

BMJ Open Quality **What factors affect early mobilisation following hip fracture surgery: a scoping review**

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ABSTRACT

Objectives Identify and evaluate factors affecting early mobilisation on the day following hip fracture surgery.

Design Mixed methods, scoping review.

Data sources MEDLINE, AMED, CINAHL, APA PsycINFO, APA PsycArticles, ISRCTN, Clinical Trials registry and grey literature accessed in November 2022 with publication dates between 2001 and November 2022.

Eligibility criteria English language publications that:

1. Include patient populations who sustain a fragility hip fracture managed surgically
2. Include patient populations who are mobilised out of bed on the day following their hip fracture surgery
3. Report factors which influence the ability to undergo early mobility postsurgery

Data extraction and synthesis One reviewer screened all titles and abstracts for inclusion. Two reviewers performed data extraction and quality assessments using the relevant Critical Appraisal Skills Programme tools and the Mixed Methods Appraisal Tool.

Results 3337 papers were identified, of which 23 studies were eligible for review, representing 210811 patients. The heterogeneity in the types of study included, the definition of early mobilisation and the outcome measures used precluded meta-analysis. 13 factors were identified as having an effect on whether people were mobilised on day 1 post-hip fracture surgery, grouped into 5 principal themes: (1) healthcare setting or worker-related factors, (2) patient psychological factors, (3) acute patient health factors, (4) non-acute patient health factors and (5) surgical factors.

Conclusions There was a paucity of robust research investigating day 1 mobilisation post-hip fracture surgery. Each of the five factors identified is potentially modifiable through service improvement change and innovation strategies. There is an opportunity to explore how service provision change could be implemented to improve outcomes for all patients following hip fracture surgery demonstrating the clinical and cost benefits of these changes against the cost of delivering the change.

INTRODUCTION

Delayed mobilisation following hip fracture surgery is detrimental to patients and health systems with prolonged hospital stay,¹ decreased function² and increased mortality.³⁻⁶ There are established national guidelines promoting early mobilisation out of bed on the day following their

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Delayed mobilisation following hip fracture surgery is detrimental to patients and health systems, but despite established national guidelines and metrics promoting early mobilisation, there is large variation nationally in achieving this. The factors affecting this variation have not yet been reviewed.

WHAT THIS STUDY ADDS

⇒ We identified five themes that impact on early mobilisation, highlighting a lack of inclusivity for patients with dementia and a lack of unified definition for early mobilisation.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Three of the five themes identified, acute health factors, patient behaviour and healthcare worker behaviour, could be readily implemented into practice, such as education and training programmes to the wider multidisciplinary team, to help reduce the variation in achieving this important metric.

hip fracture surgery, to improve survival rate and reduce the negative sequelae of prolonged bed rest.^{7,8}

The UK HipSprint audit in 2017⁹ found significant variation in practice. 68% of patients were mobilised out of bed on the day following their hip fracture surgery, but 7% of Trusts achieved this in less than half their patients.⁹ It is important to gain a greater understanding of the reasons affecting early mobilisation after hip fracture surgery to help reduce this variation not only in the UK but also worldwide.

To our knowledge, no previous literature review has determined what factors relate to successful mobilisation out of bed on the day following their hip fracture surgery. The purpose of this scoping review was to identify and evaluate factors affecting early mobilisation which we have defined as ‘mobilisation on the day following hip fracture surgery’.

METHODS

A mixed-methods, scoping review was reported in accordance with the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) extension for Scoping Reviews guidelines¹⁰ (online supplemental file 1). A scoping review is the most appropriate choice of methodology when identifying available evidence, clarifying key definitions and identifying key factors and knowledge gaps in the literature.¹¹ A scoping review was well suited to this work. While evidence is available assessing factors which affect early mobility, the extent, range and nature of the literature have not yet been mapped, and this mapping exercise is required to identify and analyse knowledge gaps.

Identification

A systematic search in MEDLINE, AMED, CINAHL, APA PsycINFO and APA PsycArticles was undertaken simultaneously using the EBSCOhost platform from January 2001 to November 2022. The final database search was completed on 1 November 2022. Additional citation searching was undertaken by manually screening included articles in the reference lists. The full search strategy can be seen in online supplemental file 2. The search in ISRCTN registry, Clinical Trials registry, Google search engine, Chartered Society of Physiotherapy conference proceedings and professional contacts through Twitter was also completed on 1 November 2022. This search strategy can be found in online supplemental file 3.

Eligibility

The inclusion criteria were studies which:

1. Include patient populations who sustained a fragility hip fracture managed surgically
2. Include patient populations who were mobilised out of bed on the day following their hip fracture surgery
3. Report factors which influenced the ability to undergo early mobility postsurgery

Since factors for enabling early mobilisation could be presented across both quantitative and qualitative study designs, the following study designs were eligible for inclusion: qualitative, randomised controlled trial (RCT), cohort, cross-sectional and case-control studies.¹² Inclusion was limited to English language, but there were no restrictions on the country of the origin of papers. The search was limited to studies published after 2001 as including just the last 20 years results in no loss of relevant studies compared with including the last 40 years.¹³

Screening

One reviewer (RG) screened all identified titles and abstracts. Relevant full-text studies were obtained and reviewed for eligibility before being included. All data were extracted by one reviewer (RG) and independently

peer reviewed (KL or CW) to challenge the extraction and creation of data points to improve validity.

Data were extracted from each eligible study. This included the number of participants, age, gender, the presence of dementia or cognitive impairment, the definition of early mobilisation, outcome measures, identified factors related to early mobilisation and study quality.

Quality appraisal

The Critical Appraisal Skills Programme and Mixed Methods Appraisal Tool were used to appraise the methodological quality of included studies (online supplemental file 4). The level of evidence in the evidence hierarchy was assigned to each paper.¹⁴ This was undertaken by the first reviewer (RG) and independently verified by the second reviewer (KL or CW). Discrepancies between reviewers with respect to study eligibility, data extraction or methodological assessment were resolved through discussion until consensus was reached.

Data synthesis

Data were synthesised through a narrative analysis approach due to the study (eg, audit, RCT and cohort) and population (ie, perioperative pathway, comorbidities and concomitant treatments) heterogeneity across included studies (online supplemental file 1: [table 1](#)). This approach was used to determine what factors were associated with patients commencing early mobilisation following hip fracture surgery. Discussion on the narrative analysis themes was made across the reviewers to ensure agreement of the origin and interpretation of these to the research question.

RESULTS

A summary of the search results is presented in the PRISMA flow diagram¹⁵ ([figure 1](#)). From 3337 citations, 23 met eligibility criteria and were included in the analysis.^{16–37}

The characteristics of the included studies are presented in online supplemental file 5: [table 1](#). Data were included from 23 studies recruiting 210811 patients. The average patient age was 81.9 years in the 17 papers that included these data.^{16–19 21–24 26 27 29–31 35–38} 73% of patients were female, in the 19 papers that stated sex,^{17–27 29–31 35–38} and 38% of patients had dementia or cognitive impairment, in the 12 papers that included these data.^{19 21–23 27 29 30 34–37} (online supplemental file 5: [table 1](#)).

A summary of the individual items from the critical appraisal evaluation is presented in [table 1](#). To summarise, the included studies consisted of 2 RCTs of moderate quality,^{16 17} 2 qualitative study of high quality,^{36 37} mixed-methods study of high quality³⁸ and 18 observational studies. Of these, 5 of the 13 prospective studies were of high quality,^{19 23 24 27 30} and 8 were of moderate quality.^{18 21 24 26 31 32 34} Two of the five retrospective studies were of high quality,^{20 22} two were of moderate quality^{28 33} and one was of low quality.²⁹

Table 1 Critical appraisal of included studies using Critical Appraisal Skills Programme tools and Mixed Methods Appraisal Tools

Author and year	Study design	Level of evidence	Appraisal tool	Appraisal outcome**†												Overall appraisal score	
				1	2	3	4	5	6	7	8	9	10	11	12		
Rowlands <i>et al</i> ¹⁶	Prospective single-centre RCT	II	CASP – RCT	Y	Y	Y	N	Y	Y	CT	Y	CT	N	CT	N	11	Moderate
Bielka <i>et al</i> ¹⁷	Prospective single-centre RCT	II	CASP – RCT	Y	Y	Y	N	Y	CT	CT	CT	CT	N	CT	CT	Y	Moderate
Bell <i>et al</i> ¹⁸	Prospective audit	IV	CASP – cohort	Y	Y	Y	CT	N	CT	CT	Y	CT	CT	CT	CT	11	Moderate
Said <i>et al</i> ¹⁹	Prospective audit	IV	CASP – cohort	Y	Y	CT	Y	Y	Y	Y	Y	CT	CT	CT	CT	Y	High
Farrow <i>et al</i> ²⁰	Retrospective cohort	IV	CASP – cohort	Y	Y	Y	CT	N	Y	Y	Y	Y	Y	Y	Y	Y	High
Snowdon <i>et al</i> ²¹	Prospective cohort	IV	CASP – cohort	Y	Y	CT	CT	CT	Y	CT	Y	CT	CT	CT	N	CT	Moderate
Ogawa <i>et al</i> ²²	Retrospective longitudinal cohort	IV	CASP – cohort	Y	Y	Y	Y	CT	CT	CT	CT	CT	Y	CT	CT	CT	High
Munter <i>et al</i> ²³	Prospective observational cohort	IV	CASP – cohort	Y	Y	CT	CT	Y	CT	CT	Y	CT	N	CT	Y	Y	High
Buecking <i>et al</i> ²⁴	Prospective observational cohort	IV	CASP – cohort	Y	Y	Y	Y	Y	CT	Y	Y	Y	Y	CT	Y	CT	High
Kristensen <i>et al</i> ²⁵	Prospective audit	IV	CASP – cohort	Y	Y	CT	CT	N	CT	Y	Y	CT	CT	CT	CT	CT	Moderate
Dubljanin-Raspopovic <i>et al</i> ²⁶	Prospective cohort	IV	CASP – cohort	Y	Y	Y	Y	N	CT	CT	Y	Y	CT	CT	CT	CT	Moderate
Barone <i>et al</i> ²⁷	Prospective cohort	IV	CASP – cohort	Y	Y	Y	Y	CT	CT	CT	Y	Y	Y	Y	CT	Y	High
Oluseye <i>et al</i> ²⁸	Retrospective audit	IV	CASP – cohort	Y	Y	Y	CT	N	CT	Y	CT	Y	N	CT	Y	CT	Moderate
Johansen <i>et al</i> ²⁹	Retrospective audit	IV	CASP – cohort	Y	Y	N	N	N	CT	CT	N	CT	N	CT	CT	CT	Low
Ogawa <i>et al</i> ³⁰	Prospective cohort	IV	CASP – cohort	Y	CT	Y	CT	N	Y	Y	Y	Y	Y	N	CT	CT	Moderate
Matharu <i>et al</i> (2022) ³⁰	Prospective cohort	IV	CASP – cohort	Y	Y	Y	Y	Y	Y	Y	CT	CT	CT	CT	CT	CT	High
Grey <i>et al</i> ³²	Prospective audit	IV	CASP – cohort	Y	CT	CT	Y	N	Y	Y	CT	CT	N	CT	Y	CT	Moderate
Halliday <i>et al</i> ³³	Prospective audit	IV	CASP – cohort	Y	Y	CT	Y	N	Y	Y	CT	CT	N	CT	Y	CT	Moderate
Buck <i>et al</i> ³⁴	Prospective audit	IV	CASP – cohort	Y	CT	CT	N	N	N	Y	Y	CT	N	CT	Y	CT	Moderate
Foss <i>et al</i> ³⁵	Prospective audit	IV	CASP – case control	Y	Y	Y	CT	CT	CT	CT	CT	CT	N	CT	CT	11	Moderate
Volkmer <i>et al</i> ³⁶	Qualitative, semistructured interviews	VI	CASP – qualitative	Y	Y	Y	Y	Y	CT	CT	CT	CT	Y	Y	Y	10	High
Southwell <i>et al</i> ³⁷	Qualitative, semistructured interviews	VI	CASP – qualitative	Y	Y	Y	Y	Y	Y	Y	Y	CT	Y	Y	Y	Y	High
				1.1	1.2	1.3	1.4	3.1	3.2	3.3	3.4	5.1	5.2	5.3			

Continued



Table 1 Continued

Author and year	Study design	Level of evidence	Appraisal tool	Appraisal outcome*†							Overall appraisal score				
Haslam-Lamer et al ³⁸	Qualitative and quantitative	VI	MMAT	Y	Y	Y	CT	Y	Y	N	N	Y	Y	Y	High

*Questions 1–12 taken from CASP critical appraisal tools and questions 1, 1–5, 3 taken from the MMAT critical appraisal tool.
 †Y=yes, N=no, CT=cannot tell (taken from CASP and MMAT critical appraisal tools in online supplemental file 4, CASP, Critical Appraisal Skills Programme; MMAT, Mixed Method Appraisal Tool; RCT, randomised controlled trial.

Thirteen factors, were identified. These were categorised into five overarching themes (table 2).

DISCUSSION
Study quality

The majority of papers were single-site, observational studies, and less than half were appraised as high methodological quality. This may limit the ability to demonstrate causality, and the heterogeneity of outcome measures and definitions of what constitutes ‘early mobilisation’ makes comparison between studies difficult. Petticrew *et al*³⁹ state that methodology can be a weak influence on policy makers who do not always consider the strength of evidence, preferring to examine the strength of the signal or trend of the evidence. We would suggest that a qualitative approach to identify these factors and clearer definitions of what defines early mobilisation in future observational studies may help to improve this issue.

Some of the barriers to early mobilisation such as age or previous function may be less impactful if all methods of transfer were included to enable patients to move from their bed to chair instead of some high-level definitions such as being able to mobilise five metres. By including all definitions of early mobilisation, and not restricting papers to those using the UK National Hip Fracture Database (NHFD) definition,⁷ we may be incorrectly highlighting the importance of some of these factors in relation to our specific question. The definition of what ‘early mobilisation’ entails needs further exploration in order to better measure this outcome.⁴⁰

Definitions

The universal definition of early mobilisation was not typically used by the studies in this systematic review. The universally accepted definition is provided by the NHFD; however, only seven studies in this systematic review used this definition.^{28 30 32–34 36 37} Others used the Cumulated Ambulation Score (CAS)^{16 22 23 31 35} or their own self-defined criteria.^{17–21 24 25 27 29 38} This impacts on the ability to identify barriers to mobilisation which is important because a barrier in one study which defines early mobilisation as being able to walk two metres may not be a barrier in a study which defines the same as being able to hoist from a bed to a chair.

Five key themes were identified in this review; health-care setting and/or worker-related, patient psychological, non-acute patient health, acute patient health and surgical factors. When considering the wider context of these themes, they essentially reside within the wider context of 7-day care services, workforce, training, metrics and conflict, and impact on clinical care provision.

7-day care services and workforce

There is a need for 7-day care services across the National Health Service, with benefits focusing on removing variation of outcomes and increasing patient safety and provision of quality care throughout the week.⁴¹ This review’s

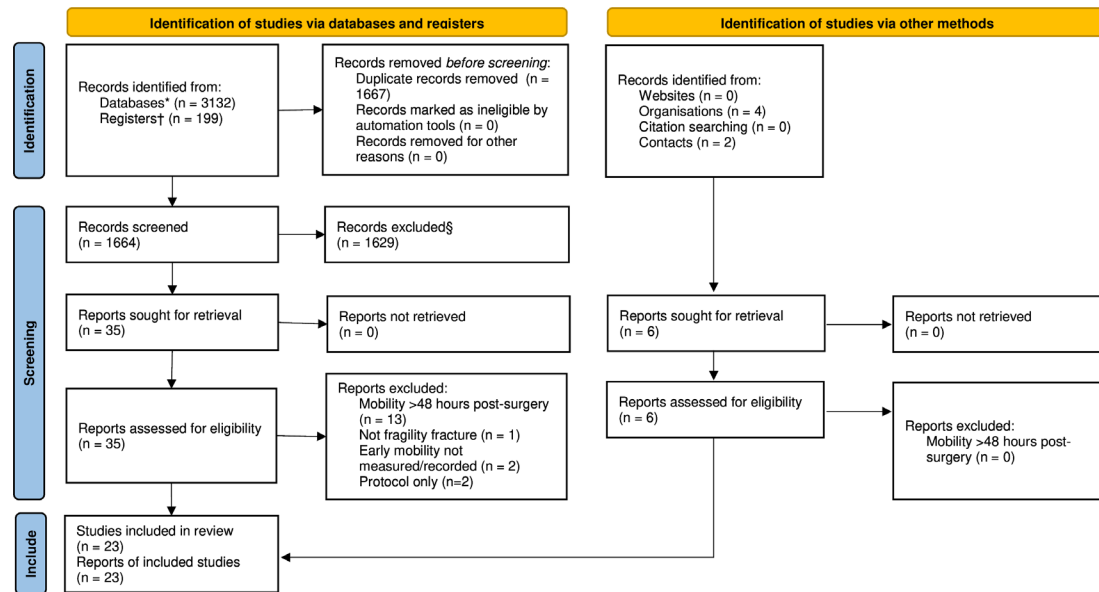


Figure 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram. *Databases: MEDLINE, AMED, CINAHL, APA PsycINFO, APA PsycArticles. †ISCRTN registry, Clinical Trials registry. ‡Google search engine, Chartered Society of Physiotherapy conference proceedings, professional contacts via Twitter. §Inclusion criteria: (a) recruited patient received/clinician treated fragility fracture managed surgically, (b) presented data provided for factors that impacted on patient ability to receive mobilisation and (c) investigated early mobilisation, defined as mobilisation within 48 hours postsurgery.

findings support the need for improved 7-day working and staffing to support this as inequalities remain. Early mobilisation is negatively impacted by weekend admission to hospital^{20 27} and pre-natal holiday, that is bank holiday surgery was a significant predictor of non-compliance with early mobilisation.²⁷ Patients admitted on Thursday or Friday were significantly less likely to achieve early mobilisation compared with those admitted on a Monday (1.77 or 1.48, respectively). A reduction of available resources at weekends is cited as reason for the discrepancy.^{20 27} Further research is required to explore the potential causality of weekend surgery and reduction in out-of-bed statistics with a view to improving equity of care throughout a 7-day service.

While it is in the interest of quality and safe care to develop a robust 7-day working service for the benefit of patients, the current workforce capacity and capability present a challenge to allowing this to happen successfully.⁴² This is important because a move to a 7-day service with no investment in staffing requires a reallocation of existing staff working hours between the week and the weekend, thus spreading the existing workforce thinly. In cases of sickness or annual leave, workforce numbers are further compounded leaving departments under-resourced.⁴³

There is a positive correlation between the presence of physiotherapist and patients being more likely to be successfully mobilised earlier/early.²⁹ Patients not assessed by a physiotherapist were three times less likely to mobilise day 1 than those who were assessed by a physiotherapist.²⁹ One reason for this could be perceived a risk, as non-therapist staff perceived manual handling as one of the top three risks to mobilising patients in the

first 48 hours postsurgery.¹⁹ This may be due to perceived role, fear of mistakes/harm and litigation, and/or lack of confidence and competence in non-therapist staff. Post-operative mobilisation may be seen as a single profession activity by professions other than physiotherapists, rather than a 'care delivery' approach,³⁶ which can negatively impact on early mobilisation in the absence of the physiotherapist.²⁹ Activities of daily living, including mobilisation, reside in the role of all healthcare professionals. There is evidence suggesting a fear of litigation towards healthcare professionals,¹⁸ although the perspectives of staff and reasons behind it in isolation are unknown. These perceived risks may contribute further to the perception of mobilisation being beyond their job role or scope and therefore remain a 'physiotherapist's task'. There were also limited data throughout this review for the treating therapists' experience levels, limiting the ability to infer if this barrier is related to training or resource. Training and education of roles, remits, skills and theoretical knowledge are an important factor for a truly multidisciplinary approach to supporting patients out of bed on day 1 postoperatively.³⁶

Our review did not reveal an impact of mode of anaesthesia on mobilisation on the day after surgery. A large, prospective cohort study using the NHFD data to identify the impact of either general or spinal anaesthetic found no statistically significant difference in day 1 mobilisation rates between the groups ($p=0.156$).²⁹ One RCT found no significant difference in rates of mobilisation between groups receiving femoral nerve block compared with titrated oral morphine ($p=0.76$).¹⁵ Another RCT did not statistically analyse psoas block with spinal compared with general anaesthetic.¹⁶ However, they did report a clinically

**Table 2** Range of factors which affect successful mobilisation out of bed on the day following hip fracture surgery

Factors affecting early mobilisation		Overall appraisal score*
Theme 1: surgical factors	Timing of surgery	Weekend admission ²⁰ High
		Weekend surgery ²⁷ High
		Time to surgery (with cognitively intact pts) ²² High
		Time to surgery (with cognitively intact pts) ²⁸ Moderate
	Approach to surgery	High volume unit ²⁵ Moderate
		Mode of anaesthesia ¹⁶ Moderate
		Mode of anaesthesia ¹⁷ Moderate
		Mode of anaesthesia ³⁰ High
Theme 2: non-acute patient health factors	Age	Age ¹⁸ Moderate
		Age ¹⁹ High
		Age ²⁷ High
	Diet	Obesity ¹⁸ Moderate
		Malnutrition ¹⁸ Moderate
	Previous function	New Mobility Score ¹⁹ High
		Previous function (with pts with dementia) ²² High
		Low preadmission Barthel Index ²³ High
		Low preadmission Barthel Index ²⁷ High
		Preadmission function ³⁸ High
		Cognitive status
	Cognitive impairment ²⁷ High	
	Cognitive status ³⁸ High	
Theme 3: acute patient health factors	Mental status	Delirium ¹⁹ High
		Confusion ¹⁹ High
		Fatigue ²³ High
	Pain	Pain ²³ High
		Pain ²⁶ Moderate
		Pain ¹⁷ Moderate
		Pain ³¹ Moderate
	Medical	Hypotension ¹⁹ High
		Anaemia ³⁵ Moderate
Theme 4: patient psychological factors	Patient engagement	High depression score ²⁴ High
		Patient declined ¹⁹ High
		Low patient and carer engagement ¹⁶ High
		Self-determination ³⁷ High
		Patient understanding
	Patient perception of early mobility ³⁸ High	

Continued

Table 2 Continued

Factors affecting early mobilisation		Overall appraisal score*	
Theme 5: healthcare setting and/or worker-related factors	Expertise in mobilisation	Manual handling risk/staffing ¹⁹	High
		No physiotherapy assessment ²⁰	Low
		Type of clinical supervision ²¹	Moderate
		Conflict in provision of best practice ²⁶	High
	Multidisciplinary team	Low MDT engagement ³⁰	High
		Healthcare worker attitudes and behaviours ³⁷	High
		Ward staff education ³²	Moderate
		Ward staff education ³³	Moderate
		Ward staff education and confidence ³⁴	Moderate
		Engagement with service improvement ³⁶	High

*High, moderate and low overall appraisal scores taken from Table 1. Critical appraisal of included studies using CASP and MMAT appraisal tools.

MDT, multidisciplinary team; pts, patients.

significant difference in the ability to commence mobilisation out of bed the day after surgery between groups, with 13% in the psoas group mobilising compared with 0% in the other groups.¹⁶ The meta-analysis of the two RCTs was not completed due to the heterogeneity of the designs and measures used.

Training and education

The wider multidisciplinary team (MDT) can influence the implementation of early mobilisation. Such support may be given in the form of training, providing it is specific to the perceived barriers/tailored to meet staff needs.⁴⁴ This review provides insight into some challenges as viewed by staff groups and can be used to investigate training needs at a local level.

Nurses, for example, tend to focus on patients' 'medical unwellness'³⁷ with their focus on maintaining medical stability. Clinical factors may, however, be potentially modifiable. For example, although there were no statistically significant findings to support this, hypotension¹⁹ and anaemia³⁵ were identified as modifiable medical barriers to mobilisation. Where nurses are able to address modifiable clinical factors, they may be better able or more confident to mobilise patients early or support the wider MDT to mobilise patients earlier by optimising potential medical barriers to achieving this. Qualitative or mixed-methods research is required to explore this further.

Patients also have negative perceptions of early mobility.³⁸ Many patients reported fearing damage, feeling overwhelmed and holding a belief that it was 'too early',³⁷ and this was reflected in the behaviours of over 10% of patients who declined to engage with physiotherapy and did not mobilise.¹⁹ If nervousness of a caregiver is combined with the reluctance of a patient to mobilise

early, it may contribute to delayed mobilisation. 66% of patients reported the importance of a positive outlook when dealing with early rehabilitation.³⁸ The importance of self-determination could be improved by giving individuals more information and greater feeling of control over their situation and environment through such interventions as goal setting. Early education and open conversation around the benefits of early mobilisation with both the patient and their caregivers are highlighted.

There was under-representation of those with cognitive impairment, and for those included, some comments were provided by family members as proxy.³⁸ This may not accurately reflect the experience of those with cognitive impairment who were included in this study. Although dementia and other habitual cognitive impairment affect a substantial proportion of the hip fracture population, these patients were omitted, or representation was unknown in 13 of the 21 studies.^{16-19 24-26 28 29 32 33 35 37} In those studies where they are included, early mobilisation is negatively impacted by the presence of a cognitive impairment (p=0.01).²⁷ This is also the case when combined with low pre-morbid function (p=0.01) and when residing in a 24-hour care setting (p<0.001).²³ Healthcare worker perception lent to considering those with cognitive impairment as more difficult to mobilise alone,³⁸ and this perception of requiring two people before attempting to mobilise a patient could present an instant barrier, particularly in times of workforce shortage.

In the presence of delirium, patients are significantly less likely to mobilise in less than 48 hours when compared with after 48 hours postsurgery (p<0.001).¹⁹ This lack of early mobilisation correlates with previous findings related to the impact of postoperative delirium on functional outcomes⁴⁵; however, due to the observational



nature of the study, it is not possible to attribute causality. Studies in this systematic review¹⁸ often did not collect details of preoperative cognitive status or previous level of function, which may confound this variable as an independent factor for early mobilisation.

For junior physiotherapists, there appears to be a link between supervision training style and focus on early mobilisation.²¹ Direct supervision is the provision of care with both the junior and senior physiotherapists present. Indirect reflective supervision is a reflection between the junior and senior physiotherapists after the junior physiotherapist alone has provided the care. Where direct supervision is provided, there is increased involvement and engagement in early mobility in supervised therapists³⁶ suggesting the importance of direct supervision and engagement to achieve successful engagement and clinical outcomes. This is worth considering when strategies are implemented to try and change the behaviour of the MDT in relation to early mobilisation.

Three conference papers in the past 12 months demonstrated how improved MDT awareness, training and engagement through the use of service improvement can positively impact on early mobilisation.³²⁻³⁴ These papers used NHFD⁷ and Hip Sprint⁹ data to focus on reducing variation in early mobilisation through the use of healthcare assistant education, training and confidence^{32,34} and greater MDT emphasis on patient symptoms rather than objective measures alone, for example haemoglobin and blood pressure.³³ This may help to address the reported staff reluctance to engage in early mobilisation due to perceived 'medical unpredictability' in non-symptomatic patients³⁸ or due to the perception that early mobilisation is the role of just one profession.^{29,36,38}

The need to provide training and collective action to engage the wider MDT in early mobilisation is essential.³⁶ Engagement at a system-level, which is perceived by clinicians as an insurmountable barrier, is required.³⁶ If achieved, this could help to accelerate better MDT awareness, training and engagement in a joined up care delivery approach. The need to invest in resources, such as time for more direct supervision, training and funding also needs to focus on physiotherapists themselves and not just the wider MDT.

Metrics and conflict

The desire or need to achieve key metrics and government set targets was noted in relation to performance and associated funding streams.^{21,36} The focus on targets directly conflicts with the ability to provide person-centred care,^{21,36} particularly in the context of a depleted workforce. A physiotherapist achieving target numbers may result in a high number of patients seen but a lower level of patient experience or time allocation. Conversely, a physiotherapist who focuses on time and experience may not achieve the target numbers.

A reduced rate of early mobilisation was noted in high volume (surgery) units, relative risk (RR) 0.89 (95% CI 0.85 to 0.93), with an increased rate in medium-size units, RR 1.09

(1.05 to 1.14),²⁵ compared with low volume units. Patient demographic information were lacking between the cohort groups, and the definition of 'high/medium/low' volume units was not standardised. In these instances, it could be considered that one target is being met (surgery), while another (mobilising) is not. It can be easy to fall into a trap of 'blame' or negative culture and working environment where these conflicts exist, with staff challenging each other instead of the system. The healthcare worker or setting in which the healthcare is being provided makes this balance an act which directly impacts patient care and staff morale.³⁶ Embracing strategies for MDT-designed service improvement may help to address all the above-identified system barriers to early mobilisation.

We must also be clear that mobilisation on the day after surgery is only one component of established gold standard practice for this patient group,^{7,8} and this package of best practice metrics requires organisational and MDT 'buy-in'. There may be conflict and resource constraints which impact on the overall achievement of the gold standard practice and not just early mobilisation on the day after surgery. This was outside of the scope of this review, but not exploring this could be considered a limitation to the study.

Patient engagement

Southwell³⁷ found a strong reliance among patients for professionals to support and help to improve their recovery postsurgery. Resources and time available to support patients in the early stages postsurgery are being continually stretched, but the important elements of education and empowerment are clearly needed and valued by patients. This will be an important consideration for clinicians and researchers to address, particularly as the reliance on advice was not restricted to allied health professionals such as physiotherapists but extended to the wider MDT.³⁷

Beucking *et al*²⁴ found that higher score on the geriatric depression scale was significantly associated with a reduction in the frequency of early mobilisation postsurgery ($p=0.012$). Depression has been reported to be associated with reduced engagement in physical activity.⁴⁶ Improved engagement and shared decision-making with patients can help to establish realistic expectations and engagement³⁶ suggesting that time spent by healthcare workers to engage and empower patients may be an important factor to improve early mobilisation.

LIMITATIONS

While offering new insights into the early rehabilitation of people following hip fracture, there are some key limitations. First, all data were extracted by one reviewer (RG) due to time constraints but were independently peer reviewed (KL or CW) to challenge the extraction and creation of data points to improve validity. This may introduce selection bias. Second, we limited our inclusion criteria to English language due to resource constraints. This may limit generalisability and introduce publication bias through potentially omitting relevant non-English language publications.

There was also a limitation with how we operationalised our second inclusion criteria, ‘those mobilised out of bed on the day following their hip fracture surgery’. With the inclusion of studies where first mobilisation was recorded using CAS and therefore could have taken place after the day following surgery, this could be seen as a limitation of our review. However, by including these studies, we were able to identify important factors which may have been omitted and could affect mobilisation within the first 48 hours, which are valuable learning points to support clinicians in overcoming barriers or enhancing practice to enable initial mobilisation after surgery.

Finally, the results of this review and the impact of early mobilisation on patient outcomes are just one part of a multifactorial package designed to improve clinical outcomes and must be considered as this limits our ability to comment on the wider organisational context and factors related to the gold standard guidance for the hip fracture population that the early mobilisation metric is embedded within.

FUTURE STUDY

The lack of patients presenting with cognitive impairment in the included studies is an important consideration when interpreting the data, and it will be important for future studies to consider greater inclusion of this growing hip fracture demographic to improve generalisability to the whole hip fracture population. It must also be remembered that this is a complex patient population. Due to the age of this patient cohort, multimorbidity is common⁴⁷ and likely to impact on all other factors identified in this review. The inclusion of many observational cohort studies makes it difficult to determine causality or inter-relatedness of factors. For example, two papers^{29,30} found that the presence of cognitive impairment alone does not significantly impact early mobilisation, but when combined with low pre-morbid function, there is a significant negative effect. The conduct of further studies using a qualitative, mixed-method and randomised controlled trial approach would be beneficial to further explore this clinically important topic.

Sheehan *et al*¹ recommend that mobilisation within 36 hours should be part of the UK Best Practice Tariff to address the current delay seen in around 20% of patients with hip fracture. This would add a financial incentive to the existing clinical benefits of achieving this metric¹⁻⁸ and makes the case for understanding the reasons this metric is not achieved even more important for healthcare workers, services and commissioners.

CONCLUSION

Five themes were identified: surgical factors, non-acute patient factors, acute patient health factors, patient psychological factors and healthcare setting or worker-related factors.

Each of these factors is potentially modifiable through service improvement change and innovation strategies.

There is an opportunity to explore how service provision change could be implemented at a regional and national level to improve outcomes for all patients following hip fracture surgery demonstrating the clinical and cost benefits of these changes against the cost of delivering the change.

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