# Evaluating recovery following periprosthetic fracture

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## INTRODUCTION

**Femoral Periprosthetic Fractures** (PPF) are complex fractures in or around a previous orthopaedic implant such as a total hip or total knee replacement (1)

There is an **ever-increasing incidences** of between **5-18%** of femoral periprosthetic fractures **annually** (2) with **higher instances** in populations with **higher social deprivation** (3).

Compared to other orthopaedic injuries Periprosthetic fractures are **associated with** (4):

- Prolonged hospital length of stay
- Poor quality of life measures
- Poor physical functional outcomes
- High mortality and disability rates
- Post operative complications

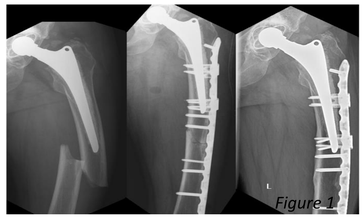


*Figure 1*

Poor social health, also known as **social deprivation**, has been associated with a **negative impact** on **physical** and **mental health outcomes** in orthopaedic injuries following surgery (5); however, its **impact on patient experiences** following a periprosthetic fracture is **not yet accounted for**, namely:

1. Experience of injury
2. Experience of surgery + post-operative care
3. Impact of injury
4. What is important during patient recovery?

## RESEARCH QUESTION / THEORETICAL FRAMEWORK

The ambition is to develop **further understanding of the patient experience** and priorities that could build on the existing qualitative evidence base to inform the decision-making process for **selecting appropriate domains when evaluating periprosthetic fracture recovery**. It also aims to provide **basis for better targeted care** and **education for patients** following any femoral orthopaedic surgery**, particularly those from increased socially deprived backgrounds**, healthcare planning and provide basis for future targeted research to **improve patient care pathways,** and generally review quality of care and outcomes for this cohort of patients.

## AIMS & OBJECTIVES

**Aims**:

1) How do patients experience recovery from a periprosthetic fracture and what is important to them?
2) Does socio-demographic deprivation influence patient experience and priorities during their recovery?

**Objectives:**

1) Explore the patient experience of recovery following a periprosthetic fracture over the course of a year following the injury.
2) Is there variation between population socioeconomic status of the experience of what is considered important in recovery from periprosthetic fracture?

## METHODS

**Qualitative phenomenological approach**

**Recruitment**: 20 participants from a single Major Trauma Hospital in the North-West of England.

**Inclusion/exclusion criteria:**

- Male or Female
- Age between 18 and 100 years old
- Radiographic evidence of femoral PPF
- Has full cognitive capacity
- Not under End of Life Care
- Read and signed PIS and consent form.

**Semi-structured interview** post-operatively and prior to hospital discharge covering:

1. Experience of injury
2. Experience of surgery + post-operative care
3. Impact of injury
4. What is important during patient recovery?

## DATA ANALYSIS

Participants will first be divided into subgroups depending on their social deprivation decile. Interviews will then be transcribed, anonymised, with all identifiable data removed or replaced with pseudonyms with the use of Nvivo® transcription software and checked for accuracy thereafter by the author.

**Baun & Clark's Thematic analysis approach** (Figure 2) will be used to identify themes and a codebook for each sub-group with definitions of themes will then be generated and compared for similarities/differences amongst groups.

Phase 1 – Data familiarisation. → Phase 2 – Systematic data coding → Phase 3 – Generating initial themes from coded collated data → Phase 4 – Developing and reviewing themes → Phase 5 – Refining, defining and naming themes → Phase 6 – Writing the report

*Figure 2*

## HOW INEQUALITIES HAVE BEEN IDENTIFIED

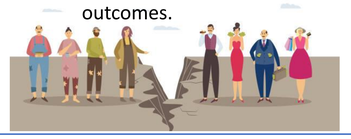
**Service evaluation**

Departmental ongoing neck of femur fracture audit lead to a service evaluation of periprosthetic fractures.

Service evaluation: Higher decile of social deprivation = worse outcomes.

**Anecdotal evidence**

Case exposure on Trauma & Orthopaedics, identifiable patients linked with social deprivation displayed worse clinical symptoms and outcomes.



**Literature review**

Evidence of higher levels of social deprivation links with worse outcomes and poorer injury and healthcare experiences in most orthopaedic injuries.

## ETHICAL APPROVAL & CONSIDERATIONS

Research and Innovation Team guidance and sponsor approval.

Public advisor via research and development department + patient input.

IRAS ethics application for full ethical review.

**Topic& Design:**
Public advisors have inputted into ensuring the research question is relevant and the design is appropriate. Design was consequently changed.

**Interview**

Topic guides for interviews were developed in collaboration with patients with lived experience.

## TIMELINE

| Stage | Activity | Estimated duration | Start date | End date | Deliverable |
|---|---|---|---|---|---|
| Research design and planning | Finalise research problem/questions | 4 weeks | 31.03.22 | 31.04.22 | Confirmed research problems/questions |
| | Develop research design | 2 weeks | 31.04.22 | 14.05.22 | Drat research design section for final report |
| | Prepare research proposal | 4 weeks | 14.05.22 | 14.06.22 | Research proposal/ethical approval submission |
| Literature review | Search, capture and synthesis relevant literature | 2 week | 14.06.22 | 28.06.22 | Notes from other output from review process |
| | Prepare draft literature review | 1 week | 28.06.22 | 05.07.22 | Draft literature review section for final report |
| Data collection | Finalise sampling data | 0 week | 19.07.22 | 19.07.22 | Sampling data |
| | Pre-test/pilot data collect instrument | 0 week | 19.07.22 | 19.07.22 | Finalized data collection instrument |
| | Ethics approval via IRAS | 4 months | 19.07.22 | 15.11.22 | |
| | Carry out data collection | 12 weeks | 15.11.22 | 07.02.23 | Raw data |
| | Write up data collection | 2 weeks | 07.02.23 | 21.02.23 | Draft data collection section for final report |
| Data analysis | Prepare for data analysis | 1 week | 21.02.23 | 28.02.23 | Data ready (e.g., interview transcripts for analysis |
| | Analyze data | 2 weeks | 28.02.23 | 07.03.23 | Notes and other output for analysis |
| | Draw conclusion/recommendations | 1 week | 07.03.23 | 14.03.23 | Drat data analysis and findings section final report |
| Writing up | Final draft of report | 4 weeks | 14.03.23 | 11.04.23 | Final draft |
| | Review draft with supervisor | 1 week | 11.04.23 | 18.04.23 | Notes of feedback |
| | Final editing | 2 weeks | 18.04.23 | 01.05.23 | Final report |
| | Printing, binding and final submission | 1 day | 01.05.23 | 02.05.23 | Final submission of report |

## REFERENCES

1. Sadoghi P, Liebensteiner M, Agreiter M, Leithner A, Bohler N, Labek G (2013) Revision surgery after total joint arthroplasty: accomplication-based analysis using worldwide arthroplasty registers. J Arthroplasty 28(8):1329–1332.
2. Young SW, Pandit S, Munro JT, Pitto RP (2007) Periprosthetic femoral fractures after total hip arthroplasty. ANZ J Surg 77(6):424–428.
3. Della Rocca GJ, Leung KS, Pape HC (2011) Periprosthetic fractures: epidemiology and future projections. J Orthop Trauma 25(Suppl 2): S66–S70.
4. Moreta J, Aguirre U, de Ugarte OS, Jauregui I, Mozos JL (2014) Functional and radiological outcome of periprosthetic femoral fractures after hip arthroplasty. Injury.
5. Gorman E, Chudyk AM, Hoppmann CA, et al. 2013. Exploring older adults; patterns and perceptions of exercise after hip fracture. Physiotherapy. 2013;65:86.
6. 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:e005406
7. Schiller C, Franke T, Belle J, et al. 2015 Words of wisdom – patient perspectives to guide recovery for older adults after hip fracture: a qualitative study. Patient Prefer Adherence. 2015;9:57–64.
8. Dózsai, D., Ecseri, T., Csonka, I. *et al.* 2020. Atypical periprosthetic femoral fracture. *J Orthop Surg Res* **15**, 414.

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