ perspectives of their recovery (encompassing but not restricted to rehabilitation) across the care continuum. More specifically, we will explore which patients are included in qualitative interview studies of recovery after hip fracture, when these interviews take place (about time since fracture), and which perspectives have been reported by patients about recovery after hip fracture.

Methods
We conducted a systematic review of qualitative studies in adherence with the Enhancing Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ) statement [16], and Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines [17]. We registered the protocol for this review on the International Register of Systematic Reviews, PROSPERO ID: CRD42020205858 [18]. This review did not require ethical approval as all data is extracted from published literature available in the public domain.

Eligibility criteria
A summary of the eligibility criteria for studies included in this review is presented in Table 1.

Inclusion criteria
We selected studies of “older adults” defined by the World Health Organization as those 60 years or older [19] in receipt of rehabilitation after hip fracture surgery at any point along the care continuum [12]. We included qualitative semi-structured interview studies as we sought to synthesize the evidence for patient perspectives after hip fracture which may not be captured by other qualitative designs, e.g., ethnography and/or quantitative design.

Exclusion criteria
We excluded studies of older adults who experienced multiple fractures [20,21], pathological hip fracture [22], and those treated conservatively [23], as their rehabilitation pathways and outcome vary from those with an isolated non-pathological hip fracture treated surgically. We excluded studies not published in English due to limited resources to cover translation costs.

Search strategy
We employed a pre-planned comprehensive search strategy to seek all available studies. We adopted previously published search terms for our strategies based on terms for “qualitative evidence” and “hip fracture” [24–26], outlined in Supplementary File 1. The following databases were used to search for published literature: Medline, Embase, Psychinfo, and PEDro, Base, and OpenGrey were used to search for grey/unpublished literature. Searches were run from database inception to between 9 and 19 June 2020. We completed citation tracking of selected studies in Google Scholar on 10 July 2020 to identify any additional studies that may have been overlooked in our searches.

Screening
Two reviewers (NB and AR) independently screened the title and abstracts against eligibility criteria in Covidence software for managing systematic reviews. The same two reviewers independently screened the full text of potentially eligible articles against eligibility criteria. Reasons for exclusion were documented at full-text screening. Conflicts were resolved by consensus.

Quality appraisal
The conduct of the studies, their reporting, as well as the content and utility of their findings were appraised using the Critical Appraisal Skills Programme checklist for qualitative research [27]. This checklist includes the following domains: aims, methodology, research design, recruitment strategy, data collection, researcher relationship, ethical considerations, data analysis, findings, and research contributions. The appraisal was conducted independently by two researchers (NB and AR). Conflicts were resolved by consensus.

Table 1. Eligibility criteria.

|                | Inclusion                                                                 | Exclusion                                                                 |
|----------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Participants   | Age ≥ 60 years                                                            | Age < 60 years                                                            |
|                | Isolated hip fracture                                                     | Multiple fractures                                                        |
|                | First hip fracture                                                        | Subsequent hip fracture                                                   |
|                | Non-pathological hip fracture                                             | Pathological hip fracture                                                 |
| Intervention   | Receipt of hospital and/or community rehabilitation                       | No rehabilitation received                                                 |
| Outcome        | Post-operative patients’ perceptions of recovery after hip fracture (and/or rehabilitation as a key component to recovery) | Perceptions of recovery from persons other than those who incurred a hip fracture |
| Design         | Qualitative semi-structured interview study                               | Other qualitative studies, e.g., ethnography                              |
| Other          | English language                                                          | Quantitative study                                                        |
|                |                                                                           | Non-English language                                                      |
Data extraction

We extracted study characteristics and results onto data extraction templates created \textit{a priori} in Excel. Two reviewers (NB, AR) piloted the data extraction template on one study and refined the template before completing the extraction for the remaining studies. Two additional studies were extracted in duplicate. The remaining 11 studies were extracted once. The following study characteristics were extracted: the paper details (author, year published, country, and city of study), the methods and analytical approach (study design and data collection method), study details (where and when the study took place, length of interviews, interview details, topic guide, and type of analysis), participant details (sample number and participant characteristics) and key discussion points. Data on patients’ perspectives were extracted from the results sections of individual studies (themes identified and supporting quotes).

Data synthesis

We adopted a thematic synthesis approach, outlined by Thomas and Harden which provides a clear link between conclusions and text of studies analysed (\textit{Figure 1}) [28]. This approach enables researchers to explore the perspectives of patients and highlight similarities and differences between their accounts. Three researchers (NB, AR, and KL) conducted thematic analysis independently. All authors individually read through all included papers first for familiarisation, and then generated concepts from the research data before coming together to discuss and finalise review themes. Themes in the current review were identified using data that included quotations from participants and text by the authors in the original papers. Data in each original paper were compared and organised into review themes and, where relevant, subthemes. The authors used an inductive approach to generate themes by observing patterns in the data within the original papers. Data in the original papers were collated and synthesised into variations of concepts defined by the original authors, and new concepts were created where deemed necessary. It was recognised that variations of the same concepts appeared in multiple studies, which informed the development of a new interpretation of the findings and the generation of novel and inclusive themes. Themes evolved further through discussion, re-reading of original papers, and re-evaluating content. Any conflicts were discussed until consensus occurred. Analysis was
Results

Search results

The results of the searches completed for this review are displayed in Figure 2. We identified a total of 8115 potentially relevant studies. In total, 2357 were duplicates leaving 5759 studies to be screened. At this stage, 5736 title/abstracts were excluded, and 23 studies were brought forward to the full-text screening. Full-text copies of the 23 studies were acquired and evaluated against our predefined eligibility criteria. At this stage, nine studies were excluded as they did not meet the eligibility criteria. One additional study published after the search date was identified through citation tracking of the remaining 13 studies. Therefore, 14 studies met the criteria for inclusion in this review.

Study characteristics

Study characteristics are presented in Table 2. Four studies were conducted in the United Kingdom [10,12,29,30], three in Sweden [13,31,32], four in Canada [11,33–35], one in Norway [36], in New Zealand [37], and one in the Netherlands [38]. Two studies were carried out in the hospital setting [10,13], one a rural community setting [31], and the remaining studies in urban community settings [11,12,29,30,32–38]. Six studies selected their sample from participants of a randomized control trial [11,13,32,33,36,38]. Studies conducted included qualitative semi-structured interviews face to face [10,12,13,29,31,32,36–38], via telephone [11,33,35], or face-to-face and/or by telephone [30,34]. Where reported, the mean interview duration ranged from 5-min [33] to 90-min [34,37]. Included studies made sense of their qualitative data by looking for patterns and coding using both inductive and deductive approaches. Five studies used thematic analysis [10–12,30,33,35], one used thematic and cross case analysis [12], four used a phenomenological approach [12,13,29,36], two used qualitative content analysis [13,31], two used a constant comparison analysis (as part of grounded theory approach) [37,38], one used topic coding [34], one used a phenomenographic method [32], and one a systematic text condensation [36].

Participant characteristics

14 studies included in this review reflect a total of 279 participants. Where reported, the mean age of participants ranged from 80 years [32] to 81.5 years [12]. One study included participants with cognitive impairment [12]. Four studies did not mention cognitive status of participants [11,34,35,37]. The remaining studies excluded patients with cognitive impairment, scoring <15 [36], or <21 [38] on the Mini-Mental State Examination (MMSE), or <8 [10] on the Abbreviated Mental Test Score. Other measures of cognitive impairment included ensuring that the patient was orientated cognitively to person, time, space, and situation [31]. Three studies stated the exclusion of patients with cognitive impairments without a description of how this was determined [13,29,32]. Two studies followed eligibility criteria from a parent study excluding potential participants who could not provide informed consent [30] or with a prior diagnosis of dementia [33]. Three studies included participants admitted from or discharged to residential care [12,34,38]. The time since participants hip fracture varied from 8 days [10,13] to more than 1 year [33–35,37] across studies.

Quality assessment

Results of quality assessment using the CASP tool are presented in Table 3. There was 100% agreement (Cohen’s Kappa 1.0) between reviewers for all domains. All studies included in this review clearly outlined their aims and objectives. Studies clearly stated themes and subthemes and selected appropriate methodology to answer their research questions. Two studies successfully fulfilled all appraisal sections [30,36]. Reflexivity was considered in seven studies [10–13,30,32,36]; data saturation was discussed in six studies [10,12,30,34–36]. All studies had ethical approval.
| Study          | Country, city          | Setting                  | Timing of interview                                                                 | Duration of interview | Sample size | Participants                                                                                                                                 |
|---------------|------------------------|--------------------------|-------------------------------------------------------------------------------------|-----------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Archibald 2003 | UK, Bradford           | Community                | No mean reported; on discharge from community rehabilitation hospital                | 25–50 min             | 5           | 4 women, 1 man >65 years No cognitive impairment 13 women, 6 men 70–94 years Living at home No cognitive impairment 6 women, 2 men 69–91 years Living at home No cognitive impairment |
| Asplin 2019   | Sweden, Molndal        | Acute                    | Mean 8.8 days post-surgery                                                          | 25–67 min; mean 42 min| 19          | 13 women, 6 men 70–94 years Living at home No cognitive impairment 6 women, 2 men 69–91 years Living at home No cognitive impairment |
| Brunn-Olsen 2018 | Norway, near Olso    | Community                | 3–4 months post-hip fracture                                                       | 40–60 min             | 8           | 20 women, 11 men 61–96 years Living at home (28), residential (1) or nursing (2) home 12 participants with cognitive impairment.               |
| Fox 2017      | UK, North Bristol      | Community                | 1st interview 8–12 weeks post-hip fracture; 2nd interview 6 months post-hip fracture; 3rd interview 12–15 months post-hip fracture | Phase 1: 25–105 min; mean 62 min; Phase 2: 36–71 min; mean 55 min; Phase 3: 26–70 min; mean 50 min | 1st interview – 11; 2nd interview – 8; 3rd interview – 7 | 5 women, 6 men 69–92 years Living at home No cognitive impairment |
| Griffiths 2015 | UK, West Midlands      | Community                | Two interviews 1st at 4 weeks post-surgery 2nd at 4 months post-surgery              | 20–90 min             | 31          | 20 women, 11 men 61–96 years Living at home (28), residential (1) or nursing (2) home 12 participants with cognitive impairment.               |
| Healee 2017   | New Zealand, Auckland  | Community                | 3 months–22 years post-hip fracture                                                | 60–90 min             | 16          | 12 women, 11 men 61–97 years Living at home alone (9), home with spouse/family (14) No cognitive impairment 12 women, 7 men 65–94 years Living at home alone in community (16), or alone in senior residence (3) No cognitive impairment 10 women, 1 man 60–90 years Living at home alone (10), home with spouse/family (3), or facility (2) |
| Langford 2018 | Canada, Vancouver      | Community                | 4 months post-hip fracture                                                          | Not reported          | 16          | 12 women, 11 men 61–97 years Living at home alone (9), home with spouse/family (14) No cognitive impairment 12 women, 7 men 65–94 years Living at home alone in community (16), or alone in senior residence (3) No cognitive impairment 10 women, 1 man 60–90 years Living at home alone (10), home with spouse/family (3), or facility (2) |
| Pol 2019      | The Netherlands        | Community                | 6–8 months post-hip fracture                                                        | ~1 h                  | 19          | 12 women, 7 men 65–94 years Living at home alone in community (16), or alone in senior residence (3) No cognitive impairment 10 women, 1 man 60–90 years Living at home alone (10), home with spouse/family (3), or facility (2) |
| Schiller 2015 | Canada, Vancouver      | Community                | Man 2.5 years post-hip fracture; Range 0.25–8 years                                | 30–90 min             | 11          | 12 women, 7 men 65–94 years Living at home alone in community (16), or alone in senior residence (3) No cognitive impairment 10 women, 1 man 60–90 years Living at home alone (10), home with spouse/family (3), or facility (2) |
| Segevall 2019 | Sweden, mid Sweden     | Community                | 3–5 weeks post-hospital discharge                                                  | 32–128 min; median 59 min | 13          | 7 women, 6 men 66–98 years Living at home No cognitive impairment 32 women, 18 men >65 years Living at home (21), home with spouse (29) No cognitive impairment 7 women, 8 men >60 years Living at home No cognitive impairment |
| Sims-Gould 2017 | Canada, Vancouver     | Community                | 6 and 12 months post-hip fracture                                                  | 5–30 min; mean 20 min | 48; data analysed 45 | 32 women, 18 men >65 years Living at home (21), home with spouse (29) No cognitive impairment 7 women, 8 men >60 years Living at home No cognitive impairment |
| Southwell 2020 | UK, London             | Acute                    | Mean 8.2 days post-surgery                                                          | 20–57 min; mean 37 min; SD 10 min | 15          | 13 women, 2 men 66–93 years Living at home No cognitive impairment 13 women, 2 men 66–93 years Living at home No cognitive impairment |
| Stott-Evanshen 2017 | Canada, Vancouver     | Community                | 6–12 months post-recruitment                                                       | 5–30 min; mean 20 min | 48 – 1st interview; 45 – 2nd interview | 32 women, 18 men 65–98 years Living at home No cognitive impairment 13 women, 2 men 66–93 years Living at home No cognitive impairment |
| Ziden 2010    | Sweden, Gothenburg     | Community                | One month after hospital discharge and one year after hospital discharge            | 15–39 min; mean 27 min | 18 – 1st interview; 15 – 2nd interview | 13 women, 2 men 66–93 years Living at home No cognitive impairment |
Eleven studies considered all ethical components of analysis, including a clear explanation of obtaining informed consent, maintaining confidentiality, and debriefing participants [10–12, 13, 29–33, 36, 37]. Fourteen studies provided clear findings statements and discuss the clinical impact of findings [10–13, 29–34, 36–38].

**Patient perspectives of recovery after hip fracture**

**Themes and subthemes**

The themes and subthemes from the 14 studies included in this review are summarised in Table 4. From the data, we generated four review themes related to patient perspectives of recovery after hip fracture: recovery as participation, feelings of vulnerability, driving recovery, and reliance on support.

**Theme 1: recovery as participation.** Across studies, participants considered recovery as a return to pre-fracture activities [11, 32, 33, 35, 38] or “normal” [13, 36, 37] enabling independence [10, 29, 31, 34, 36].

“For me it is obviously, first and foremost, that I become independent in every way.” [66-year-old woman lived alone at home, interviewed at home 5 weeks postoperatively] [13].

These activities were often described in terms of mobility [12, 13, 37], such as walking outdoors [13, 32]; activities of daily living [29], such as going to the toilet [13], gardening [11, 12], cooking [11] and housework [32, 33]; as well as participation in social events [37], such as meeting friends and family [13, 32, 33], attending the theatre [32], working as a volunteer [32], shopping [12, 32], and participation in sport [11, 13].

“I just miss getting up and getting out. I never stay in. I’d go out in the morning and come back and then I’d go out again. I just used to go out looking round the shops. I just get these crossword books and I do those” [92-year-old woman living alone at home, interviewed at home 5 weeks postoperatively] [12].

The participants in some studies indicated they were willing to accept new normal if it enabled a sense of identity [30] or preserved their ability to complete previous activities albeit in a different manner [10, 38].

“Activities take up much more time; I did the gardening in a single day, and now I need three or four days because I get tired a lot sooner, and therefore, I divide up the activities” [78-year-old man living alone at home, interviewed at home 1-year post-discharge] [38].

For two studies, several participants struggled to define recovery as the hip fracture was perceived as part of their decline with age with uncertainty over the future [10, 12].

“…I’m worried about how it will be when I come home, and I know that I won’t be able to go out… I haven’t said this to anyone before now, but that’s how I feel, I am, I’m worried about it” [89-year-old man living with wife at home, interviewed in hospital] [13].

Concerns around coping and being able to return to previous activities often were often intertwined with fear of gradual and permanent decline in functioning following a hip fracture [10, 30]. Anxieties related to declining were more apparent in older patients who often characterised their experience as a consequence of ageing [10, 30], those with poorer mobility [10], and those with multiple long-term conditions [11, 30, 31]. Compounding these fears, participants felt if their hip fracture was treated in isolation (and not considered in the context of additional morbidities) their ability to recover would be impaired [10, 11].

“… I’m just not receiving the same kind of attention or treatment or even interest … I know that you’re focusing on the hip surgery recovery …”
| Author, year | Theme (sub-themes) | Supporting quote/text |
|-------------|-------------------|-----------------------|
| Archibald, 2003 | The recovery experience (the operation, beginning the struggle, regaining independence) | “By the time I moved to [the community hospital], I’d already got onto [walking] sticks. So I could go under my own steam to the toilet. In the community hospital I didn’t have any help in a morning with washing. They just gave me a bowl of water and I could do all that was necessary. Yes, it was nice being independent.” |
| Asplin, 2019 | Ask me, I have goals | While participants expressed their rehabilitation goals clearly during the interviews, few experienced that they had been asked about their goals by PTs and OTs. “For me it is obviously, first and foremost, that I become independent in every way.” |
| Bruun-Olsen, 2018 | A span between self-reliance and dependency (a gap between expectations and reality, recovery self-reliance, recovery dependent on actions from others) | “I’m rather impatient as a person, so I would have liked to know how long it would take for me to be back to normal again. … I’d expected more follow-up at the short-term stay.” |
| Griffiths, 2015 | Mobility | “I can’t rush round like I did, but eventually that will come… I mean it’s pretty normal now, but I think it’s going to be a while before I can actually walk as I did and I probably won’t walk as I did… when I came home from hospital I was still hobbling… but now I’m more or less… walking normal, especially with the stick.” |
| Healee, 2017 | Recovery as a return to the pre-fracture state or as part of ageing and decline | The interviewee had difficulty distinguishing decline due to old age and change due to the fracture. “Returning to normal is very important to getting back to [being] useful.” |
| Langford, 2018 | Loss of independence | “My frustration level of not being able to accomplish things that I did before this injury is still quite high.” |
| Pol, 2019 | Restrictions for everyday life (being less mobile, being dependent on mobility aids, being tired, being careful and concerned about falling again) | “Activities take up much more time; I did the gardening in a single day, and now I need three or four days because I get tired a lot sooner, and therefore, I divide up the activities.” |
| Segevall, 2019 | Preparing to return home | Participants described the work toward regaining independence started after surgery, with early mobilization, training with the physiotherapist, and preparing to return home. “Most participants expected to be fully recovered within 6 months or less after their surgery for hip fracture, as told by their surgeon.” |
| Sims-Gould, 2017 | Managing expectations | One participant responded that “there is life after fracture,” and although she did not meet her mobility goals, she sees her recovery as a long-term journey requiring long-term engagement in her rehabilitation activities. “I’m realistic about my goals. I know at my age I can’t go back to all the activities I used to do.” |
| Author, year | Theme (sub-themes) | Supporting quote/text |
|-------------|-------------------|------------------------|
| Southwell, 2020 | Anxiety about the future | Participants who anticipated a short period of recovery projected their goals to the near future with the most frequently reported goal to return home and to return to previous activities. “I don’t mind if I can’t do a lot more than I did before … if it doesn’t get any worse, I know I can’t be around forever, I’d like to, but.” |
| Stott-Evensen, 2017 | Recovery goals (recovering mobility, return to pre-fracture activities, obtaining stable health) | The majority of participants who identified goals for themselves described targets that were broader and more fixed throughout their recovery. Recovering their mobility (60%), returning to pre-fracture activities (22%), and obtaining stable health (16%) were the most common goals identified. 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. |
| Ziden, 2010 | Experienced consequences one year after discharge (isolated life with more restricted activity and fewer social contacts, more insecure and afraid, disappointed and sad that identity and life have changed, satisfied with the situation or feeling even better than before) | Participants described a good social support network (34%), access to PT (34%), and a positive attitude (22%) as factors that supported their post-operative recovery and ability to implement their recovery goals. “I was, how should I put it, very outgoing [before]. I wanted to be out. I wanted to go places and have visitors. I wanted to go to the theatre, cinema and stuff like that. Yes, on the whole to be out in society … And I can’t anymore.” |

**Review theme: feelings of vulnerability**

| Author, year | Theme (sub-themes) | Supporting quote/text |
|-------------|-------------------|------------------------|
| Archibald, 2003 | The recovery experience (the operation, beginning the struggle, regaining independence) | “I hated using the bedpan and I got very constipated. But it was easiest for the nurses. They preferred you to use a bedpan rather than a commode. And that really annoyed me when I was pressured into using a bedpan.” |
| | The disability experience (disability, depending on others, housebound) | “I must have a Zimmer in front of me, because my legs are a bit wobbly. And I’m frightened, you know, of falling and ending up on the floor.” |
| Asplin, 2019 | Accepting the situation whilst trying to remain positive | “[Before hip fracture] I could get to the shops; have a little three-quarters of an hour walk around the district. I always used to go down then I could finish going downhill home [after fracture] I can get about the house, go up and down stairs but not out, oh no. I couldn’t go out now.” |
| | Uncertainties concerning the future | “… I’m worried about how it will be when I come home, and I know that I won’t be able to go out … I haven’t said this to anyone before now, but that’s how I feel, I am, I’m worried about it” |
| Bruun-Olsen, 2018 | Feeling vulnerable (feeling of subservience, feeling of gloominess) | “I felt like being in another world. Suddenly other people decided on what I should do, and I did precisely what they told me, I did not dare to do otherwise” |
| | Disrupted from a normal life (less independence and mobility, the impact of age) | “I have been down in a black hole and I do not seem to get up again” “After the fracture, my children decided that I had to sell the house and move out. Naturally, that was necessary … Everything was well before the fracture. After the fracture the consequences was a disrupted life, I have to say … suddenly I was under surveillance.” |
| | “I will never be the person I was before the fracture. I used to be in good shape, despite my age. Now I ask myself: What is there really to look forward to when you are ninety?” | “I will never be the person I was before the fracture. I used to be in good shape, despite my age. Now I ask myself: What is there really to look forward to when you are ninety?” |
| Fox, 2017 | Effect on lifestyle (getting out of the house, informal social interactions, transport, family relationships, visiting family and friends, change in role, looking after others, want to be back to normal, spontaneity, independence, hobbies, ability to forget) | “Makes me feel awful … I’m missing out on such a lot. I mean it was my granddaughter’s – well I said, her birthday today. And they’ve gone out, you know. Lots of things … I didn’t want to get like this. I wanted to be, when I finished work, I wanted to carry on and do things” |
| Fox, 2017 | Emotional response to circumstances (prisoner, burden, mood change, fear of falling and doing further damage, frustration and boredom, building confidence, want to be back to normal, perseverance, is it part of a permanent decline, don’t want to be like this, unable to forget, acceptance) | “It’s really got me down. I was depressed before, but I’ve got a depression now (sighs) that’s really bad. But there you are.” |
| Griffiths, 2015 | Mental well-being | “For me it was a massive problem and caused me depression. To me is the most important thing, the mental aspect of taking away somebody’s freedom to be able to move around and go to the shops and do all that sort of thing.” |
| | Fear of falling | “I’ve got to watch what I’m doing, if I catch my foot on [paving stone], I can go over again” |
| Langford, 2018 | Loss of independence | “My frustration level of not being able to accomplish things that I did before this injury is still quite high.” |
| | Multimorbidity | “I’m just not receiving the same kind of attention or treatment or even interest … I know that you’re focusing on the hip surgery recovery … the shoulder issue is much more annoying and upsetting to me than the hip. The hip recovery is basically straightforward … but [my shoulder is] not really being taken care of.” |

(continued)
| Author, year | Theme (sub-themes) | Supporting quote/text |
|-------------|-------------------|-----------------------|
| Pol, 2019   | Engaging in physical activity | "I am walking around with a walker because it gives me security. So I used to walk with a cane but I don’t know … I just walk with a walker because it gives me 100% security." |
| Schiller, 2015 | Seek support (ask others for help, ask key questions, identify peer support) | "But nobody comes, no nurse, no nothing. No public health, to see if you are just dying or rotting or lying there" |
| Segevall, 2019 | Preparing to return home | "I didn’t want the walking aid in the beginning, but now I think I will keep it in case of future needs." |
| Southwell, 2020 | Anxiety about the future | "Well, I have never been afraid of anything before, but now I have become a bit fussy. I mean, I wouldn’t like to fall again."

The things that they feared could be a hindrance were their age and other health issues.

| Southwell, 2020 | Reliance on social capital | "They keep telling me that, the more I do, the better I’m going to be at it. But I think at the age I am it’s not going to be that easy you know? I’m hoping I’m wrong.” |
| Ziden, 2010 | Experienced consequences one year after discharge (isolated life with more restricted activity and fewer social contacts, more insecure and afraid, disappointed and sad that identity and life have changed, satisfied with the situation or feeling even better than before the fracture) | "I had these physiotherapists … and I think they are good at their job and … otherwise I would have lain flat in bed all the time … without them I would have been sick in my whole life! Flu, or so, maybe, but nothing else … So it’s a total change … It was like a shock, when this happened … I’ve become so afraid.” |

Review Theme: Driving Recovery

| Archibald, 2003 | The recovery experience (the operation, beginning the struggle, regaining independence) | "The physio(therapist) said ‘Do you think you can make it to the top of the ward?’ And I said ‘No, I’d like to go to the toilet!’ [laughs] … As soon as I possibly could, I went by myself with the Zimmer [frame].” |
| Asplin, 2019 | Interaction affects trust and security | "I thought that they know what is best … and what we should do now and what we should do later … when you are not familiar with things, so you accept what you have to do ….” |
| | Information is key to understanding | "It’s really important with good information and don’t, don’t hide anything, just tell it as it is … I feel that it’s very important, just tell it as it is, and don’t hide anything. But you maybe can’t say that to everyone, of course you can’t, but it means a lot.” |
| | Encouragement is essential to promote activity | "… otherwise I would have lain flat in bed all the time … without them I wouldn’t have managed.” |
| Bruun-Olsen, 2018 | A span between self-reliance and dependency (a gap between expectations and reality, recovery self-reliance, recovery dependent on actions from others) | "My expectations for my own recovery were much higher than reality, and that have made me frustrated and impatient.” |
| Fox, 2017 | Emotional response to circumstances (prisoner, burden, mood change, fear of falling and doing further damage, frustration and boredom, building confidence, want to be back to normal, perseverance, it is part of a permanent decline, don’t want to be like this, unable to forget, acceptance) | "The physiotherapist, and the way she treated and encouraged me and helped, would help increase confidence post discharge and assist recovery.” |
| Healee, 2017 | Restoring normalisation: regaining by relying (self-reliance, marshalling resources, helping) | "I didn’t want the walking aid in the beginning, but now I think I will keep it in case of future needs.” |
| | Restoring normalisation: reasserting by permissioning (developmental life stage, diverse expectations) | "I mean this is how it is … deal with it … nobody else can do it for me.” |
| Author, year | Theme (sub-themes) | Supporting quote/text |
|--------------|-------------------|-----------------------|
| Southwell, 2020 | Importance of self-determination | “It’s the only way of getting through that barrier, is pushing. Physios can’t help you doing that, you’ve got to do that yourself” |
| Segevall, 2019 | Preparing to return home | “You see, it was difficult for me to know what kind of help I could need when I came home, I guess that’s why they decided that they [staff from social services] would come check up on me four times a day to begin with, and that was fine by me.” |
| Pol, 2019 | Recovery process (trying and practicing and successful experiences) | “I hardly walk outside because I’m scared to fall; I feel more isolated because I can’t go to the gym or go to the shopping center anymore.” |
| Langford, 2018 | Personality traits | “It was nice to have someone rooting for me [and] gauging my level of activity.” |
| Stott-Eveneshen, 2017 | Access to information and resources [information on progress to inform recovery, access to professional support (physiotherapy)] | “The access to information is important … 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.” |
| Stott-Eveneshen, 2017 | Social support and participant experience (support through enrolment in the study enabled positive perspective, motivation through enrolment in the study, feedback on progress enabled positive perspective) | Some participants reported joining the study as a way of motivating themselves to adhere to their rehabilitation exercises. |
| Ziden, 2010 | Experienced consequences one year after discharge (isolated life with more restricted activity and fewer social contacts, more insecure and afraid, disappointed and sad that identity and life have changed, satisfied with the situation or feeling even better than before) | “It was nice to have someone rooting for me [and] gauging my level of activity.” |
| Review Theme: Driving Recovery | | |
|Archibald, 2003 | The disability experience (disability, depending on others, housebound) | “And in the cold weather, if it was raining, I didn’t go and she brought my dinner round for me.” |
| Asplin, 2019 | Interaction affects trust and security | “They make me out to be better than I am … that I should be able to do things myself … I’m not that good … and I can’t walk as I could before … I don’t have the courage … so no, something is wrong here.” |
| Fox, 2017 | Physical and functional recovery (pain, stiffness, and swelling, balance, limp, stamina, physical activity, sleep, environment, equipment, functional | “My daughter’s coming in the week, next week to do it for me, but it’s not the same. (laughs) And when you’ve gotta depend on them like to get you some shopping.” |
Table 4. Continued.

| Author, year | Theme (sub-themes) | Supporting quote/text |
|--------------|--------------------|-----------------------|
| Fox, 2017    | Emotional response | “If I went to the toilet I had to wake her up, break her sleep for her to get me back into bed you know, its things like that you know, it’s like being back in your second childhood again like you know” |
| Griffiths, 2015 | Personal care  | “I’m … not able to put a sock or anything on my injured leg. I can manage now with my trouser leg and throw these jogging trousers and hook my leg into them but I have to ask my husband if I need to put a sock or a shoe, or my slipper.” |
| Langford, 2018 | Loss of independence | “My frustration level of not being able to accomplish things that I did before this injury is still quite high.” |
| Healee, 2017 | Restoring normalisation: regaining by spacing | “Ok, so I use a stick when I go out … I need secure hold … yes it’s a symbolic thing, which means [it] just gives me space” |
| Pol, 2019 | Resources for recovery (“myself,” supporting and coaching, technological support) | “The change of going home was disappointing at first. All of a sudden, you have to do it all by yourself, and there is no protection around you.” |
| Schiller, 2015 | Seek support (ask others for help, ask key questions, identify peer support) | “Even though you want to be independent, accept the help when it’s there because it helps other people feel like they’re helping you. So like I said it was hard for me to do and as soon as I could do without the help I did” |
| Segevall, 2019 | Preparing to return home | “Well, I’ll tell you something. It wasn’t fun to need help, but I couldn’t do it on my own. That’s the fact.” |
| Sims-Gould, 2017 | This is life after fracture | “I think that they have failed with the information. It is difficult to be a patient under such circumstances.” |
| Southwell, 2020 | Reliance on social capital | “Nobody’s living with me, all the help I’ve been having in the hospital will stop … I won’t be able to move about by myself with the walker without someone bringing me the walker … and to get to bed I need somebody to help me in lifting my left leg up to the bed, and there’s nobody living with me …. and like, when I want to use the toilet, yet I cannot go to now, I won’t be able to stand up to walk to get to the bottles to use for my urine.” |
| Southwell, 2020 | Reliance on professional support | “Well I could do with more to be honest … more physio” |
| Southwell, 2020 | Reliance on social capital | “Nobody’s living with me, all the help I’ve been having in the hospital will stop … I won’t be able to move about by myself with the walker without someone bringing me the walker … and to get to bed I need somebody to help me in lifting my left leg up to the bed, and there’s nobody living with me … and like, when I want to use the toilet, yet I cannot go to now, I won’t be able to stand up to walk to get to the bottles to use for my urine.” |
the shoulder issue is much more annoying and upsetting to me than the hip. The hip recovery is basically straightforward … but [my shoulder is] not really being taken care of” [76-year-old, interviewed at home 4 months post-fracture] [11].

Participants described experiencing negative consequences, such as boredom, distress, loneliness, and depressive symptoms [12,30,32,36] up to 1-year after fracture [30,32]. Many attributed these feelings to reduced mobility and inability to attend activities outside of their home with friends and family [12,30,36] which persisted in the longer term [30].

“Makes me feel awful … I’m missing out on such a lot. I mean it was my granddaughter’s – well I said, her birthday today. And they’ve gone out, you know. Lots of things … I didn’t want to get like this. I wanted to be, when I finished work, I wanted to carry on and do things” [80-89 year old woman living alone at home, interviewed at home 2.5 months post-operatively] [30].

These negative consequences diminished overtime for some participants with increasing ability to return to valued activities [30,34].

“I’ve done it now, I’ve walked to the post box and I’ve walked to the shop and I’ve walked down to the library so I’ve – and back, so I – I’ve done that now … When you’ve done it, yeah, you – you – you feel, ‘Oh good, you know, that’s another mile gone, another milestone gone’” [80-89 year old woman living alone at home, interviewed at home 7 months post-operatively] [30].

Theme 3: driving recovery. Participants across studies acknowledged a need for a positive outlook and active engagement in their recovery process. This engagement was reliant on a clear understanding of their recovery process with specific realistic expectations and goals tailored to their needs and activities. These expectations fueled motivation for engagement and coupled with positive feedback enabled transition to independent ownership of their recovery process. Unrealistic expectations or perceived generalized feedback were detrimental to recovery leading to feelings of frustration, disappointment, and reduced engagement.

Setting expectations for recovery trajectory. Participants discussed the importance of establishing realistic expectations and goals early with healthcare professionals as well as friends and family [13,33–35,37]. Information received from staff, patients, and informal carers needed to be clear to facilitate confidence in expectations for their recovery [10,37] particularly at the point of discharge home [31,34].

“Staff should explain the other aspects of recovering from hip fracture such as time it will take; the adjustments one will need to make, the potential impact on a person, what to expect. Having these non-physical aspects would help increase confidence post discharge and assist recovery.” [Interviewed at home] [37].

Misalignment between expectations and reality of the recovery process led to frustration, disappointment, depressive symptoms, and reduced engagement with the recovery process [32,35,36].

“My expectations for my own recovery were much higher than reality, and that have made me frustrated and impatient” [85–89 year-old woman, interviewed at home 3–4 months post-fracture] [36].

“The doctor said in 3 weeks I’d be feeling fine and in 6 weeks I’d be back to everything, and I’m not. It’s a bit depressing. It’s been a long time” [80-year-old woman, interviewed at home 6 months post-operatively] [35].

Motivation. Participants viewed the recovery process as a collaboration with health professionals [10,34,38] but recognized the need for internal locus of control as self-efficacy was paramount to their recovery [33–35].

“It’s the only way of getting through that barrier, is pushing. Physios can’t help you doing that, you’ve got to do that yourself” [84-year-old woman living alone at home, interviewed in hospital] [10].

They reported the need for a positive outlook [10,11,31,33–35,38] and self-reliance [11,30,36–38] to maintain motivation and ensuring success in their recovery [32,37]. This motivation was positively reinforced through meaningful feedback on activity and participation goals from healthcare professionals [10,13,33,36,38].

“It was nice to have someone rooting for me [and] gauging my level of activity” [66-year-old woman living at home with spouse, interviewed at home 6 and 12 months post-fracture] [33].

Participants sometimes reported needing to drive their own recovery independent of healthcare professionals when their care was not focused on their expectations and goals for recovery [31]. This was particularly evident where participants described feeling passive towards recovery with decisions made for them rather than with them [31,36] failing to consider their individual priorities [13]. To overcome this, participants reported completing activities independently they felt were in support of their recovery [36].

“I went by myself to training and got out of the high walker entirely by myself, … …and I said to the nurse that now I have to start washing myself because I am going home. Yes, the nurse said, – without showing any interest” [85–89 year-old woman, interviewed at home 3–4 months post-fracture] [36].

Theme 4: reliance on support. Participants reported reliance on both professional support and social support across studies

| Author, year | Theme (sub-themes) | Supporting quote/text |
|--------------|-------------------|-----------------------|
| Stott-Eveneshen, 2017 | Access to information and resources [information on progress to inform recovery, access to professional support (physiotherapy)] | “I was worried my health was going to get worse and worse, and I didn’t want that because I didn’t want to put anyone out.” |
| Stott-Eveneshen, 2017 | Social support and participant experience [support through enrolment in the study enabled positive perspective, motivation through enrolment in the study, feedback on progress (reducing falls risk) enabled positive perspective] | “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” |

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 (38%) participants who were married or living with a family member or friend.
included in the current review. The reliance on professional support was strongly observed for those in the early post-operative phase and decreased over time, which may reflect service withdrawal rather than a decrease in the need. Increased reliance on social support was observed for studies across the care continuum and was highlighted more for participants who were living alone. **Professional support.** Participants reported a reliance on healthcare professional support for successful recovery in eleven studies [10,11,13,29,31,33,34,36,38].

Access to support from healthcare professionals (in particular physiotherapy) during the hospital stay was considered a facilitator of recovery [36]. Participants reported a desire for “more” rehabilitation during this stage to support their recovery [10,31]. Participants reported frustrations when rehabilitation was not commenced early or regularly, feeling that this impeded their recovery, yet this decision was out of their control [36,37]. Participants in the study by Stott-Evenshen et al., indicated access to more regular rehabilitation was their rationale for enrolment in the current review. The reliance on professional support in the early stages of recovery, particularly for participants who were living alone [10,33,35].

For the current review, patients described activities/goals for recovery in terms of mobility, activities of daily living, and participation in social events. These descriptions align well with the International Classification of Functioning which outlines the role of body functions and structures as well as activities and participation in recovery [7]. Of note, patients indicated the need for mobility to support activities of daily living and participation, e.g., outdoor mobility rather than as a goal in itself. These definitions were consistent across studies for those patients able to articulate what recovery means to them. However, a recent analysis of 24,492 patients indicated a weighted probability of up to 10% for recovery of mobility at 30-days among those able to walk outdoors pre-fracture [39].

This poor early recovery may relate to contextual factors reported in the current review including multiple long-term conditions [10,12], and fear of falling [8]. This fear of falling was often related to a perceived lack of reserve to overcome a subsequent injury. Indeed, up to 65% of older adults report low fall-related self-efficacy after hip fracture [40]. Previous home-based rehabilitation intervention studies have demonstrated promise for improving falls-related self-efficacy after hip fracture [41,42]. Crotty and colleagues demonstrated patients enrolled for an average of 28 days on a target-orientated rehabilitation programme saw improvements in the Falls Efficacy Scale [41]. Ziden et al. programme of balance confidence, physical function, and activities at daily living for 3 weeks following discharge also saw improvements in the Falls Efficacy Scale [42]. The authors reported marked differences in the change in instrumental activities of daily living items of the Falls Efficacy Scale between groups (19.7 for intervention, 7.1 for control) which may signal a potential impact on the recovery of participation [42]. Addressing poor self-
Many considered their hip fracture as an event in a wider decline in their “normal” abilities. This “new normal” was acceptable to many if a sense of independence could be preserved. However, a definition for this “new normal” was not explored by any of the studies in the current review. Ensuring uncertainty may serve to reinforce feelings of vulnerability as, without a clear positive view of who they will become after their fracture, many patients consider the worst-case scenario – decline, loss of independence, transition to nursing care, and death [44]. This perspective can lessen one’s self-image and increase feelings of alienation and social withdrawal [45]. There is a need for rehabilitation professionals to set transparent realistic expectations, ensure they preserve patient choice in decision-making, and work towards patient specified valued activities. This will give hope and empower patients to define an evolving fresh narrative of self that preserves their desired self-image while reducing feelings of loss and restriction in everyday life [46].

Value in healthcare relates to outcomes achieved, i.e., what matters to patients [47]. In the current review, participants across studies acknowledged a desire for active engagement in their recovery across the care continuum. This finding is in keeping with previous reviews which identified a need for self-determination [48] and a positive patient perspective in community rehabilitation as key drivers of recovery [15]. For the current review, patients highlighted a desire for setting expectations and goals early, collaborative working with healthcare professionals to enable this active engagement to meet expectations, and a sustained positive outlook. However, this desire was not always met. This was particularly evident for the early post-operative period where patients reported feeling passive and lacked trust in decisions made “for them” and not “with them.” Moreover, patients reported anxieties related to preparedness for discharge home. The studies included in the current review did not identify reasons for the perceived absence of shared decision-making. As this was particularly evident in the early post-operative phase, it may reflect organisational pressures to reduce the length of stay transitioning patients to the community setting earlier [49–51]. It is important that person-centered care is not compromised in efforts to meet these pressures [52].

The current review supports a wealth of evidence indicating the patient-reported need for professional and social support after hip fracture [15,48]. The current review extends our understanding of support after hip fracture by highlighting patient-perceived needs vary by time since fracture for healthcare professional support. In contrast, patients’ perceived need for social support varied by degree of recovery achieved irrespective of time since fracture. This discrepancy may be due to patient’s reflections on the withdrawal of healthcare services over time since their hip fracture, opposed to their perceived need for ongoing care. Indeed, several patients reported ongoing feelings of vulnerability, fear of falling, and fear-avoidance up to 1 year after their fracture – long after healthcare services ended. Of interest, a participant related their need for social support to both physical domains of health (e.g., going to the toilet, ability to walk outdoors to the shop), psychological domains (e.g., fear of falling), and social domains (e.g., attending a granddaughter’s birthday party). Many of these domains may be supported by health and social care services and align with previous quantitative research indicating a need for longer-term rehabilitation after hip fracture [8,53,54].

The current review highlighted a lack of representation for patients with cognitive impairment and hip fracture in qualitative research. Up to 30% of hip fracture patients present with cognitive impairment [55]. Physiotherapists recently reported a lack of confidence in using standardised care protocols with patients with cognitive impairment, expressing a desire for specialist training to enable a more patient-centered approach for these patients [56]. An important step in developing more appropriate care for patients with cognitive impairment is gaining an understanding of what matters to them in their recovery after hip fracture. A previous systematic review of carers of patients with hip fracture identified 21 qualitative interview studies which reported extensive caregiver burden among those trying to support a person after hip fracture with cognitive impairment [14]. Future research should consider the inclusion of patients with cognitive impairment and/or carers for those with severe cognitive impairment to better understand what is important in the recovery journey. This research may draw upon previous strategies to enable persons with dementia to take part in qualitative research, such as simplifying the structure of questions, allowing additional time for responses, and redirecting dialogue [57].

Limitations
We updated our eligibility criteria from the protocol registration to include only adults surgically treated for hip fracture and irrespective of time since fracture (protocol indicated adults and carers in the first post-operative year). We did not include studies published in languages other than English nor did we search conference proceedings or for published dissertations which may have increased the risk of publication bias [58]. We adopted a thematic synthesis approach. A limitation of this method is that data from the original studies are analysed out of context and concepts identified in one setting may not apply to another [28]. We further acknowledge there is a level of uncertainty around our conclusions as we cannot be sure the data is completely representative of the older population recovering from a hip fracture. We did not have information regarding participants excluded from the study, for example, participants with cognitive impairments, or those too unwell to take part in interviews. Therefore, conclusions made from this review may not be representative of the underlying population with hip fractures. Finally, all studies included in the review were from countries with high Gross Domestic Product (GDP) [59], and are therefore not globally representative.

Conclusions
Patients considered recovery as a return to pre-fracture activities or “normal” enabling independence. Patient perspectives highlighted hip fracture as a major life event that requires health professional and social support to overcome feelings of vulnerability and enable active engagement in recovery. Future research should investigate the recovery perspective of patients with cognitive impairment, and further consider perspectives on recovery from carers.

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References

[1] Royal College of Physicians. National Hip Fracture Database (NHFD) annual report 2019. London: Royal College of Physicians [cited 2021 Jun 29]. Available from: https://www.rcplondon.ac.uk/projects/outputs/national-hip-fracture-database-nhfd-annual-report-2019

[2] Castelli A, Daidone S, Jacobs R, et al. The determinants of costs and length of stay for hip fracture patients. PoS One. 2015;10(7):e0133545.

[3] Seitz DP, Gill SS, Austin PC, et al. Rehabilitation of older adults with dementia after hip fracture. J Am Geriatr Soc. 2016;64(1):47–54.

[4] Nahm ES, Resnick B, Orwig D, et al. Exploration of informal caregiving following hip fracture. Geriatr Nurs. 2010;31(4):254–262.

[5] Xu DF, Bi FG, Ma CY, et al. A systematic review of undisplaced femoral neck fracture treatments for patients over 65 years of age, with a focus on union rates and avascular necrosis. J Orthop Surg Res. 2017;12(1):28.

[6] Egol KA, Koval KJ, Zuckerman JD. Functional recovery following hip fracture in the elderly. J Orthop Trauma. 1997;11(8):594–599.

[7] World Health Organisation. International classification of functioning, disability and health; 2001 [cited 2021 Jun 29]. Available from: https://www.who.int/standards/classifications/international-classification-of-functioning-disability-and-health

[8] Magaziner J, Hawkes W, Hebel JR, et al. Recovery from hip fracture in eight areas of function. J Gerontol A Biol Sci Med Sci. 2000;55(9):M498–M507.

[9] Healee D, McCallin A, Jones M. Older adult’s recovery from hip fracture: a literature review. Int J Orthopa Trauma Nurs. 2011;15(1):18–28.

[10] Southwell J, Potter C, Wyatt D, et al. Older adults’ perceptions of early rehabilitation and recovery after hip fracture surgery: a UK qualitative study. Disabil Rehab. 2020. DOI: 10.1080/09638288.2020.1783002.

[11] Langford D, Edwards N, Gray SM, et al. Life goes on: everyday tasks, coping self-efficacy, and independence: exploring older adults’ recovery from hip fracture. Qual Health Res. 2018;28(8):1255–1266.

[12] Griffiths F, Mason V, Boardman F, et al. Evaluating recovery following hip fracture: a qualitative interview study of what is important to patients. BMJ Open. 2015;5(11):e005406.

[13] Asplin G, Carlsson G, Fagevik Olsen M, et al. See me, teach me, guide me, but it’s up to me! patients’ experiences of recovery during the acute phase after hip fracture. Eur J Physiother. 2021;23(3):135–139.

[14] Saletti-Cuesta L, Tutton E, Langstaff D, et al. Understanding informal carers’ experiences of caring for older people with a hip fracture: a systematic review of qualitative studies. Disabil Rehabil. 2018;40(7):740–750.

[15] Blackburn J, Yeowell G. Patients’ perceptions of rehabilitation in the community following hip fracture surgery. A qualitative thematic synthesis. Physiotherapy. 2020;108:63–75.

[16] Tong A, Flemming K, Mclnnes E, et al. Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. BMC Med Res Methodol. 2012;12(1):181.

[17] Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA); 2020. [cited 2021 Jun 26]. Available from: prisma-statement.org

[18] PROSPERO: International prospective register of systematic reviews; 2020 [cited 2021 Jun 26]. Available from: https://www.crd.york.ac.uk/prospero

[19] World Health Organization (WHO). Aging and health; 2018 [cited 2021 Jun 26]. Available from: https://www.who.int/news-room/fact-sheets/detail/ageing-and-health

[20] Penrod JD, Litke A, Hawkes WG, et al. The association of race, gender, and comorbidity with mortality and function after hip fracture. J Gerontol A Biol Sci Med Sci. 2008;63(8):867–872.

[21] Di Monaco M, Vallerio F, Di Monaco R, et al. Functional recovery after concomitant fractures of both hip and upper limb in elderly people. J Rehabil Med. 2003;35(4):195–197.

[22] Willeumier JJ, van der Linden Y, van de Sande MA, et al. Treatment of pathological fractures of the long bones. EFORT Open Rev. 2016;1(5):136–145.

[23] National Institute for Health and Care Excellence (NICE). Hip fracture: management; 2017 [cited 2021 Jun 26]. Available from: https://www.nice.org.uk/guidance/cg124

[24] Handoll H, Cameron I, Max JC, et al. Multidisciplinary rehabilitation for older people with hip fractures. Cochrane Database Syst Rev. 2009(4):CD007125. DOI:10.1002/14651858.CD007125.pub2.

[25] Parker MJ, Gurusamy KS, Azegami S. Arthroplasties (with and without bone cement) for proximal femoral fractures in adults. Cochrane Database Syst Rev. 2010(6):CD001706. DOI:10.1002/14651858.CD001706.pub4.

[26] Ames H, Glenton C, Lewin S, et al. Clients’ perceptions and experiences of targeted digital communication accessible via mobile devices for reproductive, maternal, newborn, child, and adolescent health: a qualitative evidence synthesis. Cochrane Database Syst Rev. 2019(10):CD013447.

[27] Critical Appraisal Skills Programme. Qualitative checklist; 2020 [cited 2021 Jun 26]. Available from: https://casp-uk.net/wp-content/uploads/2018/01/CASP-Qualitative-Checklist-2018.pdf

[28] Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. BMC Med Res Methodol. 2008;8(1):45.

[29] Archibald G. Patients’ experiences of hip fracture. J Adv Nurs. 2003;44(4):385–392.

[30] Fox R, Gooberman-Hill R, Swinkels A, et al. Recovery from extra capsular hip fracture. A longitudinal qualitative study of patients’ experiences [dissertation]. Bristol: University of the West of England [cited 2021 Jun 29]. Available from: https://uwe-repository.worktribe.com/output/883358/recovery-from-hip-fracture-a-longitudinal-qualitative-study-of-patients-experiences

[31] Segevall C, Soderberg S, Randstrom KB. The journey toward taking the day for granted again: the experiences of rural older people’s recovery from hip fracture surgery. Orthop Nurs. 2019;38(6):359–366.

[32] Zidén L, Scherman MH, Wenestam C-G. The break remains – elderly people’s experiences of a hip fracture 1 year after discharge. Disabil Rehabil. 2010;32(2):103–113.

[33] Stott-Evenshen S, Sims-Gould J, McAllister MM, et al. Reflections on hip fracture recovery from older adults enrolled in a clinical trial. Gerontol Geriatr Med. 2017;3:233372141769766.
[34] Schiller C, Franke T, Belle J, et al. Words of wisdom – patient perspectives to guide recovery for older adults after hip fracture: a qualitative study. Patient Prefer Adherence. 2015;9:57–64.

[35] Sims-Gould J, Stott-Evenshien S, Fleig L, et al. Patient perspectives on engagement in recovery after hip fracture: a qualitative study. J Aging Res. 2017;2017:2171865.

[36] Bruun-Olsen V, Bergland A, Heiberg KE. “I struggle to count my blessings”: recovery after hip fracture from the patients’ perspective. BMC Geriatr. 2018;18(1):18–19.

[37] Healee DJ, McCallin A, Jones M. Restoring: how older adults manage their recovery from hip fracture. Int J Orthop Trauma Nurs. 2017;26:30–35.

[38] Pol M, Peek S, van Nes F, et al. Everyday life after a hip fracture: what community-living older adults perceive as most beneficial for their recovery. Age Ageing. 2019;48(3):440–447.

[39] Goubar A, Martin FC, Potter C, et al. The 30-day survival and recovery after hip fracture by timing of mobilization and dementia: a UK database study. Bone Joint J. 2021;103(7):1317–1324.

[40] Visschedijk J, Achterberg W, Van Balen R, et al. Fear of falling after hip fracture: a systematic review of measurement instruments, prevalence, interventions, and related factors. J Am Geriatr Soc. 2010;58(9):1739–1748.

[41] Crotty M, Whitehead CH, Gray S, et al. Early discharge and home rehabilitation after hip fracture achieves functional improvements: a randomized controlled trial. Clin Rehabil. 2002;16(4):406–413.

[42] Ziden L, Frankin K, Kreuter M. Home rehabilitation after hip fracture. A randomized controlled study on balance confidence, physical function and everyday activities. Clin Rehabil. 2008;22(12):1019–1033.

[43] Taylor NF, Barelli C, Harding KE. Community ambulation before and after hip fracture: a qualitative analysis. Disabil Rehabil. 2010;32(15):1281–1290.

[44] Salpakoski A, Tormakangas T, Edgren J, et al. Effects of a multicomponent home-based physical rehabilitation program on mobility recovery after hip fracture: a randomized controlled trial. J Am Med Dir Assoc. 2014;15(5):361–368.

[45] Mundi S, Chaudhry H, Bhandari M. Systematic review on the inclusion of patients with cognitive impairment in hip fracture trials: a missed opportunity? Can J Surg. 2014;57(4):E141–E145.

[46] Beuscher L, Grando VT. Challenges in conducting qualitative research with individuals with dementia. Res Gerontol Nurs. 2009;2(1):6–11.

[47] Porter ME. What is value in health care? N Engl J Med. 2010;363(26):2477–2481.

[48] Rasmussen B, Uhrenfeldt L. Establishing well-being after hip fracture: a systematic review and Meta-synthesis. Disabil Rehabil. 2016;38(26):2515–2529.

[49] Williams N, Hardy BM, Tarrant S, et al. Changes in hip fracture incidence, mortality and length of stay over the last decade in an Australian Major Trauma Centre. Arch Osteoporos. 2013;8(1–2):150.

[50] Salkeld G, Cameron ID, Cumming RG, et al. Quality of life related to fear of falling and hip fracture in older women: a time trade off study. BMJ. 2000;320(7231):341–346.

[51] Lloyd A, Kendall M, Starr JM, et al. Physical, social, psychological and existential trajectories of loss and adaptation towards the end of life for older people living with frailty: a serial interview study. BMC Geriatr. 2016;16(1):176.

[52] Deeks JJ, Higgins JPT, Altman DG, et al., editors. Chapter 10: Analysing data and undertaking meta-analyses. In: Higgins JPT, Thomas J, Chandler J, et al., editors. Cochrane handbook for systematic reviews of interventions version 6.2 (updated February 2021). Cochrane, 2021. Available from: www.training.cochrane.org/handbook.

[53] Hall AJ, Watkins R, Lang IA, et al. The experiences of physiotherapists treating people with dementia who fracture their hip. BMC Geriatr. 2017;17(1):91.

[54] World Health Organization. The World Bank. GDP growth (annual %); 2020 [cited 2021 Jun 29]. Available from: https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG