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Patients' perspectives, pain, and health-related quality of life in same-day discharge hip and knee arthroplasty

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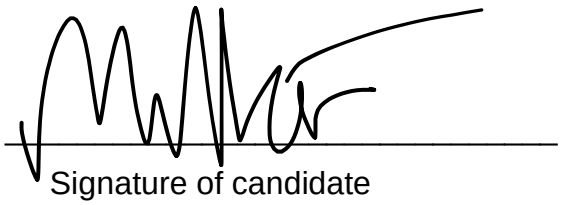
Martin Harry van Heerden

A Dissertation submitted to the Faculty of Healthcare Sciences, The University of the Witwatersrand, Johannesburg, in fulfilment of the requirements for the degree of Masters in Physiotherapy.

Johannesburg, 27th May 2024.

Declaration

I, Martin Harry van Heerden, declare that this Dissertation is my unaided work. It is being submitted for the Masters in Physiotherapy at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University.



Martin Harry van Heerden
Name of candidate

Signature of candidate

On the 27th day of May 2024 in Pretoria.

Dedication

A work such as this is not possible without support from those closest to me.

My children, Adam, Juliet and Zachary, thank you for your patience and understanding, while I spent hours in front of the computer.

Chad, thank you for your patience, for blowing wind into my sails and supporting me throughout the process. I am grateful too for your Microsoft Word skills, grammar tips and for always being willing to listen to my frustrations.

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Presentations arising from this Study

Poster Presentation – South African Society of Physiotherapy Congress, Stellenbosch, 16-18 September 2022.

Poster Presentation – World Physiotherapy Congress, Dubai, 2-4 June 2023

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Publications arising from this Study

No publications yet.

Abstract

Background

International protocols for same-day discharge (SDD) following total hip (THA) and total knee arthroplasty (TKA) have recently been introduced in South Africa. Comparisons between recovery trajectories of THA and TKA patients in traditional length-of-stay models and SDD are limited. The impact of SDD related to pain, health-related quality of life and the patient perspective has yet to be studied in the South African context.

Aim

This study aimed to explore, evaluate, and compare patients' perspectives, experiences, pain, and health-related quality of life (HRQOL) following SDD after THA and TKA.

Method

A mixed-methods design was implemented with a collection of patient-reported outcome measures (PROMs) over six weeks (n=109: 55 THA and 54 TKA) and concluded with semi-structured interviews (n=24: 14 THA and 10 TKA). Participants scheduled for SDD THA and TKA who met the study criteria were selected through convenience sampling. Descriptive and inferential statistics were used, and a thematic analysis of interview data was conducted.

Results

There were significant improvements in PROMs by six weeks postoperatively in both groups. Significant between-group differences revealed persistent neuropathic pain (P=0.536) and worse health-related quality of life scores (p=0.102) in the TKA group. The themes identified highlight positive perspectives of SDD, emphasising unique challenges in the SDD TKA group. Findings indicate that patients undergoing SDD THA and TKA in South Africa produce results comparable to those in international studies.

Conclusion

This research advocates for a holistic approach in SDD THA and TKA, emphasising patient-centric care, effective communication, and preparation. The study contributes insights into this evolving clinical pathway and encourages further research.

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List of Abbreviations

ADL	Activities of daily living
ARP	Advanced rehabilitation pathways
ASC	Ambulatory Surgical Centre
DVT	Deep vein thrombosis
ERAS	Enhanced recovery after surgery
EQ-5D-5L	EuroQol 5-Dimension 5-Level
EQ-VAS	EuroQol Visual analogue scale of overall health
GEE	Generalised estimating equation
HADS	Hospital and Anxiety Depression Scale
HOOS-PS	Hip Injury and Osteoarthritis Score Physical Function Short Form
HRQOL	Health-related quality of life
IASP	International Association for the Study of Pain
IDT	Interdisciplinary team
KOOS	Knee Injury and Osteoarthritis Outcome Score
KSS	Knee Society Score
LLA	Lower limb arthroplasty
LOS	Length of stay
MCID	minimal clinically important difference
NRS	Numeric Rating Scale
OA	Osteoarthritis
OKS	Oxford Knee Score
PASS	patient-acceptable symptomatic state
PROM	Patient-reported outcome measure
RSA	Republic of South Africa
SDD	Same-Day Discharge
SF-MPQ-2	Short-form McGill Pain Questionnaire-2
SPSS	Statistical Package for Social Sciences
TKA	Total knee arthroplasty
THA	Total hip arthroplasty
UKA	Unicompartmental knee replacement
VAS	Visual Analogue Scales
VRS	Verbal Rating Scales

USA	United States of America
WOMAC	Western Ontario and McMaster Universities Osteoarthritis Index

Chapter 1 Introduction

1.1 Background

The development of specific protocols has made it possible to shorten the length of stay after lower limb arthroplasty. Healthcare providers focusing on patient selection, education, and preparation can reduce length of stay (LOS), and discharge can occur within 24 hours of admission. Same calendar day discharge (SDD) following lower limb arthroplasty (LLA) is defined as discharge on the date of surgery incurring no overnight stay (Scully *et al.,* 2020; Gromov *et al*., 2019). The discharge of selected patients from hospitals, day hospitals, and ambulatory surgical centre (ASC) settings has grown in popularity internationally (Scully *et al*., 2020; Hoeffel *et al.,* 2019). However, total knee arthroplasty (TKA) and total hip arthroplasty (THA) as SDD are novel concepts that were recently introduced in the Republic of South Africa (RSA) in 2020.

The traditional length of stay after LLA has a wide reported range in the literature (one – 21 days); in South Africa, traditional length of stay protocols range from four to seven days (Immelman *et al.,* 2018).

The essential elements of an SDD LLA care pathway, according to the American Association of Hip and Knee Surgeons and the American Academy of Orthopaedic Surgeons, include patient selection, patient education and expectation management, good social support, clinical and surgical team experience and expertise, conducive facility environment to optimise surgical outcomes, and evidence-based pathways for pain management, blood conservation, wound management, mobilisation, and venous thromboembolism prophylaxis (Scully *et al*., 2020). Hoeffel *et al*. (2019) echoed these elements, particularly for SDD LLA conducted in ASCs.

Researchers abroad have conducted numerous quantitative studies on SDD LLA. There appears, however, to be limited research on SDD following LLA in South Africa. International studies have addressed the safety, complications, patient-reported outcomes, and efficacy of SDD TKA and THA (Jaibaji *et al.,* 2020; Rosinsky *et al*., 2020; Xu *et al.,* 2020; Gromov *et al*., 2019; Pollock *et al*., 2016; Hawker *et al.,* 2011). SDD LLA is a safe alternative to traditional LOS (Jaibaji *et al*., 2020; Rosinsky *et al*., 2020; Gromov *et al*., 2019). Studies of patient-reported outcome measures (PROM)

have shown an improvement in SDD compared to inpatient or traditional LOS THA (Rosinsky *et al*., 2020). SDD and inpatient LLA complications were comparable (Gromov *et al*., 2019; Pollock *et al*., 2016). Comparative studies between SDD and lengthier stays following LLA have proven SDD after THA and TKA feasible and successful (Scully *et al*., 2020; Goyal *et al*., 2017).

Few qualitative studies have explored SDD LLA. In Canada, Churchill *et al*. (2018) investigated the experiences and perspectives of patients and their primary caregivers after either SDD or inpatient THA. They reported high patient and caregiver satisfaction after the implementation of SDD THA. The authors highlight concerns and challenges regarding patient expectations for recovery, medications and their impact on mobility, timing of postoperative education, availability of formal care, self-care, caregiver support, and pain.

The adverse effects of acute pain related to LLA, as listed by Pinto *et al*. (2017) includes increased hospital stay and cost, the possibility of developing chronic pain, and the detrimental effects on both physiological and psychological states. A study on the early recovery phase in patients after THA and TKA revealed pain as one of several prominent themes (Strickland *et al*., 2018). Similarly, Husted *et al*. (2011) identified pain as one of the leading clinical reasons for an increased LOS after THA and TKA. Pain is one of the most common reasons for failed SDD after THA (Fraser *et al*., 2018). Goyal *et al*. (2017) found more significant pain on the first day after surgery in a SDD THA group when compared to an inpatient group. The reason for this pain was attributed to the increased activity levels required for SDD. The authors suggest that patients may require more counselling regarding pain management and their expectations. Pinto *et al*. (2017) noted that most published evidence comparing THA and TKA postoperative pain is related to chronic postoperative pain, indicating a need for more research in the acute postoperative phase. This highlights the rationale for addressing acute postoperative pain in patients following SDD LLA.

Hoeffel *et al*. (2019) described increased pain immediately postoperatively and 48 hours later in both SDD THA and TKA, the latter reporting greater pain intensity. Similarly, when comparing the differences between THA and TKA, Pinto *et al*. (2017) reported increased pain after TKA. Using postoperative morphine usage as a parameter, Pang *et al*. (2000) found that TKA patients required more morphine than

THA patients in traditional LOS following LLA. The current SDD care pathway related to this protocol prescribes identical postoperative analgesia for THA and TKA. However, Pinto et al. (2017) argued that THA and TKA should at least be approached separately regarding the management of acute postoperative pain. Investigating the differences between the two surgeries concerning acute postoperative pain will shed further light on this subject.

1.2 Problem Statement

International studies have compared SDD with inpatient THA and TKA and have demonstrated that SDD can be performed safely with similar outcomes (Bodrogi *et al*., 2020). Researchers have conducted few qualitative or mixed-method studies to establish the patient's perspective of SDD LLA and link these to numerous quantitative findings.

Pain experienced after SDD in THA and TKA is a frequently identified topic (Churchill *et al.,* 2018; Fraser *et al*., 2018; Strickland *et al.,* 2018; Goyal *et al*., 2017; Husted *et al*., 2011). However, only a few studies have focused on acute postoperative pain after THA and TKA. Furthermore, researchers primarily conducted pain studies on standard LOS LLA but not SDD. Few studies have compared pain experienced after THA and TKA (Pinto *et al*., 2017). This difference suggests that TKA is more painful during the initial stages of recovery (Hoeffel *et al*., 2019; Pinto *et al*., 2017; Pang *et al*., 2000).

There is limited published research on SDD hip and knee arthroplasty in the RSA. The pertinence of SDD THA and TKA in the South African context can be established with reproducible local research using outcome measures, such as those used in international studies.

1.3 Aims and Objectives

This study aimed to explore, evaluate, and compare patients' perspectives, experiences, pain, and health-related quality of life (HRQOL) following SDD after THA and TKA.

The objectives of the study were:

1.3.1 To describe reported pain and HRQOL in the acute and subacute postoperative phases following SDD in the THA and TKA groups.

1.3.2 To compare the reported pain and HRQOL between SDD THA and TKA from the day of discharge to six weeks postoperatively at scheduled intervals after completion of the care pathway.

1.3.3 To explore patient perspectives and experiences related to patient-reported pain and SDD after THA and TKA.

1.3.4 To compare patient perspectives and experiences related to patient-reported pain and the SDD process between THA and TKA.

1.4 Significance

Same-day discharge LLA is a new concept and clinical pathway introduced in the RSA in 2020 (Prinsloo and Keller 2021). It challenges the status quo in the private sector regarding traditional LOS following LLA. The global trend toward universal health coverage continues to gain ground as a major health priority. The transformation of the healthcare system, particularly in the South African context, is being called for to change how healthcare is financed and organised (Michel *et al*., 2019). This study will potentially add to the knowledge base specifically in the South African setting, providing a basis for future research, potentially informing healthcare transformation, and encouraging alignment with evidence-based international trends in LLA.

Outline of this Dissertation

Figure 1.1 provides an overview of the sections and the structure of this dissertation

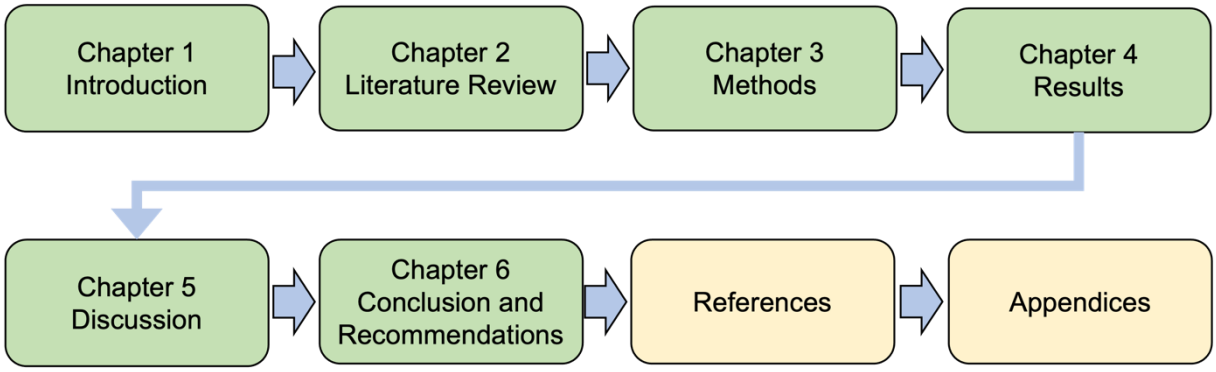


Figure 1.1 Outline of the dissertation

Chapter 2 Literature Review

2.1 Introduction

Chapter Two reviews the concepts related to this study's research aim and objectives. The focus is on hip and knee arthroplasty and the shift toward SDD following arthroplasty. Additionally, the literature regarding pain, the patient's perspective, and health-related quality of life following arthroplasty is explored.

2.2 Search Strategy

Evidence was sourced from online databases, including PubMed, CINAHL, PEDro, Science Direct, and Google Scholar. English articles published between January 2000 and January 2024 were filtered. Given the recent dramatic increase in the occurrence of SDD LLA (Clouette *et al*., 2020), emphasis was placed on more recent publications from 2010 onwards. Keywords and terms used in the search were “arthroplasty”, "same day discharge," "same calendar day discharge," "day surgery," "outpatient surgery," "ambulatory surgery," "enhanced recovery after surgery," "pain", "acute pain," "orthopaedic surgery", "health-related quality of life," "knee arthroplasty", "hip arthroplasty", "postsurgical complications" and "patient perspective." The search terms were supplemented with relevant free text terms. Database searches were complemented by sourcing additional articles by manually reviewing the reference lists of the relevant articles.

2.3 Arthroplasty

Studies have confirmed the safety and efficacy of THA and TKA as the gold standard and definitive treatment for end-stage osteoarthritis (OA) of the hip and knee (Mandl 2013). An ageing population is projected to cause a dramatic increase in the volume of total joint arthroplasty in the United States of America (USA) by 2030. By 2030, projections indicate a 71% increase to 635 000 procedures per year for THA and an 85% increase to 1.26 million procedures per year by 2030 (Sloan *et al*., 2018). Unfortunately, no projections are available for the RSA as relevant registry data have not been recorded since 2015 (mandatory reporting of arthroplasties in SA is not required (Ashforth & Dymond 2023)). However, an ageing population has increased the demand for arthroplasty in keeping with global trends. The RSA public health sector provides healthcare to 84% of the population, and there is increasing pressure on

arthroplasty waiting lists (Sekeitto and Aden 2021). The media has reported waiting lists of up to seven years for total joint arthroplasty (Rahlaga 2016). Sekeitto and Aden (2021) noted the economic burden of traditional LOS arthroplasty and a strained public healthcare budget, indicating the need to reduce costs by shortening LOS. Inpatient admissions were reported to contribute 18,47% of the total costs of primary THA in the public health sector.

The expected increase in LLA due to a growing need in younger, healthier, and more active patient populations, as well as the rising burden on healthcare systems, are driving the shift toward earlier discharge, including SDD options (Sloan *et al*., 2018; Klein *et al.,* 2017; Kurtz *et al*., 2007; Kurtz *et al*., 2009). Advances in surgical techniques, prostheses, anaesthetics, and postoperative care have led to the possibility of shorter LOS following THA and TKA (Stambough *et al*., 2015).

2.3.1 Same-day Discharge Arthroplasty

In this study, SDD refers to patients discharged home on the same calendar day as the procedure. Distinguishing SDD is necessary, as researchers often label discharge within 23 hours after surgery as "outpatient" arthroplasty despite incurring an overnight stay (Bodrogi *et al*., 2020). Inpatient LLA refers to THA or TKA that requires at least one overnight hospital stay (Bovonratwet *et al*., 2017). The essential elements of an SDD LLA care pathway, according to the American Association of Hip and Knee Surgeons and the American Academy of Orthopaedic Surgeons, include patient selection, education, social support, clinical expertise, facility optimisation, and evidence-based pain management (Scully *et al*., 2020).

A clinical care pathway is an operational tool used to ensure best practice. A local and specific interdisciplinary team usually designs the clinical guidelines within a care pathway, ensuring consistent care delivery for a specific condition (Hipp *et al.,* 2016).

Same-day discharge in LLA has shown promise in terms of safety and efficacy, with multiple studies demonstrating comparable complication rates, improved PROMs, improved patient satisfaction, similar readmission rates, and reduced costs compared to inpatient LLA (Almand *et al*., 2022; Lan *et al.,* 2021; Jaibaji *et al*., 2020; Rosinsky *et al*., 2020; Scully *et al*., 2020; Darrith *et al*., 2019; Gogineni *et al*., 2019; Gromov *et al*., 2019; Sershon *et al*., 2019; Hoffmann *et al*., 2018; Shah *et al*., 2018; Toy *et al.,* 2018;

Goyal *et al*., 2017; Parcells *et al*., 2016; Pollock *et al*., 2016). These studies indicated favourable and similar outcomes to traditional LOS; however, one must be aware of their retrospective nature, small study populations, and the potential for researcher bias.

In the last five years, researchers have conducted six systematic reviews and meta-analyses regarding SDD LLA, which will now be discussed chronologically.

Xu *et al*. (2020) compared the postoperative complication rates in outpatients and inpatients following LLA. Subgroup analyses of the THA and TKA groups were also performed. Seven studies were included, including 176 179 inpatients and 1613 outpatients. Overall, outpatient LLA had complication rates comparable to inpatient LLA. The researchers recommended the careful preoperative selection of patients to optimise outcomes.

The Bordoni *et al*. (2020) systematic review and meta-analysis aimed to quantitatively evaluate and compare outpatient TKA complications and readmission rates with inpatient TKAs. Eight studies with 212 632 patients were included. Their findings indicated that outpatient TKAs led to a slightly higher number of complications than inpatient TKA and no difference in readmission rates.

The systematic review and meta-analysis by Bemelmans *et al*. (2022) included 41 studies (totalling 40 758 patients undergoing outpatient LLA) conducted in the USA, Europe, Denmark, and Canada. This study aimed to compare the safety and efficacy of SDD LLA with inpatient LLA pathways. Seven of these studies reported on PROMs which included the Knee Injury and Osteoarthritis Outcome Score (KOOS), Knee Society Score (KSS), Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), Oxford Knee Score (OKS), EuroQoL 5-Dimension 5-Level (EQ-5D-5L), Visual Analogue Scale (VAS) for pain, and various patient satisfaction questionnaires. The review reported similar PROM results when comparing SDD and inpatient LLA.

A meta-analysis of outpatient TKA conducted by Migliorini *et al*. (2021a) aimed to compare inpatient versus outpatient TKA PROMs, infection rates, revision rates, deep vein thrombosis (DVT) incidence, and mortality rates. Ten studies with a total of 159 219 patients were included. Their findings indicated greater rates of revision, mortality,

and DVT in inpatients than in outpatients. The inpatient and outpatient groups had similar OKS, readmission, and infection rates.

The same authors conducted a meta-analysis of outpatient THA (Migliorini *et al*., 2021b). The authors aimed to investigate the potential advantages of outpatient THA. This study included 16 studies with a total of 102 839 patients. The authors found no differences in pain, infections, mortality, revision rates, rates of dislocation, and hospital readmissions. However, the outpatient group had a significantly higher DVT rate.

Li *et al*. (2022) conducted the final systematic review and meta-analysis. The authors aimed to compare mortality, readmission, and complications between SDD LLA and inpatient LLA. Fourteen studies, including 222 766 patients, were included (10 062 SDD and 212 704 inpatients). The results indicated similar mortality and complication rates between the SDD and traditional inpatient LOS groups; however, there was a significantly higher risk of complications in SDD when comparing SDD to enhanced recovery after surgery (ERAS) LLA. Same-day discharge had a lower risk of infection but a higher risk of DVT and renal complications in the comparison.

Further systematic reviews comparing SDD and inpatient LLA studies conducted over the past ten years will be explored below.

A systematic review conducted by Pollock *et al*. (2016) examined the evidence regarding the safety and feasibility of performing LLA on an outpatient basis. Their review included 17 studies with 79 500 patients. Their findings revealed low and comparable complication rates to traditional LOS LLA, no difference in readmission rates, and improved Harris Hip Scores (HHS).

Hoffman *et al*. (2018) included ten publications with 1009 patients. Their review refuted their hypothesis that SDD LLA would lead to increased readmission rates and complications compared with inpatient LLA. Functional assessment scores (PROMs) revealed mixed results, with no differences or significant improvements. The scores used included the KSS, HHS, and VAS for pain.

Bodrogi *et al*. (2020) reviewed observational and interventional research on the effectiveness of SDD LLA. The number of included studies was not reported in their paper. They reported that the safety of SDD LLA, PROM scores, pain scores, and patient satisfaction were equal to those of inpatient LLA. PROMs included KOOS, KSS, WOMAC, OKS, VAS for pain, and HHS. However, the authors highlighted that these findings are relevant to a subset of carefully selected patients.

The systematic review by Jaibaji *et al*. (2020) included 19 studies with 6519 surgeries—the review aimed to assess the complication and reoperation rates of outpatient arthroplasty. Despite the consistently low readmission and reoperation rates, the authors indicate that it is difficult to draw firm conclusions regarding the safety of outpatient LLA from the available data. This is due to the reviewed studies having small study samples and poor methodological designs. Furthermore, studies that were used to compare outpatient arthroplasty with traditional LOS had significant differences in the age and activity levels of participants (outpatient studies had younger and more active participants).

Shapira *et al*. (2021) conducted a systematic review focusing on the analysis of the outcomes of SDD THA and included nine studies with a total population of 683. This review reported significant improvements in pain scores in the SDD THA cohort. At the latest follow-up, on average, HHS achieved a minimal clinically important difference (MCID) and patient-acceptable symptomatic state (PASS).

In their systematic review, Pollock *et al*. (2016) reported that HHS was significantly higher, with low complication rates and no difference in long-term complications between SDD and inpatient groups after surgery. Furthermore, no differences in the readmission rates were observed. Their review included 17 articles with approximately 79,500 patients and focused on the safety and feasibility of SDD for LLA.

A comparison of the findings from these systematic reviews, meta-analyses, and additional literature follows.

When considering readmission rates, most systematic reviews have found similar or equal readmission rates (Bemelmans *et al*., 2022; Shapira *et al*., 2021; Migliorini *et al*., 2021a; Migliorini *et al*., 2021b; Bordoni *et al*., 2020; Bodrogi *et al*., 2020; Li *et al*., 2019;

Hoffmann *et al*., 2018; Pollock *et al*., 2016). Jaibaji *et al*. (2020) reported low readmission rates following SDD LLA.

Migliorini *et al*. (2021b) reported increased revision surgery in inpatient TKA compared to SDD TKA (p=0.03). Conversely, Xu *et al*. (2019) reported increased reoperation rates following SDD LLA (THA and TKA). Low, equal, and no differences between SDD and inpatient reoperation rates have also been reported (Bodrogi *et al*., 2020; Jaibaji *et al*., 2020; Hoffmann *et al*., 2018).

Major and minor complications following SDD LLA were reported to be equal or similar to inpatient LLA (Bemelmans *et al*., 2022; Bodrogi *et al*., 2020; Xu *et al*., 2020; Hoffmann *et al*., 2018; Pollock *et al*., 2016). Li *et al*. (2021) report increased complications after SDD compared to ERAS LLA, listing increased risk of DVT, renal impairment and renal failure. However, they reported a decreased risk of postoperative infections in SDD LLA. Contradictory findings were reported, specifically in SDD TKA regarding complications, with a significantly higher risk of complications during SDD (Bordoni *et al*., 2020). Conversely, Migliorini *et al*. (2021b) reported a greater risk of mortality (p=0.003) and DVT (p=0.005) after inpatient TKA. There was no significant difference in the occurrence of serious adverse events between the SDD and inpatient LLA groups. Contradictions in the available literature related to complications following SDD LLA are varied and evident, indicating a need for further research.

Equal or similar outcomes for PROMs have been reported when comparing SDD and inpatient LLA (Bemelmans *et al*., 2022; Bodrogi *et al*., 2020; Hoffmann *et al*., 2018). Migliorini *et al*. (2021b) reported greater Oxford Knee Scores (p=0.01) in SDD participants compared to inpatient TKA.

Systematic reviews that included patient satisfaction reported patient satisfaction rates of 96% with an SDD LLA (Hoffmann *et al*., 2018). Bodrogi *et al*. (2020) reported that 80–96% of patients with SDD LLA would undergo SDD again if they had to.

An interesting thread revealed in most of these systematic reviews and meta-analyses is the importance of patient selection to ensure safety and favourable outcomes in SDD LLA. Many authors specify that their results apply to select patient populations and patients with no significant comorbidities (Bemelmans *et al*., 2022; Shapira *et al*., 2021; Bodrogi *et al*., 2020; Xu *et al*., 2020; Pollock *et al*., 2016).

Although these systematic reviews and meta-analyses are considered Level 1 evidence, they have similar limitations. A significant limitation of all the studies was the heterogeneity of the included study samples regarding inclusion and exclusion criteria, study settings, healthcare systems, discharge criteria, implants, surgical techniques, selection criteria, standardised protocols, and outcome measures used (Li *et al*., 2022; Bemelmans *et al*., 2022; Shapira *et al*., 2021; Migliorini *et al*., 2021a; Migliorini *et al*., 2021b; Xu *et al*., 2020; Jaibaji *et al*., 2020; Bordoni *et al*., 2020; Bodrogi *et al*., 2020; Hoffmann *et al*., 2018; Pollock *et al*., 2016). The generalisability of the results is thereby limited, which often leads to inconclusive findings as evidenced above. Other limitations highlighted in the systematic reviews were the retrospective observational nature and poor study design (Bemelmans *et al*., 2022; Li *et al*., 2022; Migliorini *et al*., 2021a; Migliorini *et al*., 2021b; Bordoni *et al*., 2020; Jaibaji *et al*., 2020; Hoffmann *et al*., 2018; Pollock *et al*., 2016), small sample sizes (Migliorini *et al*., 2021a; Migliorini *et al*., 2021b; Bordoni *et al*., 2020; Jaibaji *et al*., 2020), moderate to high levels of bias (Bemelmans *et al*., 2022; Migliorini *et al*., 2021a; Migliorini *et al*., 2021b; Bordoni *et al*., 2020; Jaibaji *et al*., 2020; Hoffmann *et al*., 2018; Pollock *et al*., 2016), and lack of long term follow up of discharged patients (Bemelmans *et al*., 2022; Shapira *et al*., 2021; Xu *et al*., 2020).

Studies that indicated increased complications associated with SDD, especially cardiac and pulmonary complications, were found for TKA but not THA. Nowak and Schemitsch (2019) indicated reduced major and minor complications after TKA when discharged on day one or two after surgery, as opposed to SDD and more extended hospital stays. The Liu *et al*. (2019) and Nowak & Schemitsch (2019) studies both had limitations in that they were population-based retrospective studies, limited by accurateness and completeness of data collection. The studies only looked at readmission rates, not emergency department visits, and only included the 30 days after surgery. The Liu *et al*. (2019) study investigated both THA and TKA, whereas Nowak and Schemitsch (2019), like Bordoni *et al*. (2020) only considered TKA cohorts. The systematic review by Bordoni *et al*. (2020), which indicated a slightly higher number of complications in outpatient TKA patients, included a low level of comparative studies and was affected by a moderate risk of bias, affecting the quality of evidence. The authors also indicated low proof levels for complications and readmissions. Bovonratwet *et al*. (2017) suggested that TKA SDD should be

considered in select patients; however, higher surveillance of these patients post-discharge is warranted.

Despite the mixed findings regarding complications in SDD LLA, Clouette *et al*. (2020) indicated dramatic increases in the number of SDD LLAs in the USA before the COVID-19 pandemic, with increases of 0.95% to 20.5% from 2011 to 2016 (Clouette *et al*., 2020). The COVID-19 pandemic has further accelerated the use of SDD pathways to decrease the inpatient burden in the USA. Despite these increases, Mitchell *et al*. (2023) recently found no difference in emergency department visits, readmissions, or reoperations in patients with SDD.

In summary, SDD LLA has equal or improved outcomes in terms of reoperation rates, readmissions, mortality, and PROMs (including pain scores). There is however evidence of higher complication rates, which tend to be associated with TKA.

The limitations of the current literature (as mentioned earlier) make it difficult to draw firm conclusions from the available data. Prospective randomised and multicentre studies with larger sample sizes would increase the current evidence regarding SDD LLA internationally (Migliorini *et al*., 2021b; Bordoni *et al*., 2020).

Few local studies on SDD have been published in the RSA. A recent study by Prinsloo and Keller (2022), on implementing advanced rehabilitation pathways (ARP) in TKA and THA, was conducted in a private healthcare setting in the RSA. In the prospective group of elective THA and TKA patients, 66% of the participants achieved SDD safely. The implementation of ARP resulted in statistically significant: less pain at six weeks, less stiffness, and higher function, with 98% patient satisfaction and lower total costs compared to a retrospective group that followed traditional LOS and rehabilitation pathways (Prinsloo & Keller 2022). To our knowledge, this is the first published local study to record SDD in LLA. According to Bosch (2023), the presentation of the first SDD arthroplasty cases at a local congress caused a stir in the South African arthroplasty community. These congress presentations have not yet been published; however, they indicate safety and excellent clinical outcomes at six-month follow-ups in 602 patients within the South African context.

It is important to note that although we now have published research on local SDD in LLA, we cannot yet draw firm conclusions to compare the South African research findings with international findings. The small sample size, retrospective component, single centre, and single surgeon study population of the Prinsloo and Keller (2022) research has limitations similar to those found in international studies. As mentioned earlier, the same principles apply to national studies regarding SDD LLA; prospective, randomised, multicentre studies with larger study populations are required (Migliorini *et al*., 2021a; Bordoni *et al*., 2020).

Other local studies have focused on ERAS protocols. A study reviewing a retrospective cohort of elective TKA patients following ERAS protocols found significantly reduced LOS without compromising patient safety or functional outcomes compared to a traditional length of stay cohort (Beukes *et al*., 2022). A similar study on ERAS in THA had the same outcomes (Immelman *et al*., 2018). Although this was not a study specifically on SDD, it indicates a trend in SA toward reducing LOS without compromising safety. These local studies were conducted in the private healthcare sector, which provides optimal resources. A study by Plenge *et al*. (2020), looking at the quality of recovery in THA and TKA performed in the public health sector (with limited resources), suggested that the quality of patient care and postoperative recovery may improve with the implementation of ERAS principles.

2.4 Pain

In 2020, The International Association for the Study of Pain (IASP) revised its definition of pain as an unpleasant sensory and emotional experience associated with actual or potential tissue damage (Raja *et al*., 2020). Pain is often categorised temporally into acute, sub-acute, and chronic stages. The classification of acute and sub-acute pain varies in the literature; the overlapping periods for these stages of pain create the impression that subacute pain typically occurs between one and two months or six–12 weeks after the commencement of acute pain (Banerjee & Argáez 2019).

Acute pain, as defined by Carr and Goudas (1999), is a normal physiological response to adverse stimuli such as surgery, trauma, or critical illness. Acute pain is commonly measured using unidimensional, validated tools that do not consider the complexity of the biopsychosocial factors of an individual (Gordon 2015). The importance of understanding the complexity, prevalence, and effective treatment of acute pain has

become more evident in recent years. The global prevalence of acute pain as the primary reason for emergency department visits has been reported to range from 43% (Wu *et al*., 2022) to 74% (Daoust *et al*., 2019; Keating & Smith 2011). Local research is limited in this field; however, Lourens *et al*. (2020) alluded to a similar prevalence of acute pain with limited evidence of adequate pain assessment and ineffective management in South African prehospital settings.

Acute postsurgical pain is a form of acute pain which can be severe and occurs in about 80% of surgery patients (Coley *et al*., 2002). Effective and early management of acute pain may lead to a decreased potential for chronic pain by preventing the transition of the underlying pain mechanisms. Gan (2017) listed the negative consequences of suboptimal acute pain management in surgery patients as increased morbidity, impaired physical function and quality of life, slow recovery, prolonged opioid use, and increased cost of care.

2.4.1 Pain after Arthroplasty

Orthopaedic patients often experience moderate to severe postoperative pain, making it a frequent research subject. The severity of pain after arthroplasty, particularly TKA, is a significant concern. Acute postoperative pain, particularly in TKA, is often poorly managed pharmacologically and is reported to be more severe than in THA (Gerbershagen *et al*., 2013; Wylde *et al*., 2011). Li *et al*. (2019) reported that 60% of TKA patients experience severe postoperative knee pain, with 30% experiencing moderate pain.

Acute postoperative pain can hinder early ambulation and range of motion, potentially leading to complications such as thromboembolism and affecting overall rehabilitation and patient satisfaction. Acute pain in lower-limb arthroplasty has further adverse effects, including increased length of hospital stay and cost, potential development of chronic pain, and detrimental effects on physiological and psychological states (Pinto *et al*., 2017). Pain is often identified as one of the main reasons for increased hospital stays following THA and TKA (Husted *et al*., 2011).

Hoeffel *et al*. (2019) described increased pain immediately postoperatively and 48 hours later in both SDD THA and TKA, the latter reporting greater pain intensity. Similarly, when comparing the differences between THA and TKA, Pinto *et al*. (2017)

reported increased pain after TKA. Using postoperative morphine usage as a parameter, Pang *et al*. (2000) found that TKA patients required more morphine than THA patients in traditional LOS. Similarly, Andersen *et al*. (2009) found insufficient analgesia in the subacute phase after TKA compared with THA participants. They called for improvements and additional components of their multimodal pain regimen for TKA (Andersen *et al*., 2009). Salmon *et al*. (2001) found that pain and function improved significantly less in TKA than in THA six months following surgery. Pinto *et al*. (2017) argued that THA and TKA pain management should be addressed separately to optimally manage acute pain.

Neuropathic pain is defined as "pain arising as a direct consequence of a lesion or disease affecting the somatosensory nervous system " (Treede *et al., 2008)*. It is characterised by burning, stabbing, and electric shock-like warning sensations. These may present as sharp, dull, painful, pressurised, or deep neuropathic itching (Şahin *et al*., 2021). The rates of neuropathic pain following TKA are reported to be between 5% as early as six months postoperatively (Phillips *et al*., 2014) and 6% at three to four years postoperatively (Wylde *et al*., 2011). The neuropathic pain experienced after TKA is most likely due to local peripheral nerve trauma caused by mechanical forces which are applied intraoperatively as well as potentially being caused by immune-mediated inflammation (Speelziek *et al.,* 2019).

Pain caused by OA involves both peripheral and central sensitisation, modulated by environmental, psychological, genetic, and neurochemical factors (Ohashi *et al.*, 2023). The degree of nociplastic pain before TKA may relate to the risk of persistent pain after TKA (Lundblad *et al*., 2008). The combination of nociplastic pain, peripheral sensitisation and the acute nociceptive stimulation experienced following TKA may contribute to postoperative neuropathic pain and the development of chronic postoperative pain in TKA (Vergne-Salle 2016).

The introduction of multimodal analgesia as the preferred method of pain management following orthopaedic surgery has been effective in addressing the concerns and adverse effects of acute postsurgical pain (Hartman *et al*., 2022). This includes the principle of combining multiple modes of pain management. By using analgesics with different mechanisms of action (opioid and non-opioid medications) (Hartman *et al*., 2022), psychotherapy, physiotherapy, regional anaesthesia, local injections, non-

opioid medications, and multidisciplinary collaboration, superior pain control is achieved with accelerated recovery and overall increased patient satisfaction (Chunduri & Aggarwal 2022; Hsu *et al.,* & the Orthopaedic Trauma Association Musculoskeletal Pain Task Force 2019). Prinsloo and Keller (2021) reported increased physiotherapy frequency on the day of surgery, the use of regional nerve blocks, and multidisciplinary team involvement in their protocol for SDD THA and TKA in SA. Their findings revealed significantly less pain, stiffness, and function and increased total WOMAC scores at six-week and three-month follow-ups. This finding supports combining multiple pain management modes, as Hartman *et al*. (2022) suggested.

2.5 The Patient Perspective

The patient's perspective is crucial in healthcare research, as it encourages a patient-centred approach. Turner and Archer (2020) reported that improved relationships between healthcare providers and their patients improved health outcomes and reduced costs. Investigating patients' perspectives in emerging fields such as SDD LLA will potentially lead to improved health outcomes.

Quantitative studies on SDD LLA outnumber qualitative studies (Scully *et al*., 2020; Churchill *et al*., 2018). Two qualitative studies were found, including SDD-THA. These were the Churchill *et al*. (2018) and the recent Boogmans *et al*. (2023) studies. No qualitative studies including SDD TKA alone, have been conducted. Qualitative studies of ERAS LLA are more prevalent and will be explored further.

Churchill *et al*. (2018) conducted in-depth semi-structured interviews with patient and primary carer dyads. Twenty-eight patients who underwent THA were included, with 16 undergoing the SDD care pathway and 12 receiving standard LOS care. Thematic and content analyses were applied to the interview data. Three themes were developed: "Supporting the transition home," "Challenges for transitioning home," and "Unique considerations for SDD." The latter included sub-themes including satisfaction with SDD, having higher expectations for recovery following SDD, optimal timing of education for the patient and caregiver to reduce stress and confusion, adjusting expectations for recovery due to increased pain, and the benefit of being at home despite minimal issues with anaesthesia side-effects. The Churchill *et al*. (2017) study was limited in that the results were only generalisable to a few specific centres providing SDD THA, and interviews were conducted in English, which was not necessarily in a participant's home language.

Boogmans *et al*. (2023) conducted 15 interviews with open-ended questions regarding the pre-, peri-, and postoperative experience following the SDD THA care pathway. Four main themes were identified, "Multimodal preoperative education is essential for reducing stress and increasing self-confidence in SDD-THA", "The day of surgery was not experienced as stressful," "Uncertainty of SDD due to fear of the unknown," "Inadequate postoperative pain management was a frequent problem." The need for a "(para)medical and social safety net" was vital for a successful SDD (Boogmans *et al*., 2023).

Three qualitative studies were found that explored ERAS LLA, including both THA and TKA (Jansson *et al*., 2020; Specht *et al*., 2018; Strickland *et al*., 2018), one looking at ERAS TKA (Høvik *et al.,* 2018) and, one systematic review of ERAS THA and TKA (Makimoto *et al*., 2020). These will be explored further in chronological order.

A Danish study (Specht *et al*., 2018) observed eight patients throughout a fast-track (ERAS) care pathway and concluded with semi-structured interviews. The authors aimed to explore the lived experiences of patients in fast-track primary THA and TKA care pathways by following a phenomenological-hermeneutic approach. Three main themes emerged: pain, feelings of confidence or uncertainty, and, the meaning of information and readiness for discharge. In general, patients were resistant to taking strong analgesics (morphine) and were uncertain when to take supplementary analgesics. Confidence was boosted by receiving information about fast track surgery, meeting the team beforehand, and involving relatives in preoperative information sharing. In contrast, they found that uncertainty was caused by incorrect or conflicting information. Optimal use of time during hospitalisation, sufficient pain management, and feeling well-rested were identified as crucial factors allowing for early discharge. The limitations of this study include the fact that it was conducted at a single centre with a small study population.

A British study (Strickland *et al*., 2018) conducted 30 open, semi-structured interviews in the perioperative period following ERAS LLA (16 THA, 11 TKA, 2 unicompartmental knee arthroplasty(UKA)). This study aimed to understand the patient's perspective better when undergoing ERAS THA and TKA. The interview data underwent in-depth narrative and thematic analysis. Seven main themes were identified: "improving function and mobility," "pain," "experiences of healthcare," "support for others,"

"involvement and understanding of care decisions," "behaviour and coping", and "fatigue and sleeping." Improving function and mobility was important for all respondents during recovery. Pain was seen as an inevitable part of recovery following surgery, reported as significantly reduced after surgery, and was often compared to preoperative pain caused by osteoarthritic conditions. Mixed responses were received regarding healthcare experiences; negative experiences were often related to fear of the unknown, but overall, patients were happy with the care and attention they received. Support from family, friends, and formal caregivers was identified as vital in perioperative recovery. Support in the form of preoperative "joint schools" was well-received and was a source of multidisciplinary information. Comfort was experienced in knowing there was support after discharge via telephone calls if required. Mixed feelings regarding the patient's involvement in, and understanding of care received were also reported. Some patients wanted more of an active role, whereas others preferred being looked after. Relief and autonomy during recovery after discharge were also reported. Physical aids, medications, activity and participation modifications, and participant attitudes played a role in recovery. Finally, sleep disturbance due to pain and the inability to find comfortable positions lead to fatigue, which initially affected recovery. The study's limitations relate to a very homogenous patient population lacking cultural variability, and the findings are only generalisable to the National Health System of the United Kingdom.

A qualitative study in Norway investigated patients' experiences with early discharge after TKA and focussed on the first two weeks of recovery (Høvik *et al*., 2018). Three focus group interviews were conducted with 13 patients. Interview data were analysed using Malteruds' method of systematic text condensation (a descriptive and exploratory method of thematic cross-case analysis). The main finding was the patients' determination and ability to cope at home. Education, knowledge, and predictability strengthened patients' coping capacity. Four main themes emerged after discharge: taking responsibility for rehabilitation once home, a prerequisite for feeling safe once home, empowerment through sharing experiences with others, and postoperative pain. Limitations in this study relate to not having access to patients who were not as well and perhaps had a troublesome 2-week recovery period, creating bias. The results can only be generalised to ERAS TKA. However, the study included two centres, which ensured a variety of experiences.

Qualitative semi-structured interviews were conducted in Finland (Jansson *et al*., 2020) to explore patient satisfaction and to identify experiences during fast-track (ERAS) LLA. Twenty patients (nine THA and 11 TKA) were included, and interview data were analysed using inductive content analysis. Overall satisfaction was measured using Numeric Rating Scales (NRSs); high satisfaction rates of 9.0 on a scale of 0-10 (SD 1.1) were reported. Eight main categories were derived: "patient selection," "meeting the Health Care Guarantee," "patient flow," "post-discharge care," "patient counselling," "transparency of the journey," "communication," and "feedback." The first two categories and components of the "patient flow" category are related to the Finnish healthcare system and irrelevant to this study. Logistical issues were frequent, and patients suggested more information regarding the discharge criteria and daily targets for recovery. Aspects highlighted regarding post-discharge care included coordination and continuity of care and required comprehensive and clear communication and information. Patients were satisfied with the quality of counselling; however, inconsistency and a lack of patient-centred counselling were highlighted. Written information was well received but lacked detailed guidance and clarity. Required refinements were identified regarding the transparency of the ERAS journey. These included logistical information and more details about pain management and recovery. Communication between stakeholders and patients was lacking, and there was confusion regarding who could be contacted once discharged. Finally, aspects of feedback highlighted a disconnect between patients and external stakeholders, with patients not knowing how to receive or provide feedback regarding the ERAS journey. This study highlighted logistical and operational issues in the Finnish LLA ERAS care pathway, limiting the generalisation of results to this organisation.

A systematic review and synthesis of patient experiences following decreased LOS after THA and TKA was conducted by Makimoto *et al*. (2020). Sixteen qualitative studies (THA (n=5) TKA, (n =6); THA/TKA (n=5)) including 253 participants were analysed for content analysis. Six categories were generated, as presented in Table 2.1.

Table 2.1 Categories reported in the systematic review conducted by Makimoto *et al.* (2020)

Category	Elaboration
I. Postoperative pain and medication	Variability in pain experience. Variable views on pain medication.
II. Difficulty in performing activities of daily living (ADL)	Performing ADL is difficult. Patients should be assessed for appropriate assistive devices to cope. Patients should be encouraged to prepare in advance for reduced mobility.
III. Appreciation for support and difficulties associated with receiving support	Most patients received sufficient support from family and friends. Some had no one to depend on. Patients should be assessed for care requirements, and local resources should be identified for those in need.
IV. Variability in the recovery process and information-seeking	Substantial variability in recovery rate (from frustration over slow recovery to a sense of daily recovery). Patients are anxious to know if their recovery is within the expected range. There is a need for patient support groups to share experiences regarding recovery.
V. Lack of patient-centred care	Poorly coordinated care. Poor discharge planning. Inadequate care plan for physiotherapy.
VI. Transportation problems and social isolation	Driving restrictions lead to social isolation.

Limitations regarding this review are related to only including English publications; most studies were conducted at single institutions with small sample sizes. Furthermore, LOS is not always provided, and the substantial variability in medical care systems among countries decreases the transferability of the findings.

In conclusion, studies reporting specifically on qualitative aspects of SDD indicate that SDD is well accepted by patients, increases patient satisfaction, and produces a lower perception of disease (Bordoni *et al*., 2020; Churchill *et al*., 2018; Kelly *et al.,* 2017). The absence of qualitative SDD studies necessitates relying on insights from research on fast-track or ERAS care pathways. This highlights the need for further qualitative exploration and understanding of the SDD care pathways.

2.6 Health-Related Quality of Life Measures

Lower limb arthroplasty is performed to improve function, decrease pain and burden of disease, and improve the quality of life. Therefore, patient-reported outcome measures addressing health-related quality of life are apt to measure outcomes following LLA. According to Wilson *et al*. (2019), data collection from PROMs has the potential to inform many important decisions related to value-based care, quality assurance and improvement, and refinement of surgical indications, to name a few. The authors further indicate the importance of PROMs that patients invest in, such as pain relief, health-related quality of life, and improved function. According to Ethgen *et al*. (2004), health-related quality-of-life measures are valuable in providing relevant health status information to healthcare professionals, which informs the most adequate standards of care.

2.7 Conclusion

In conclusion, this literature review addressed diverse perspectives in the evolving field of SDD LLA and the challenges associated with the acute and subacute postoperative recovery periods. Promising outcomes have been highlighted and supported by comparable or improved reoperation rates, readmissions, mortality, and PROMs. However, study limitations, such as heterogeneity, small sample sizes, and potential biases, necessitate larger, prospective, and multicentre trials to strengthen the current evidence.

Regarding acute postoperative pain, the revised definition by the International Association for the Study of Pain emphasises the interaction between the sensory and emotional components of pain. The acknowledgement of neuropathic pain in TKA deepens the pain management paradigm, emphasising the need for revision of the current approaches and encouraging comprehensive and multidimensional approaches. As favourable outcomes in studies such as Prinsloo and Keller (2022) demonstrate, multimodal analgesia is a promising strategy that encourages ongoing research to refine and improve protocols and tailor interventions in SDD LLA.

Furthermore, this literature review underscores the crucial role of patient's perspectives and experiences in shaping healthcare research, as evidenced in qualitative studies of SDD LLA. These studies reveal insights into pain management, mobility expectations, and the crucial role of support for the patient and primary caregiver. Gaps in our

understanding do exist, particularly in SDD TKA, which warrant further qualitative research. Patient experiences in ERAS LLA provide valuable insights into acute and sub-acute recovery following THA and TKA. Limitations, such as small sample sizes and single-centre and region-specific studies, are acknowledged.

Continued research is required, particularly regarding SDD arthroplasty care pathways and patient perspectives. This will enhance our understanding and develop improved patient-centred healthcare clinical pathways. By addressing these gaps in the body of available evidence, contributions can be made to improve outcomes for both patients and healthcare systems, as well as the establishment of more precise guidelines for implementing emerging practices, such as SDD in THA and TKA .

Chapter 3 Methods

3.1 Introduction

This chapter presents a research methodology that employs a mixed-method approach to investigate SDD THA and TKA. Combining quantitative and qualitative methods allows for a more complex and robust investigation of the SDD process. This integration of methodologies provides a holistic view that enhances the validity and depth of the findings. This section describes the research design, outlines the methods employed, and clarifies how they converge to address the research objectives. A mixed-method methodology aims to comprehensively understand SDD for THA and TKA, offering insights into theory and practice.

3.2 Study Design

A mixed methods convergent design was used with a concurrent collection of quantitative (NRS of pain; Short-form McGill Pain Questionnaire2 (SF-MPQ-2); EQ-5D-5L and EuroQol Visual Analogue Scale of overall health(EQ-VAS)) and qualitative (semi-structured interviews) data. Equal weighting was applied to the quantitative and qualitative data and handled independently for analysis. The findings were then merged for further analysis, which will be elaborated on later in this chapter (3.9.3)(p.38).

3.3 Study Setting

The study was conducted at a private hospital and day clinic (ASC) in Pretoria, RSA. Same-day discharge is a novel concept recently introduced in the RSA private sector and has not been performed in public health institutions.

3.4 Participants

Male and female participants diagnosed with hip or knee OA by an orthopaedic surgeon and scheduled for SDD LLA were invited to participate in the study.

3.4.1 Source of Participants

The participants were recruited from an SDD LLA program overseen by three orthopaedic surgeons in Pretoria, RSA. The orthopaedic surgeons identified patients

who would be potential candidates for SDD LLA. These patients then entered the SDD LLA care pathway as described in 3.6.2.1.

3.4.2 Sample Size

3.4.2.1 Quantitative Selection

The sample size for the quantitative phase was determined based on a study that compared acute postoperative pain following THA and TKA. Aarons *et al*. (1996) found a mean pain intensity of 5.53 (SD 3.00) for the THA group (n = 40) and 6.91 (SD = 2.00) for the TKA group (n= 23). Assuming a 95% confidence level with a power of 80%, an estimated minimum sample size of 110 participants was calculated to detect differences between the two groups (n = 55 per group).

3.4.2.2 Qualitative Selection

Consecutive participants who underwent SDD THA or TKA were invited to participate in the interviews. Iterative sampling was implemented to ensure equal THA and TKA participants. Coding of broad thematic issues was applied, and participants were recruited until coding saturation was met. The researcher applied data saturation once no new codes emerged from the transcripts, as described by Saunders et al. (2018).

3.4.3 Sample Selection

Convenience sampling was used due to the limited number of available participants. Table 3.1 displays the criteria for this study's quantitative and qualitative portions.

Table 3.1 Inclusion and exclusion criteria of the participants

Inclusion Criteria	Exclusion Criteria
Successful discharge on the same calendar day of surgery following LLA from a private healthcare setting.	Discharge to any other facility, step down or frail care where there are professional or trained carers.
Primary THA or TKA because of OA.	THA or TKA due to trauma, avascular necrosis, or infection.
Adults between 40 and 80 years of age.	Unicompartmental or partial knee arthroplasty.
Male and female participants.	

3.5 Instrumentation and Outcome Measures

This section introduces the key components of the mixed-methods study's outcome measures and instrumentation. The four quantitative outcome measures used to gather data are outlined, followed by an introduction of the qualitative aspect and semi-structured interviews.

3.5.1 Quantitative Data

3.5.1.1 *Numerical Rating Scale (NRS) of Pain*

An NRS was used to gather information regarding pain intensity (Appendix A). Numeric Rating Scales were selected as they are easily administered verbally and ideally suited for telephone interviews. Numeric Rating Scales of Pain have shown good compliance and a high correlation with other pain assessment tools (Haefeli & Elfering 2006). However, the authors pointed out that NRSs were not as effective in detecting changes in pain over time, but their studies were related to assessing more complex long-term back pain. A systematic review comparing NRSs, Verbal Rating Scales (VRS), and VAS for assessing unidimensional pain intensity found that using NRS was applicable in most settings.

Furthermore, the NRS was recommended based on higher compliance rates, better responsiveness, ease of use, and good applicability relative to the VAS or VRS (Hjermstad *et al*., 2011). In their study on outpatient unicompartmental knee arthroplasty, Hoorntje *et al*. (2017) used the NRS for pain intensity. Numeric Rating Scales for pain intensity were found to better identify differences in pain intensity between sexes. They were also the most responsive between VAS, VRS and the Faces Pain Scale-Revised in clinical and research settings (Ferreira-Valente *et al*., 2011) The NRS for pain intensity is a valid measure less influenced by non-pain intensity factors (pain interference and unpleasantness) than the VRS and Faces Pain Scale-Revised (Thong *et al*., 2018) and has shown good test-retest reliability (r=0.79-0.96) (Cheatham, Stull & Kolber 2018).

3.5.1.2 *The Short-form McGill Pain Questionnaire-2 (SF-MPQ-2)*

The SF-MPQ-2 (Appendix B) provides a valid, responsive, and efficient pain assessment in clinical research that applies to various acute and chronic pain conditions (Dworkin *et al*., 2015). The SF-MPQ-2 measures both the sensory and

affective components of pain. It has demonstrated sensitivity to clinical changes following various interventions and is effective across multiple age groups (Iohom 2006). The test-retest reliability in patients with musculoskeletal pain is adequate (r>70) (Hawker *et al*., 2011), and Dworkin *et al*. (2009) found excellent reliability and validity for the SF-MPQ-2.

The SF-MPQ-2 was selected as it is a multidimensional pain measurement tool including both the quality and intensity of pain and differentiates between neuropathic and non-neuropathic pain. It is considered an efficient pain assessment tool for clinical research (Dworkin *et al*., 2015). The SF-MPQ-2 has a total score and four subscale scores that 22 pain descriptors are divided into namely Continuous (throbbing pain, cramping pain, gnawing pain, aching pain, heavy pain and tenderness), Neuropathic (hot-burning pain, cold-freezing pain, pain caused by light touch, itching, tingling or "pins and needles" and numbness), Intermittent (shooting, stabbing, sharp, splitting, electric-shock and piercing) and Affective pain descriptors (tiring-exhausting, sickening, fearful and punishing-cruel) (Kachooei *et al*., 2015). Using the SF-MPQ-2 will contribute to exploring pain after SDD THA and TKA.

3.5.1.3 *The EuroQol 5-Dimension 5-Level and EuroQol Visual Analogue Scale*

The EQ-5D-5L is broadly separated into two parts. The first part measured five dimensions of HRQOL (mobility, self-care, usual activities, pain/discomfort, anxiety/depression). The second part of the EQ-5D-5L is the EQ-VAS, which measures overall health from 0 (worst health imaginable) to 100 (best health imaginable) (Appendix C). The EQ-5D-5L and EQ-VAS scores were found to be valid (0.782), reliable (Cronbach's Alpha was 0.86), and responsive outcome measures for hip and knee OA, specifically for the pain/discomfort, mobility, and usual activity dimensions (Bilbao *et al*., 2018; Conner-Spady *et al*., 2015). The availability of a validated phone version contributed to the selection of this instrument. The EQ-5D-5L use in longitudinal studies involving THA and TKA is recommended because of their responsiveness to the HRQOL (Jin et al., 2019), informing the objective of measuring and describing HRQOL.

3.5.2 Qualitative Data

3.5.2.1 *Semi-structured Interviews*

Semi-structured interviews explored participants' perceptions and experiences following SDD LLA at six weeks postoperatively. The interviews were conducted using

an interview guide administered by Churchill *et al*. (2018). An additional question was added to assess the value of the physiotherapy services. A question about the Canadian healthcare system was removed as it was irrelevant to the South African private healthcare system (Appendix D).

Together, these quantitative and qualitative measures form a methodologically robust approach, ensuring a thorough exploration of the research objectives.

3.6 Procedure

3.6.1 Pilot Testing

After ethical approval was attained, a pilot test was conducted to enhance the reliability and validity of the data collection processes and procedures for the quantitative and qualitative components of the study. This pilot test served as a preparatory phase, allowing the identification of potential logistical and methodological challenges that could affect the quality of the main study data. The insights gained are described below and contribute to the reliability and validity of the study's findings.

3.6.1.1 *Quantitative Pilot Testing*

This part of the pilot test included 10% of the sample (11 participants). The data collection process was refined, and no significant procedural changes were made. Minor changes related to refining the data recording in a spreadsheet were made. Therefore, the data from the pilot test were used in the main study. The data were collected as described in the main study (Table 3.2). The results of the PROMs from the pilot testing provided valid data that addressed the research questions.

3.6.1.2 *Qualitative Pilot Testing*

Three participants were used to pilot the interview process described in the main study. A minor modification related to using a superior software application (Otter AI) for recording interviews was made, enhancing the recorded data's quality. The test data were still of sufficient quality, rendering it suitable for the main study. The data collected was screened to determine if sufficient content was present to address the research questions. All three interviews provided substantial data that deemed the questionnaire a valid tool for the study design

3.6.2 Main Study

During the initial preoperative assessment, the participants who agreed to participate were provided with an information sheet regarding the nature of the study and informed consent documents (Appendix E). Participants were informed that individual interviews would be conducted with some participants who completed the study and that they would potentially be asked to participate. The signed consent documents were obtained and stored in a filing cabinet, which is kept locked, and only the researcher has access. The study procedures were further explained, and the initial PROM, namely the EQ-5D-5L, EQ-VAS, NRS of pain intensity, and SF-MPQ-2 were collected. Data was collected by the researcher and research assistants trained regarding the study protocol.

3.6.2.1 *Same-day Discharge Care Pathway*

An overview of the SDD clinical care pathway used in this study is provided in Appendix F. The elaboration of each component follows.

Anaesthetic Clinic:

Potential participants identified by their orthopaedic surgeon and eager to follow the SDD THA or TKA care pathway attended the preoperative clinic, also called the "Anaesthetic Clinic." The primary caregiver was encouraged to accompany and attend the clinic with the participant. The participants completed detailed medical history forms before being seen by the registered nurse.

Participants were then assessed individually by each interdisciplinary team member (IDT) consisting of a registered nursing practitioner, anaesthetist, physiotherapist, clinical coordinator, and primary healthcare physician (general practitioner).

The registered nurse performed initial observations of vital signs (blood pressure, pulse rate, pulse oximetry, and body temperature) and additional side-room investigations (resting electrocardiogram and random blood glucose concentration tests).

An anaesthetist then assessed the participant's medical suitability for opioid-sparing anaesthetic as well as spinal and peripheral nerve blocks. An extensive explanation of the anaesthetic protocols is provided to participants.

A physiotherapist assessed all participants. The assessment included gathering relevant physiotherapy history and information, including functional level during ADL, assistive device use, pain, home environment, discharge plan, and information

regarding the planned primary caregiver. Objective measurements of joint range of movement, muscle strength, gait analysis, and general function were recorded. The rehabilitation protocol was discussed in detail, providing candidates and their primary caregivers insight into what to expect during each step, from the day of surgery to the six-week follow-up. Information was provided regarding preparing a safe home environment, the safety of movement postoperatively (specifically, no traditional posterolateral THA precautions and weight bearing as tolerated), and discussions on what to expect regarding postoperative pain in the first six weeks. Pain management strategies were discussed, including reinforcing information disseminated by the anaesthetist, primary care physician, and clinical coordinator. The candidate was then given a home exercise program, and each exercise was demonstrated. Candidates were shown how to use assistive ambulatory devices such as elbow crutches or walking frames.

The clinical coordinator (a registered nursing practitioner) then provided a detailed education session with the participant and their primary caregiver, providing an overview of the SDD process. The clinical coordinator was the candidate's first port of call during the recovery process if there were any queries or concerns postoperatively. In such cases, the appropriate team member is contacted, and decisions are made regarding managing the questions or concerns. The information session included information related to contact details, the role of the clinical coordinator, the SDD process, the medication schedule, and general advice to the participant and primary caregiver.

The primary care physician assessment followed with a revision of the medical history, provision, and explanation of the postoperative medication prescription. Any medical concerns were addressed, and referral was made to appropriate specialists or further medical testing was performed (only if required) before the candidate could enter the SDD care pathway. Referrals could have been to a specialist physician or for further clinical testing if the primary care physician had raised any concerns.

Once all IDT members assessed candidates, informal discussions took place regarding the medical, social, and psychological impressions that the team had made. The entire team had to agree that the candidate was suitable, and the candidate had to be committed to the SDD process before entering the SDD care pathway.

Day of surgery:

Per each institution's protocol, participants were admitted to the hospital or the ASC. The nursing staff, orthopaedic surgeon, anaesthetist, and physiotherapist assessed the participants for their suitability to undergo surgery on the day. The protocols were revised and reinforced, and appropriate team members addressed queries from participants.

Arthroplasty was performed according to the orthopaedic surgeon's specific protocols (posterolateral surgical approach for THA). Following the procedure, the anaesthetist informed the rest of the IDT when the participant was awake in recovery. The physiotherapist would see the participant between two- and three hours after surgery. There was constant communication between the IDT members regarding the participants' progress.

Once the participant had eaten, the physiotherapist assessed the participant's recorded vital signs, motor and sensory function following spinal and peripheral nerve blocks, pain levels, and alertness. Any postoperative symptoms that were not conducive to safe mobilisation were reported to the appropriate team members. When the participant was stable and considered safe to mobilise, the physiotherapist proceeded with the initial bed mobility and postoperative exercises, then assisted the participant in mobilising with an assistive device. The home exercise program was revised, SDD protocol information was reviewed, and any queries were addressed. The participant had to complete bed transfers with minimal assistance, mobilise safely with assistive devices for 20m or more, and safely negotiate stairs with stand-by supervision before they were deemed safe for discharge from a functional perspective. The IDT and participants were involved in deciding when the participant was ready for discharge. The clinical coordinator contacted the participants a few hours after discharge to confirm they arrived home safely. The clinical coordinator was available 24 hours a day for telephone queries. Daily "check-ins" were scheduled for at least three days following surgery at 18:00 and one week later.

Post Discharge Physiotherapy

The timing of contact for outpatient physiotherapy is shown in Appendix F. Additional physiotherapy was provided as required and determined by the physiotherapist and the participant. Physiotherapy involves various physical rehabilitation and mobilisation

techniques to enhance the return of joint ROM, muscle strength, and function. Support, encouragement, and continued education were provided, as appropriate, to each participant. The two-week physiotherapy follow-up appointment coincided with the wound check performed by the registered nurse following physiotherapy treatment.

Six-week follow-up:

The participant underwent standard X-rays, completed standard PROMs (EQ-5D-5L and EQ-VAS), the SF-MPQ-2 and NRS of pain (which was specific to this study protocol), and was reviewed by the orthopaedic surgeon and physiotherapist. Physiotherapy treatment involved appropriate rehabilitation and techniques as required by the participant's clinical presentation. At this point, the participant exited the care pathway. Subsequent treatments were provided as necessary, as determined by the physiotherapist and participant.

3.6.3 Quantitative Data Collection

The quantitative data collection procedure and schedule spanning the initial six weeks following surgery are presented in Table 3.2.

Table 3.2 Quantitative Data Collection Schedule

Participant Contact	Type of Contact	Action
First visit to orthopaedic surgeon	In person	Informed consent EQ-5D-5L EQ VAS NRS of pain SF-MPQ-2
Day of Surgery	In person	NRS of pain before and after mobilising
Day 1	Telephonic	NRS of pain
Day 2	Telephonic	NRS of pain SF-MPQ-2 EQ-5D-5L EQ VAS
Day 3	Telephonic	NRS of pain
1 Week	Telephonic / In person	NRS of pain
2 Week	Telephonic / In person	NRS of pain SF-MPQ-2 EQ-5D-5L EQ-VAS
4 Weeks	Telephonic / In person	NRS of pain
6 Weeks	In person	NRS of pain SF-MPQ-2 EQ-5D-5L EQ VAS Interview

3.6.3.1 *Postoperative Numeric Rating Scale of pain intensity on the day of surgery*

The attending physiotherapist collected postoperative NRS pain intensity scores before and after mobilisation for the first time. The question was asked, "How would you rate your pain intensity now/following mobilising on a scale of 0 to 10 where 0 is no pain at all, and 10 is the worst possible pain?".

3.6.3.2 *Numeric Rating Scale of pain Intensity*

The baseline NRS pain intensity scores were collected once the participants entered the study. The researcher collected postoperative scores via telephone calls on days one, two, and three at the end of each day at approximately 18:00. The first-, second-, fourth-, and six-week postoperative NRS pain intensity data were obtained in person

during scheduled follow-up physiotherapy appointments or via telephone call when a participant was unable to attend their physiotherapy appointment in person.

3.6.3.3 *Short-form McGill Pain Questionaire-2, EuroQol 5-Dimension 5-Level and EuroQol Visual Analogue Scale of overall health*

Baseline scores were collected once the participants entered the study. Postoperative SF-MPQ-2, EQ-VAS, and EQ-5D-5L scores were collected on day two via telephone calls using validated telephone call versions of the PROM (Appendices A, B, and C). Week two and week six scores were collected in person during scheduled follow-up appointments or via telephone calls when a participant could not attend in person.

3.6.4 Qualitative Data Collection

The qualitative data gained from semi-structured interviews (Appendix D) were collected in a quiet, private consulting room with only the researcher and participant present. The researcher had a paper copy of the semi-structured interviews and read each question to participants. The explanation and elaboration of the question were provided if the participant needed clarification on what was being asked. The researcher stuck to the interview script and asked limited probing questions if the participant provided insufficient responses. The interviews were recorded using an Otter AI application on a smartphone or tablet. The primary researcher transcribed the audio recordings verbatim with the assistance of a professional transcriber. All transcripts were checked by the researcher, who read the transcripts and compared them to audio recordings, to ensure their reliability and quality. Further details regarding the data analysis are provided in section 3.9.2.

3.7 Ethical Considerations

Ethical clearance was approved by the Human Research Ethics Committee (Medical) of the University of Witwatersrand. Clearance certificate with number M210534 is provided in Appendix H. Written informed consent was obtained from all participants, and participation was voluntary. The participants were informed that they could withdraw from the study at any stage without any consequences. Permission to access the database of participants taking part in the study was obtained from the treating orthopaedic surgeon to access baseline EQ-5D-5L and EQ-VAS scores. These baseline scores were collected by research assistants employed by the orthopaedic

surgeons involved. Data was recorded and stored securely for backup purposes in “Microsoft One Drive" provided by the University of the Witwatersrand. All data collected was de-identified once the researcher completed the dataset and before data analysis, ensuring the confidentiality of participants. Participants were assigned a study number, and the key to the given study number was recorded in a spreadsheet (hard copy), backed up digitally, as mentioned above. Only the researcher had access. Information will be stored for six years (two years if published), after which all hard copies will be shredded and soft copies deleted. Participants will be informed of the study results after the dissertation’s final submission.

3.8 Data Reduction

3.8.1 Quantitative Data Reduction

The dataset gathered from this quantitative study contained a diverse range of numerical data spanning various time points. The dataset required careful organisation and data cleaning to ensure consistency and accuracy. Outliers and missing values were re-checked to ensure the correctness of the data captured. No data were summarised, and all available data were utilised for statistical analyses, enabling accurate and rigorous analysis of the research objectives.

3.8.2 Qualitative Data Reduction

The 24 semi-structured interviews (14 THA and 10 TKA) resulted in a substantial volume of transcribed textual data. The richness of these data necessitated a systematic reduction to identify recurrent themes and derive meaningful insights.

The THA and TKA groups were addressed as separate datasets based on the research aims and objectives of comparing the patients' experiences and perceptions. The initial data reduction involved data coding, where specific text segments were labelled according to their relevance to the research question. The coded segments were then grouped into categories and sub-categories. Duplicated segments were merged to ensure an accurate representation of the codes. Codes that were rare or considered outliers were removed from the dataset to reduce complexity while preserving the depth and richness of qualitative insights. These data reduction strategies reduced the extensive qualitative dataset to a manageable and structured format, enabling a comprehensive analysis of the underlying themes and perspectives. Further

information is contained in Section 3.9.2 (p.37) and the reflective journals in Appendices H and I.

3.9 Data Analyses

3.9.1 Quantitative Data Analysis

IBM Statistical Package for Social Sciences (SPSS) version 27 was used to analyse the data with collaborative input from the researcher and the biostatistician. The researcher then interpreted the results of the data analysis, and these interpretations and findings were comprehensively discussed with the biostatistician to confirm the accuracy and completeness of the researcher's interpretations.

Descriptive statistics summarised the data, including frequency counts and percentages for categorical variables and mean and standard deviation for continuous variables. These are presented in Tables 4.1 and 4.2 below (pp. 38 & 39). A Table is included in Appendix M indicating how data was analysed for different variables.

3.9.2 Qualitative Data Analysis

Transcripts were initially reviewed for relevant fragments using open coding. The researcher and study supervisors then compared these initial coded segments to ensure robust and accurate coding. Once agreement and confirmation of the open coding technique were reached, the primary researcher continued to code the rest of the interviews. The researcher conducted an initial axial coding into categories and sub-categories, followed by a review and discussion with the study supervisors. Once agreement was reached, the primary researcher conducted the initial identification of the relationships between these categories and the establishment of core themes. The identified themes and subthemes were reviewed and discussed by the supervisors.

Relevant changes and reviews continued until there was a consensus on the final themes that had been developed. The THA and TKA groups were independently handled following the same process. Figure 3.1 provides an overview of the process. The data reduction strategies employed are discussed in Section 3.8.2 (p.33).

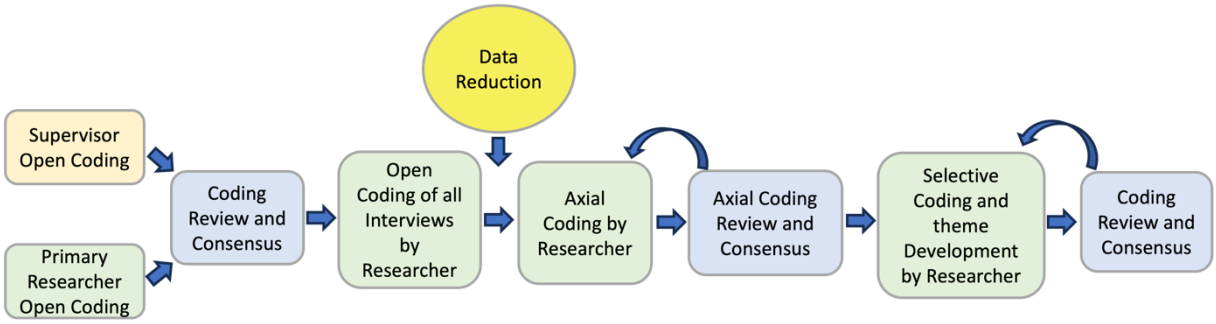


Figure 3.1 Overview of the Qualitative Data Analysis Process

Analyst triangulation and peer debriefing were employed to enhance the trustworthiness and ensure the robustness of the analysis. The dependability and confirmability of the data analysis were optimised using consistent reflective journaling (Appendix H (THA) and I (TKA)) by the researcher and regular debriefing sessions with study supervisors. Once consensus was reached, member checks were conducted via telephone calls with participants to validate the accuracy of the information provided. Member checks revealed accurate theme development from the data and were recorded in subsequent reflective journals.

Records of raw data, transcripts, and reflective journals were maintained to safeguard the study's integrity, as Nowell *et al*. (2017) recommended. For reference, Appendix H and I contain additional supporting material.

The THA and TKA groups were handled separately, from the initial coding to the final theme identification and analysis. Following the independent development of themes for each group, a comparative analysis was conducted to detect patterns of congruency, incongruency, and relationships between the themes identified in the THA and TKA groups.

3.9.3 Merging of Quantitative and Qualitative Data

After conducting an independent analysis of qualitative and quantitative data, the two sets of findings were integrated for further analysis. This merging aimed to identify patterns of congruency and incongruency and explore potential relationships between the quantitative and qualitative aspects of the data.

Chapter 4 Results

4.1 Introduction

This chapter presents the mixed-methods research findings in a structured manner. Quantitative results are presented, providing a comprehensive view of the statistical analysis and results. The qualitative results follow with presentation of each theme and sub-theme. This sequential presentation aims to facilitate the comprehension of both dimensions explored in this study.

4.2 Quantitative Results

4.2.1 Introduction

The demographics of the participants who completed the quantitative part of this study are presented, followed by a comparison of the baseline outcome measure scores of the THA and TKA groups.

The postoperative results follow, organised systematically to align with each outcome measure, thereby addressing the primary objective, evaluating the reported pain and HRQOL during the acute and subacute postoperative phases following SDD within the THA and TKA groups. Furthermore, the results of the two groups were compared to address the secondary objectives of this study. This comparative analysis will be performed immediately after the assessment of each outcome measure. Figure 4.1 below provides a visual overview of the results will be presented.

Descriptive statistics and sample sizes at each time point are included in Tables 4.1 and 4.2 to account for missing data.

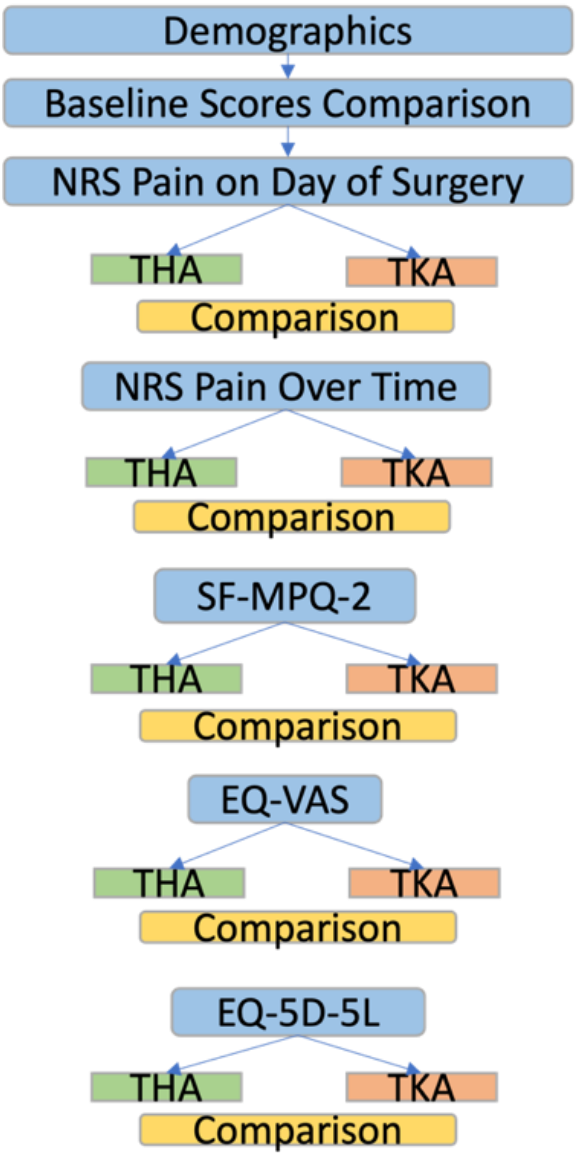


Figure 4.1 Overview of quantitative results presentation

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Table 4.1 Descriptive stats and sample sizes at each time point for EQ-VAS, NRS of pain and SF-MPQ-2

		Time											
		Baseline			Day 2			Week 2			Week 6		
		N	Mean	Standard Deviation	N	Mean	Standard Deviation	N	Mean	Standard Deviation	N	Mean	Standard Deviation
THA	EQ-VAS	55	73	23	51	71	18	50	83	18	53	86	12
	NRS Pain	54	7	2	55	4	3	54	3	2	51	2	2
	Continuous Pain	55	3.02	1.92	51	2.03	2.10	51	1.33	1.58	49	0.89	1.23
	Intermittent Pain	55	3.42	2.39	51	1.62	2.12	51	0.85	1.34	49	0.51	1.07
	Neuropathic Pain	55	1.51	1.37	51	1.14	1.54	51	0.91	1.09	49	0.75	1.19
	Affective Pain Descriptors	55	1.93	2.20	51	1.11	1.90	51	0.71	1.16	49	0.42	0.82
	Total Score	55	2.52	1.54	51	1.51	1.68	51	0.97	1.17	49	0.66	0.99
TKA	EQ-VAS	54	81	14	53	72	16	50	79	14	52	85	13
	NRS Pain	54	7	2	54	5	2	50	4	1	48	3	2
	Continuous Pain	50	3.26	1.68	48	2.20	1.44	46	1.72	1.29	42	1.35	1.32
	Intermittent Pain	50	3.19	1.90	48	1.82	1.67	46	1.27	1.39	42	1.01	1.28
	Neuropathic Pain	50	1.26	1.18	48	1.19	1.02	46	1.14	0.91	42	1.13	0.95
	Affective Pain Descriptors	50	2.13	1.74	48	1.08	1.64	45	0.89	1.17	42	0.71	1.20
	Total Score	50	2.49	1.16	48	1.62	1.07	46	1.28	0.82	42	1.08	1.03

Table 4.2 Descriptive statistics and sample sizes at each time point for EuroQol 5-Dimension 5-Level

				Time							
				Baseline		Day 2		Week 2		Week 6	
				Count	%	Count	%	Count	%	Count	%
Group	THA	EQ1 Mobility	No problems	3	5.5%	19	37.3%	22	43.1%	26	49.1%
			Problems	52	94.5%	32	62.7%	29	56.9%	27	50.9%
		EQ2 Self-care	No problems	25	45.5%	13	25.5%	23	45.1%	39	73.6%
			Problems	30	54.5%	38	74.5%	28	54.9%	14	26.4%
		EQ3 Usual Activities	No problems	5	9.1%	8	15.7%	8	15.7%	28	52.8%
			Problems	50	90.9%	43	84.3%	43	84.3%	25	47.2%
		EQ4 Pain/Discomfort	No problems	2	3.6%	4	7.8%	7	13.7%	17	32.1%
			Problems	53	96.4%	47	92.2%	44	86.3%	36	67.9%
		EQ5 Anxiety/Depression	No problems	38	69.1%	38	74.5%	44	86.3%	42	79.2%
			Problems	17	30.9%	13	25.5%	7	13.7%	11	20.8%
	TKA	EQ1 Mobility	No problems	3	5.6%	29	54.7%	20	39.2%	24	46.2%
			Problems	51	94.4%	24	45.3%	31	60.8%	28	53.8%
		EQ2 Self-care	No problems	45	83.3%	27	50.9%	37	72.5%	50	96.2%
			Problems	9	16.7%	26	49.1%	14	27.5%	2	3.8%
		EQ3 Usual Activities	No problems	5	9.3%	6	11.3%	9	17.6%	16	30.8%
			Problems	49	90.7%	47	88.7%	42	82.4%	36	69.2%
		EQ4 Pain/Discomfort	No problems	0	0.0%	0	0.0%	2	3.9%	7	13.5%
			Problems	54	100.0%	53	100.0%	49	96.1%	45	86.5%
		EQ5 Anxiety/Depression	No problems	35	64.8%	43	82.7%	42	82.4%	41	78.8%
			Problems	19	35.2%	9	17.3%	9	17.6%	11	21.2%

4.2.2 Demographics

There were 109 participants who completed the study. One participant from the TKA group was excluded after completion because she had not disclosed her discharge to an intermediate-care facility, rendering her ineligible according to the inclusion criteria. The remaining cohort comprised 55 and 54 patients in the THA and TKA groups, respectively. The combined average age of both groups was 63 years. A visual representation of the sex distribution within the study population is shown in Figure 4.2.

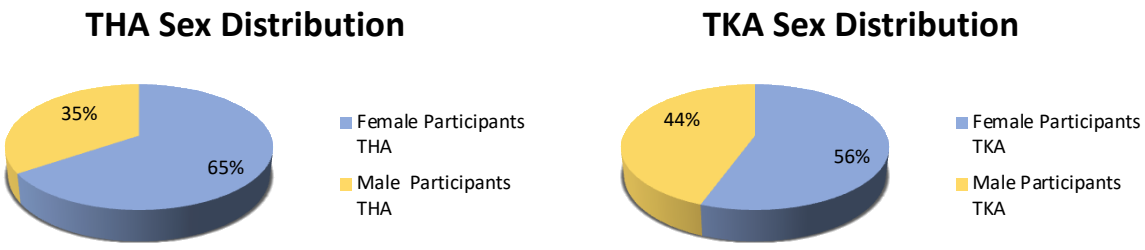


Figure 4.2 Sex distribution of quantitative study participants

4.2.3 Comparison of baseline preoperative scores between THA and TKA groups

4.2.3.1 *Comparison of baseline preoperative scores of EQ-VAS; NRS pain and SF-MPQ-2*

T-tests were conducted to compare baseline scores between the THA and TKA groups for EQ-VAS; NRS pain and SF-MPQ-2. The only significant difference between the groups was found for EQ-VAS (p=0.043), with the THA group having a lower mean EQ-VAS at baseline assessment (Table 4.3). The complete set of results is found in Appendix K.

Table 4.3 Comparison of baseline preoperative scores between THA and TKA groups

Group Statistics					
	Group	**N**	**Mean**	**Std. Deviation**	**p-value**
EQ-VAS	THA	55	73.25	22.817	0.043
	TKA	54	80.61	13.583	

4.2.3.2 *Comparison of baseline preoperative scores of EuroQol-5D-5L*

Pearson's Chi-square tests were used to compare the baseline problems between the THA and TKA groups. There was no significant difference between THA and TKA

groups at baseline for EQ1-Mobilty (p=1.000); EQ3-Usual Activities (p=1.000); EQ4-Pain/Discomfort (p=0.495) and EQ5-Anxiety/depression (p=0.687).

There was, however, a highly significant difference between the THA and TKA group's baseline preoperative EQ2-Self-care (p<0.001), as detailed in Table 4.4.

Table 4.4 Comparison of baseline preoperative EuroQol Dimension 2-Self-care between THA and TKA groups

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson's Chi-Square	17.014[a]	1	<0.001		
Continuity Correction[b]	15.406	1	<0.001		
Likelihood Ratio	17.715	1	<0.001		
Fisher's Exact Test				<0.001	<0.001
Linear-by-Linear Association	16.858	1	<0.001		
N of Valid Cases	109				
a. 0 cells (0.0%) have an expected count of less than 5. The minimum expected count is 19.32.					
b. Computed only for a 2x2 table					

4.2.4 Numeric Rating Scale of pain on the day of surgery

4.2.4.1 *Numeric Rating Scale of pain pre-mobilising and post-mobilising on the day of surgery*

Data were available for 55 and 52 participants in the THA and TKA groups, respectively. Summary statistics of NRS scores of pain pre- and post-mobilising on the day of surgery are shown in Table 4.5. There was a significant increase in pain in the THA group (p=0.029) after mobilisation on the day of surgery. Conversely, the TKA group demonstrated a statistically significant decrease in pain after mobilisation on the day of surgery (p=0.037).

Table 4.5 Pre- and post-mobilising Numeric Rating Scale of pain on the day of surgery.

Paired Samples Test									
Group		Paired Differences					t	df	p-value (2-tailed)
		Mean difference	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
THA	**NRS Pain Before - NRS Pain After**	-0.55	1.84	.2478	-1.0513	-.0578	-2.24	54	0.029
TKA	**NRS Pain Before - NRS Pain After**	0.50	1.69	.234	.031	0.969	2.14	51	0.037

4.2.4.2 *Comparison between THA and TKA groups of Numeric Rating Scale of pain pre-mobilising and post-mobilising on the day of surgery*

There was a highly significant interaction effect between time and group, indicating that the relationship between the NRS of pain and time varied significantly between the THA and TKA groups (p=0.003) (Table 4.6). The interaction plot of NRS scores of pain pre- and post-mobilisation on the day of surgery (Figure 4.3) demonstrates that the two groups experienced different trajectories over time. Thus, the effect of time depended on the patient group. The NRS pain score in the THA group increased over time, while that of the TKA group decreased.

Table 4.6 Comparing THA and TKA groups pre- and post-mobilising Numeric Rating Scale of pain on the day of surgery

Multivariate Tests[a]						
Effect		Value	F	Hypothesis df	Error df	Sig.
Time	Wilks' Lambda	1.000	0.026[b]	1.000	105.000	0.873
Time x group	Wilks' Lambda	0.917	9.535[b]	1.000	105.000	0.003
a. Design: Intercept + group Within Subjects Design: times						
b. Exact statistic						

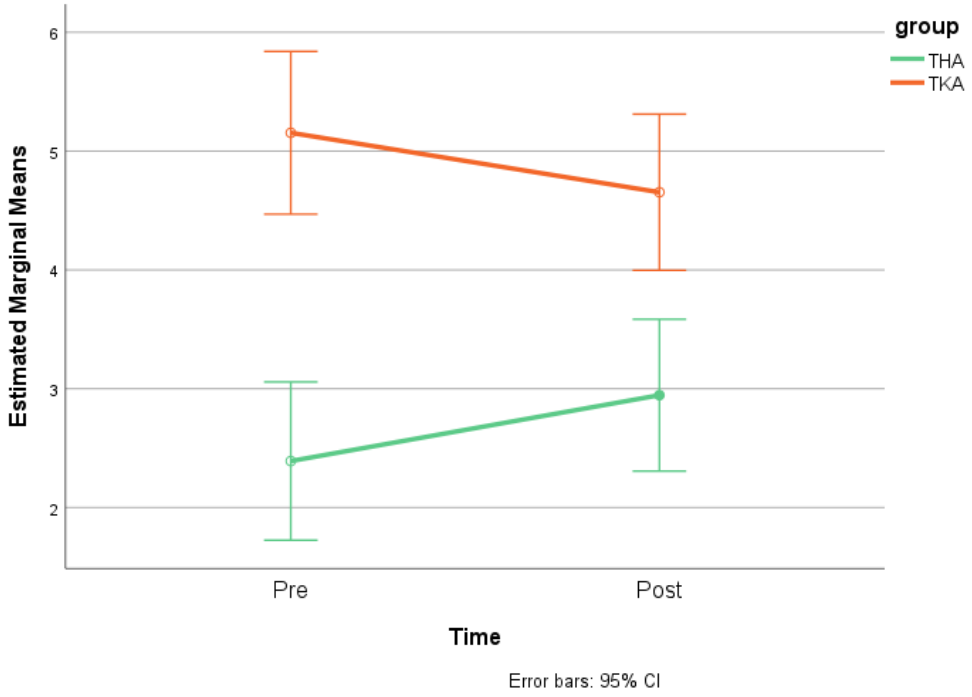


Figure 4.3 Comparison of mean NRS of pain pre- and post-mobilising on the day of surgery

4.2.5 Numeric Rating Scale of pain over time

Data from 55 THA and 54 TKA participants were included in the analysis, each contributing between five and eight repeated time-point measurements. There was a highly significant decrease in the NRS of pain, with p-values <0.001 observed at all time points within each group compared to their respective baselines (see Table 4.7). There was no interaction between time and group for NRS pain (p =0.142). The THA and TKA groups experienced a significant decrease in NRS pain over time, with no significant difference between the groups (p=0.946), as illustrated in Figure 4.4.

Table 4.7 Numeric Rating Scale of pain over time

Parameters							
	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
THA							
(Intercept)	6.833	0.3112	6.223	7.443	482.035	1	<0.001
Week 6	-4.938	0.4069	-5.735	-4.141	147.291	1	<0.001
Week 4	-4.270	0.4005	-5.055	-3.485	113.665	1	<0.001
Week 2	-4.204	0.3859	-4.960	-3.447	118.649	1	<0.001
Week 1	-3.626	0.4005	-4.411	-2.841	81.974	1	<0.001
Day 3	-2.956	0.4218	-3.783	-2.129	49.099	1	<0.001
Day 2	-2.396	0.4087	-3.198	-1.595	34.378	1	<0.001
Day 1	-1.742	0.4578	-2.639	-0.845	14.480	1	<0.001
Baseline	0[a]	.	.	.	.	.	.
(Scale)	5.438						
TKA							
(Intercept)	6.907	0.2083	6.499	7.316	1099.512	1	<0.001
Week 6	-4.122	0.2953	-4.701	-3.543	194.862	1	<0.001
Week 4	-3.650	0.3525	-4.341	-2.960	107.240	1	<0.001
Week 2	-2.999	0.2537	-3.496	-2.501	139.665	1	<0.001
Week 1	-2.093	0.2757	-2.634	-1.553	57.646	1	<0.001
Day 3	-2.676	0.3390	-3.340	-2.012	62.314	1	<0.001
Day 2	-1.463	0.3268	-2.103	-0.822	20.040	1	<0.001
Day 1	-1.450	0.3648	-2.166	-0.735	15.806	1	<0.001
Baseline	0[a]	.	.	.	.	.	.
(Scale)	3.749						
Dependent Variable: NRS Pain Model: (Intercept), time							
a. Set to zero because this parameter is redundant.							
Comparison between THA and TKA NRS Pain							
(Intercept)	7.175	0.3058	6.576	7.774	550.564	1	<0.001
time	-0.605	0.0397	-0.683	-0.527	232.325	1	<0.001
[group=2]	0.026	0.3897	-0.737	0.790	0.005	1	0.946
[group=1]	0[a]	.	.	.	.	.	.
[group=2] * time	0.080	0.0543	-0.027	0.186	2.151	1	0.142
[group=1] * time	0[a]	.	.	.	.	.	.
(Scale)	4.660						
Dependent Variable: NRS Pain Model: (Intercept), time, group, group * time							
a. Set to zero because this parameter is redundant.							

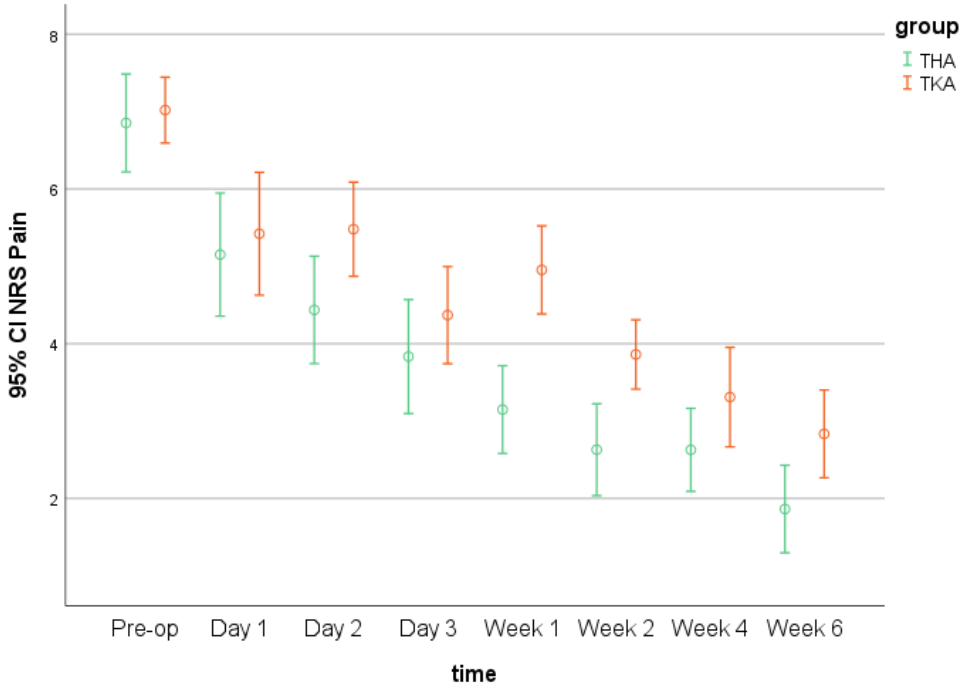


Figure 4.4 Comparison of THA and TKA NRS of pain over time

4.2.6 Short-form McGill Pain Questionaire-*2*

Data from 55 THA and 54 TKA participants were available, each contributing between one and four repeated time-point measurements per participant.

4.2.6.1 *Short-form McGill Pain Questionaire-2: Total Score, Continuous Pain, and Intermittent Pain*

There was a statistically significant decrease ($p<0.001$) for all time points relative to the baseline for both THA and TKA groups in total score, continuous pain, and intermittent pain (Table 4.8).

Table 4.8 Short-form McGill Pain Questionaire-*2:* Total Score, Continuous Pain, and Intermittent Pain

Parameter Estimates								
Group	**Parameter**	**B**	**Std. Error**	**95% Wald Confidence Interval**		**Hypothesis Test**		
				Lower	**Upper**	**Wald Chi-Square**	**df**	**Sig.**
Total Score								
THA	**(Intercept)**	2.519	.2061	2.115	2.923	149.390	1	<0.001
	Week 6	-1.831	.2008	-2.225	-1.437	83.144	1	<0.001
	Week 2	-1.521	.1925	-1.898	-1.144	62.417	1	<0.001
	Day 2	-.964	.2332	-1.421	-.507	17.086	1	<0.001
	Initial	0[a]	.	.	.	.	.	.
	(Scale)	1.908						
TKA	**(Intercept)**	2.488	0.1617	2.171	2.805	236.751	1	0.000
	Week 6	-1.400	0.2222	-1.835	-0.964	39.685	1	<0.001
	Week 2	-1.204	0.1783	-1.554	-0.855	45.590	1	<0.001
	Day 2	-0.875	0.2167	-1.300	-0.450	16.298	1	<0.001
	Initial	0[a]	.	.	.	.	.	.
	(Scale)	1.059						
Dependent Variable: total score Model: (Intercept), time								
Continuous Pain								
THA	**(Intercept)**	3.021	.2565	2.519	3.524	138.748	1	<0.001
	Week 6	-2.099	.2456	-2.580	-1.617	73.009	1	<0.001
	Week 2	-1.685	.2398	-2.155	-1.215	49.354	1	<0.001
	Day 2	-.954	.2727	-1.489	-.420	12.247	1	<0.001
	Initial	0[a]	.	.	.	.	.	.
	(Scale)	3.060						
TKA	**(Intercept)**	3.257	0.2342	2.798	3.716	193.458	1	<0.001
	Week 6	-1.962	0.2933	-2.537	-1.387	44.727	1	<0.001
	Week 2	-1.521	0.2766	-2.064	-0.979	30.246	1	<0.001
	Day 2	-1.070	0.2672	-1.594	-0.547	16.040	1	<0.001
	Initial	0[a]	.	.	.	.	.	.
	(Scale)	2.103						
Dependent Variable: continuous pain Model: (Intercept), time								
Intermittent Pain								
THA	**(Intercept)**	3.418	.3197	2.792	4.045	114.343	1	<0.001
	Week 6	-2.893	.3284	-3.537	-2.250	77.647	1	<0.001
	Week 2	-2.539	.3295	-3.185	-1.893	59.397	1	<0.001
	Day 2	-1.762	.3841	-2.515	-1.009	21.043	1	<0.001
	Initial	0[a]	.	.	.	.	.	.
	(Scale)	3.357						
TKA	**(Intercept)**	3.187	0.2656	2.666	3.708	143.924	1	<0.001
	Week 6	-2.187	0.3110	-2.796	-1.577	49.439	1	<0.001
	Week 2	-1.907	0.3191	-2.532	-1.281	35.692	1	<0.001

	Day 2	-1.377	0.3663	-2.095	-0.659	14.139	1	<0.001
	Initial	0[a]	.	.	.	.	.	.
	(Scale)	2.539						
Dependent Variable: Intermittent pain Model: (Intercept), time								
a. Set to zero because this parameter is redundant.								

4.2.6.2 *Short-form McGill Pain Questionaire-2: Between-group comparison of Total Score, Continuous Pain, and Intermittent Pain*

There was no interaction between time and group for total score (p=0.084), continuous pain (p=0.673) and intermittent pain (p=0.100). Both groups experienced highly significant decreases in scores over time (p<0.001), and there was no significant difference between groups, as indicated in Table 4.9.

Table 4.9 Comparison of THA and TKA Group's Short-form McGill Pain Questionaire-*2:* Total Score, Continuous Pain, and Intermittent Pain

Parameter Estimates							
Parameter	**B**	**Std. Error**	**95% Wald Confidence Interval**		**Hypothesis Test**		
			Lower	**Upper**	**Wald Chi-Square**	**df**	**Sig.**
Total Score							
(Intercept)	2.638	0.2221	2.203	3.073	141.089	1	<0.001
time	-0.220	0.0243	-0.268	-0.172	81.673	1	<0.001
[group=2]	-0.119	0.2689	-0.646	0.408	0.196	1	0.658
[group=1]	0[a]	.	.	.	.	.	.
[group=2] * time	0.057	0.0328	-0.008	0.121	2.979	1	0.084
[group=1] * time	0[a]	.	.	.	.	.	.
(Scale)	1.513						
Dependent Variable: total score Model: (Intercept), time, group, group * time							
Continuous Pain							
(Intercept)	3.247	0.2772	2.704	3.791	137.202	1	<0.001
time	-0.264	0.0312	-0.325	-0.203	71.698	1	<0.001
[group=2]	0.173	0.3694	-0.551	0.897	0.220	1	0.639
[group=1]	0[a]	.	.	.	.	.	.
[group=2] * time	0.020	0.0481	-0.074	0.115	0.178	1	0.673
[group=1] * time	0[a]	.	.	.	.	.	.
(Scale)	2.593						
Dependent Variable: continuous pain Model: (Intercept), time, group, group * time							
Intermittent Pain							
(Intercept)	3.511	0.3223	2.879	4.143	118.661	1	<0.001
time	-0.354	0.0397	-0.432	-0.276	79.531	1	<0.001
[group=2]	-0.273	0.4024	-1.062	0.516	0.460	1	0.497
[group=1]	0[a]	.	.	.	.	.	.
[group=2] * time	0.086	0.0525	-0.017	0.189	2.699	1	0.100
[group=1] * time	0[a]	.	.	.	.	.	.
(Scale)	3.012						
Dependent Variable: Intermittent pain Model: (Intercept), time, group, group * time							
a. Set to zero because this parameter is redundant.							

4.2.6.3 *Short-form McGill Pain Questionaire-2: Neuropathic Pain*

There were highly significant decreases in neuropathic pain scores in the THA group at week two (p=0.001) and week six (p<0.001) postoperatively. However, there was no significant decrease in neuropathic pain scores on day two (p=0.117). The TKA group showed no change in neuropathic pain scores over time from baseline to six

weeks postoperatively (Day 2 p=0.775; Week 2 p=0.581; Week 6 p=0.536), as presented in Table 4.10.

There was an interaction between time and group for neuropathic pain (p=0.026) (Table 4.10). The profile plot below (Figure 4.5) shows that neuropathic pain decreased faster in the THA group than in the TKA group.

Table 4.10 Short-form McGill Pain Questionaire-*2* Neuropathic Pain

Parameter Estimates							
Parameter	**B**	**Std. Error**	**95% Wald Confidence Interval**		**Hypothesis Test**		
			Lower	**Upper**	**Wald Chi-Square**	**df**	**Sig.**
THA							
(Intercept)	1.513	.1834	1.154	1.873	68.086	1	<0.001
Week 6	-.747	.2005	-1.140	-.354	13.883	1	<0.001
Week 2	-.583	.1690	-.914	-.251	11.885	1	0.001
Day 2	-.343	.2188	-.772	.086	2.462	1	0.117
Initial	0[a]	.	.	.	.	.	.
(Scale)	1.723						
TKA							
(Intercept)	1.259	0.1652	0.935	1.582	58.038	1	<0.001
Week 6	-0.136	0.2196	-0.566	0.295	0.383	1	0.536
Week 2	-0.110	0.1987	-0.499	0.280	0.305	1	0.581
Day 2	-0.065	0.2283	-0.513	0.382	0.082	1	0.775
Initial	0[a]	.	.	.	.	.	.
(Scale)	1.052						
Dependent Variable: neuropathic pain Model: (Intercept), time							
a. Set to zero because this parameter is redundant.							
Comparison of THA and TKA Neuropathic Pain							
(Intercept)	1.575	0.1966	1.190	1.960	64.166	1	<0.001
time	-0.091	0.0245	-0.139	-0.043	13.846	1	<0.001
[group=2]	-0.297	0.2457	-0.779	0.185	1.461	1	0.227
[group=1]	0[a]	.	.	.	.	.	.
[group=2] * time	0.073	0.0327	0.009	0.137	4.972	1	0.026
[group=1] * time	0[a]	.	.	.	.	.	.
(Scale)	1.391						
Dependent Variable: neuropathic pain Model: (Intercept), time, group, group * time							
a. Set to zero because this parameter is redundant.							

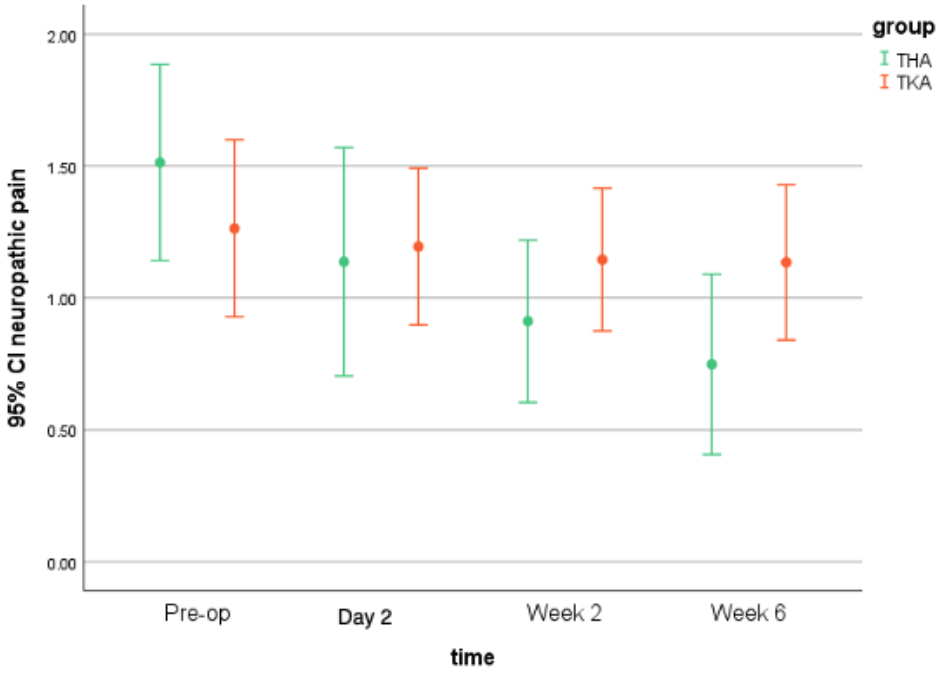


Figure 4.5 Comparison of THA and TKA Neuropathic Pain over time

4.2.6.4 *Short-form McGill Pain Questionaire-2: Affective Pain Descriptors*

There was a highly significant decrease in the affective pain descriptors in both the THA ($p<0.001$) and TKA ($p<0.001$) groups at week two and week six. However, there was no improvement in affective pain descriptors for either the THA group ($p=0.016$) or the TKA group ($p=0.02$) on day two postoperatively (Table 4.11).

There was no interaction between time and group for the affective pain descriptors ($p=0.569$) (Table 4.11). Both groups experienced a highly significant decrease in Affective Pain Descriptors over time ($p<0.001$), and there was no significant difference between groups.

Table 4.11 SF-MPQ-2: Affective Pain Descriptors THA and TKA

Parameter Estimates							
Parameter	**B**	**Std. Error**	**95% Wald Confidence Interval**		**Hypothesis Test**		
			Lower	**Upper**	**Wald Chi-Square**	**df**	**Sig.**
THA							
(Intercept)	1.927	.2941	1.351	2.504	42.933	1	<0.001
Week 6	-1.506	.2897	-2.074	-.938	27.033	1	<0.001
Week 2	-1.174	.2750	-1.713	-.635	18.232	1	<0.001
Day 2	-.788	.3278	-1.431	-.146	5.781	1	0.016
Initial	0[a]	.	.	.	.	.	.
(Scale)	2.691						
TKA							
(Intercept)	2.129	0.2431	1.653	2.606	76.706	1	<0.001
Week 6	-1.368	0.3044	-1.965	-0.771	20.196	1	<0.001
Week 2	-1.230	0.2871	-1.793	-0.667	18.362	1	<0.001
Day 2	-1.055	0.3367	-1.715	-0.395	9.814	1	0.002
Initial	0[a]	.	.	.	.	.	.
(Scale)	2.173						
Dependent Variable: Affective Descriptors Model: (Intercept), time							
a. Set to zero because this parameter is redundant.							
Comparison of THA and TKA Affective Pain Descriptors							
(Intercept)	2.018	0.2972	1.435	2.601	46.094	1	<0.001
time	-0.178	0.0321	-0.241	-0.115	30.778	1	<0.001
[group=2]	0.051	0.3738	-0.682	0.784	0.019	1	0.891
[group=1]	0[a]	.	.	.	.	.	.
[group=2] * time	0.026	0.0452	-0.063	0.114	0.325	1	0.569
[group=1] * time	0[a]	.	.	.	.	.	.
(Scale)	2.452						
Dependent Variable: Affective Descriptors Model: (Intercept), time, group, group * time							
a. Set to zero because this parameter is redundant.							

4.2.7 EuroQol – Visual Analogue Scale of overall health

Data were available for 55 THA and 54 TKA patients with between two and four repeated measures per patient, respectively, as reported in Table 4.12.

The THA group showed no significant improvement on day 2 (p=0.643) but showed significant improvement at week 2 (p=0.013) and a more significant improvement by week 6 (p<0.001) postoperatively compared to the baseline score.

Conversely, there was a significant worsening in EQ-VAS scores in the TKA group on postoperative day two (p=0.003) and no further statistically significant change at weeks two (p=0.459) and six (p=0.102) postoperatively compared to the baseline score.

A comparison of the THA and TKA groups revealed an interaction between time and group for EQ-VAS (p=0.011). The profile plot in Figure 4.6 shows that the profiles of the two groups crossed over after day two, and the EQ-VAS scores of the THA group increased faster than those of the TKA group.

Table 4.12 EuroQol-VAS: THA and TKA

Parameter							
Parameter	**B**	**Std. Error**	**95% Wald Confidence Interval**		**Hypothesis Test**		
			Lower	**Upper**	**Wald Chi-Square**	**df**	**Sig.**
THA							
(Intercept)	73.255	3.0485	67.280	79.230	577.426	1	<0.001
Week 6	12.887	3.2609	6.496	19.278	15.618	1	<0.001
Week 2	9.188	3.7157	1.906	16.471	6.115	1	0.013
Day 2	-1.752	3.7847	-9.170	5.666	.214	1	0.643
Initial	0[a]	.	.	.	.	.	.
(Scale)	335.383						
TKA							
(Intercept)	80.611	1.8313	77.022	84.200	1937.717	1	0.000
Week 6	3.972	2.4262	-0.783	8.728	2.680	1	0.102
Week 2	-1.966	2.6573	-7.174	3.242	0.547	1	0.459
Day 2	-8.006	2.7218	-13.341	-2.672	8.652	1	0.003
Initial	0[a]	.	.	.	.	.	.
(Scale)	204.412						
Comparison of THA and TKA Groups							
(Intercept)	68.244	2.8345	62.689	73.799	579.681	1	<0.001
time	2.009	0.3673	1.289	2.729	29.911	1	<0.001
[group=2]	7.162	3.3885	0.520	13.803	4.467	1	0.035
[group=1]	0[a]	.	.	.	.	.	.
[group=2] * time	-1.186	0.4670	-2.101	-0.270	6.446	1	0.011
[group=1] * time	0[a]	.	.	.	.	.	.
(Scale)	279.739						

Dependent Variable: EQ-VAS
Model: (Intercept), time, group, group * time

a. Set to zero because this parameter is redundant.

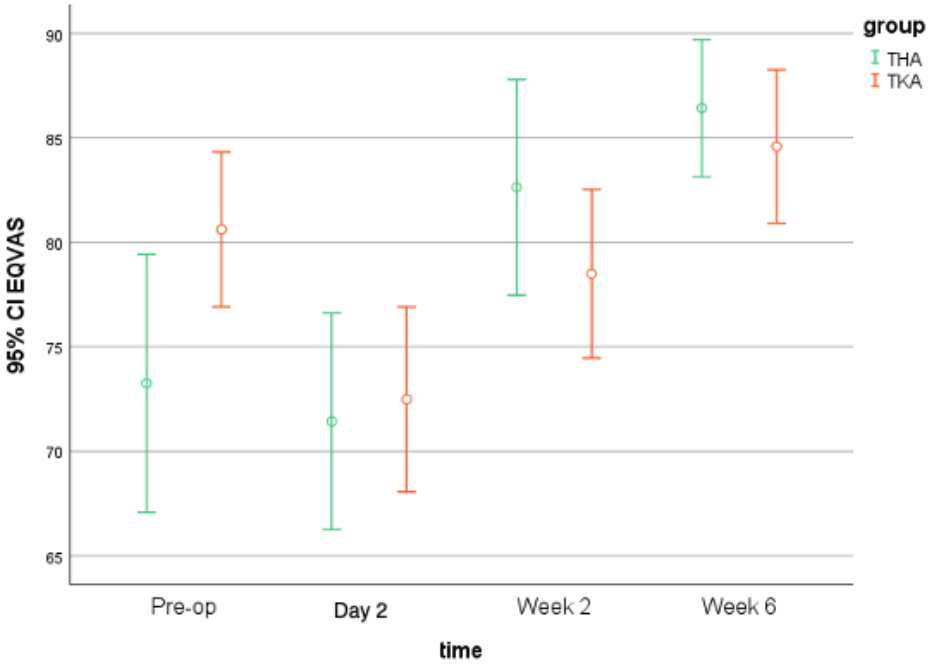


Figure 4.6 EuroQol-VAS comparison of THA and TKA groups

4.2.8 EuroQol 5-Dimension 5-Level

Data were available for 55 THA and 54 TKA patients, with between 2 and 4 repeated measures per patient, respectively. The calculated odds ratios and corresponding 95% confidence intervals, which assess the presence or absence of problems across multiple time points, specifically at day two, week two, and week six relative to baseline preoperative scores, are presented. The analysis of each dimension of the EQ-5D-5L will be presented individually, followed by corresponding comparative analyses between the THA and TKA groups.

4.2.8.1 *EuroQol Dimension 1: Mobility*

The odds of encountering mobility-related problems exhibited a substantial and statistically significant decrease ($p<0.001$) across all assessment time points (day two, week two, and week six) when compared to the baseline assessment scores for both THA and TKA groups.

No significant interaction between time and group was observed ($p=0.123$). However, a highly significant reduction in mobility-related problems over time was evident ($p<0.001$), with no discernible differences between the groups (Table 4.13).

Table 4.13 EuroQol Dimension 1: Mobility

Parameter						
Parameter	**Hypothesis Test**			**OR**	**95% Wald Confidence Interval for OR**	
	Wald Chi-Square	**df**	**Sig.**		**Lower**	**Upper**
THA						
(Intercept)	23.081	1	<0.001	17.333	5.413	55.501
Week 6	19.924	1	<0.001	0.057	0.016	0.201
Week 2	14.747	1	<0.001	0.077	0.021	0.285
Day 2	11.356	1	<0.001	0.093	0.023	0.371
Initial	.	.	.	1	.	.
(Scale)						
TKA						
(Intercept)	22.743	1	<0.001	17.000	5.306	54.468
Week 6	16.786	1	<0.001	0.069	0.019	0.248
Week 2	17.241	1	<0.001	0.088	0.028	0.277
Day 2	25.399	1	<0.001	0.049	0.015	0.159
Initial	.	.	.	1	.	.
(Scale)						
Comparison between THA and TKA Groups						
(Intercept)	54.303	1	<0.001	7.523	4.399	12.868
time	26.493	1	<0.001	0.795	0.728	0.868
[group=2]	3.151	1	0.076	0.510	0.242	1.073
[group=1]	.	.	.	1	.	.
[group=2] * time	2.381	1	0.123	1.101	0.974	1.244
[group=1] * time	.	.	.	1	.	.
(Scale)	1					

4.2.8.2 *EuroQol Dimension 2: Self-care*

Odds ratios and 95% confidence intervals reflecting problems (score 2-5) versus the absence of problems (score 1) are displayed by group and time point relative to baseline assessment. At week six, there was a highly significant reduction in the odds of problems with self-care in the THA group (p<0.001) and a significant reduction in the TKA group (p=0.032). Conversely, the odds of problems increased very significantly at day two for the TKA group (p<0.001) and significantly for the THA group (p=0.025) (Table 4.14).

No significant interaction between time and group was observed for EQ2 Self-care (p=0.712). However, a pronounced and highly significant decrease in the prevalence of problems over time was apparent (p<0.001). There were notable group differences

(p<0.001), with THA scores consistently higher than TKA scores (as illustrated in Table 4.14). The trajectory for both groups displayed remarkable similarity over time, as depicted in Figure 4.7.

Table 4.14 EuroQol Dimension 2: Self-care

Parameters						
Parameter	**Hypothesis Test**			**OR**	**95% Wald Confidence Interval for OR**	
	Wald Chi-Square	**df**	**Sig.**		**Lower**	**Upper**
THA						
(Intercept)	0.453	1	0.501	1.200	0.706	2.040
Week 6	11.634	1	<0.001	0.296	0.147	0.596
Week 2	0.018	1	0.895	1.043	0.563	1.930
Day 2	5.039	1	0.025	2.465	1.121	5.419
Initial	.	.	.	1	.	.
(Scale)						
TKA						
(Intercept)	19.427	1	<0.001	0.200	0.098	0.409
Week 6	4.618	1	0.032	0.206	0.049	0.870
Week 2	1.996	1	0.158	1.931	0.775	4.810
Day 2	14.234	1	<0.001	4.972	2.161	11.439
Initial	.	.	.	1	.	.
(Scale)						
Comparison between THA and TKA Groups						
(Intercept)	10.735	1	0.001	2.403	1.422	4.061
time	16.425	1	<0.001	0.855	0.793	0.922
[group=2	12.977	1	<0.001	0.256	0.122	0.537
[group=1	.	.	.	1	.	.
[group=2] * time	0.137	1	0.712	1.021	0.913	1.143
[group=1] * time	.	.	.	1	.	.
(Scale)	1					

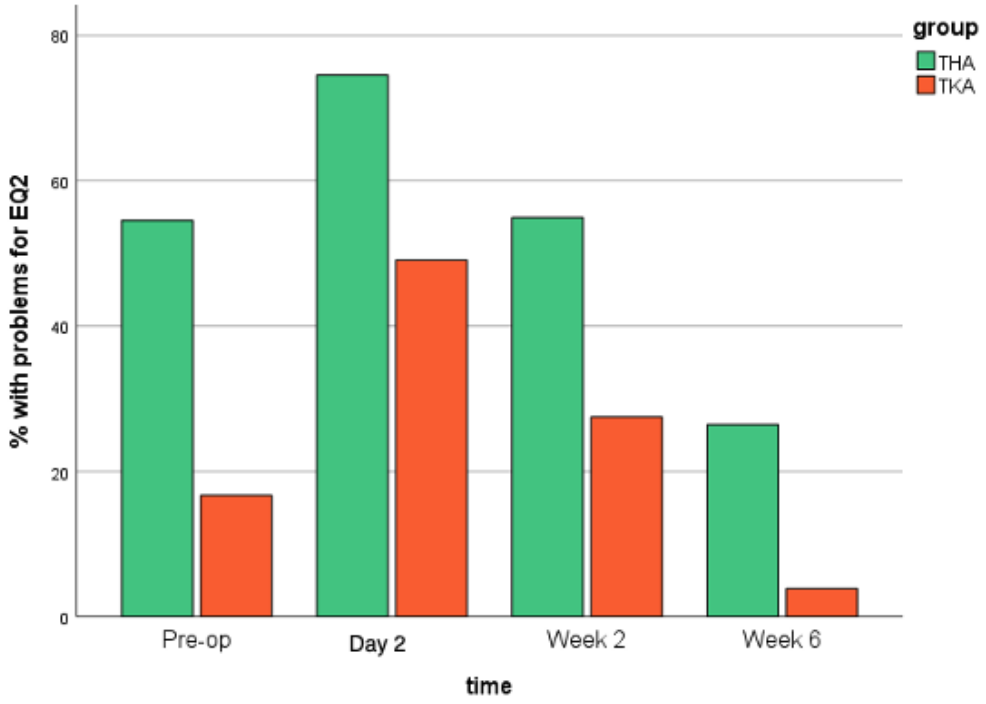


Figure 4.7 EQ2 – Self-care Comparison of THA and TKA Groups

4.2.8.3 *EuroQol Dimension 3 Usual Activities*

Odds ratios and 95% confidence intervals, comparing the presence of problems (score 2-5) to the absence of problems (score 1), are presented by group and time point in relation to the baseline assessment. Specifically, the THA group showed a highly significant reduction ($p<0.001$), while the TKA group displayed a significant reduction ($p=0.011$) in the odds of experiencing problems with Usual Activities by week six, when compared to baseline scores (as detailed in Table 4.15).

No significant interaction was detected between time and group for EQ3 Usual Activities ($p=0.283$). However, a significant decrease in problems with Usual Activities over time was found for both THA and TKA ($p<0.001$) was found. There were no significant group differences ($p=0.737$).

Table 4.15 EuroQol Dimension 3: Usual Activities

Parameters						
Parameter	**Hypothesis Test**			**OR**	**95% Wald Confidence Interval for OR**	
	Wald Chi-Square	**df**	**Sig.**		**Lower**	**Upper**
THA						
(Intercept)	24.100	1	<0.001	10.000	3.988	25.075
Week 6	22.959	1	<0.001	0.091	0.034	0.242
Week 2	1.065	1	0.302	0.541	0.168	1.739
Day 2	1.227	1	0.268	0.519	0.163	1.655
Initial	.	.	.	1	.	.
(Scale)						
TKA						
(Intercept)	23.635	1	<0.001	9.800	3.905	24.595
Week 6	6.515	1	0.011	0.230	0.075	0.711
Week 2	1.943	1	0.163	0.472	0.164	1.357
Day 2	0.079	1	0.778	0.825	0.215	3.155
Initial	.	.	.	1	.	.
(Scale)						
Comparison between THA and TKA						
(Intercept)	35.973	1	<0.001	18.950	7.246	49.559
time	22.193	1	<0.001	0.742	0.655	0.840
[group=2]	0.112	1	0.737	0.796	0.211	3.013
[group=1]	.	.	.	1	.	.
[group=2] * time	1.152	1	0.283	1.106	0.920	1.328
[group=1] * time	.	.	.	1	.	.
(Scale)						

4.2.8.4 *EuroQol Dimension 4 Pain/Discomfort*

The likelihood of experiencing problems with pain/discomfort exhibited a noteworthy and statistically significant reduction ($p<0.001$) by the sixth week following the THA, as outlined in Table 4.16. However, compared to the preoperative baseline scores, there were no significant changes in the odds of encountering problems with pain/discomfort at day two ($p=0.373$) and week two ($p=0.061$). It is worth noting that the GEE model could not be effectively applied to the TKA group due to insufficient responses indicating "no problems."

In the context of EQ4 – Pain/Discomfort, no significant interaction was observed between time and group ($p=0.126$), as reported in Table 4.14. Nevertheless, there was a highly significant decrease in the prevalence of problems over time ($p<0.001$), coupled with significant group differences ($p=0.045$).

Table 4.16 EuroQol Dimension 4: Pain/Discomfort

Parameters						
Parameter	**Hypothesis Test**			**OR**	**95% Wald Confidence Interval for OR**	
	Wald Chi-Square	**df**	**Sig.**		**Lower**	**Upper**
THA						
(Intercept)	20.698	1	<0.001	26.500	6.458	108.740
Week 6	11.586	1	<0.001	0.081	0.019	0.344
Week 2	3.503	1	0.061	0.244	0.056	1.069
Day 2	0.794	1	0.373	0.444	0.075	2.648
Initial	.	.	.	1	.	.
(Scale)						
Comparison between THA and TKA						
(Intercept)	33.614	1	<0.001	47.391	12.859	33.614
time	16.390	1	<0.001	0.715	0.607	16.390
[group=2]	4.029	1	0.045	158.403	1.127	4.029
[group=1]	.	.	.	1	.	.
[group=2] * time	2.336	1	0.126	0.638	0.359	2.336
[group=1] * time	.	.	.	1	.	.
(Scale)						

4.2.8.5 *EuroQol Dimension 5 Anxiety/Depression*

Odds ratios and 95% confidence intervals, comparing the presence of problems (score 2-5) to the absence of problems (score 1), categorised by group and time point in relation to baseline assessment scores, are presented. The anxiety/depression dimension revealed no meaningful change in the odds of experiencing problems over time for the THA group. Conversely, the TKA group demonstrated a significant reduction in the odds of problems at day two (p=0.023) and week two (p=0.004), with a borderline non-significant reduction (p=0.054) at week six (Table 4.17).

The analysis revealed no significant interaction between time and group for EQ5 Anxiety/Depression (p=1.000). However, a significant decrease in the prevalence of problems over time was observed (p=0.048), albeit without any significant differences (p=0.905) between the groups (Table 4.17).

Table 4.17 EuroQol Dimension 5: Anxiety/Depression

Parameters						
Parameter	**Hypothesis Test**			**OR**	**95% Wald Confidence Interval for OR**	
	Wald Chi-Square	**df**	**Sig.**		**Lower**	**Upper**
THA						
(Intercept)	7.599	1	0.006	0.447	0.253	0.793
Week 6	2.469	1	0.116	0.562	0.274	1.153
Week 2	3.526	1	0.060	0.380	0.138	1.043
Day 2	0.176	1	0.675	0.852	0.403	1.801
[time=1]	.	.	.	1	.	.
(Scale)						
TKA						
(Intercept)	4.596	1	0.032	0.543	0.311	0.949
Week 6	3.702	1	0.054	0.483	0.230	1.014
Week 2	8.210	1	0.004	0.368	0.186	0.729
Day 2	5.198	1	0.023	0.379	0.165	0.873
Initial	.	.	.	1	.	.
(Scale)						
Comparison between THA and TKA						
(Intercept)	7.509	1	0.006	0.473	0.277	0.808
time	3.921	1	0.048	0.913	0.835	0.999
[group=2]	0.014	1	0.905	0.952	0.426	2.130
[group=1]	.	.	.	1	.	.
[group=2] * time	0.000	1	1.000	1.000	0.876	1.141
[group=1] * time	.	.	.	1	.	.
(Scale)						

4.2.9 Conclusion of Quantitative Results

In conclusion, the findings in this chapter shed light on several key aspects of the research objectives. Data analysis provided insights into reported pain and HRQOL measures in the acute and subacute recovery phases of SDD. Furthermore, significant differences in SDD between THA and TKA have been highlighted. The following chapter will explore these findings and compare them with the available research on SDD in LLA.

4.3 Qualitative Results

4.3.1 Introduction

The demographics of the participants who completed the qualitative part of this study are also presented. The results of the two groups will be presented separately

according to themes, thereby addressing the primary objective of exploring patient perceptions and experiences related to patient-reported pain and the SDD process after THA and TKA. A comparative analysis of the results of the two groups will follow, thereby addressing the secondary objective of this study, that is, comparing THA and TKA perceptions and experiences following SDD.

4.3.2 Demographics

Twenty-four participants completed the qualitative research protocol and were willing to participate in the interviews. The THA group consisted of 14 individuals with an average age of 55. In contrast, the TKA group comprised ten individuals with an average age of 61. The sex distribution of both groups is shown in Figure 4.8.

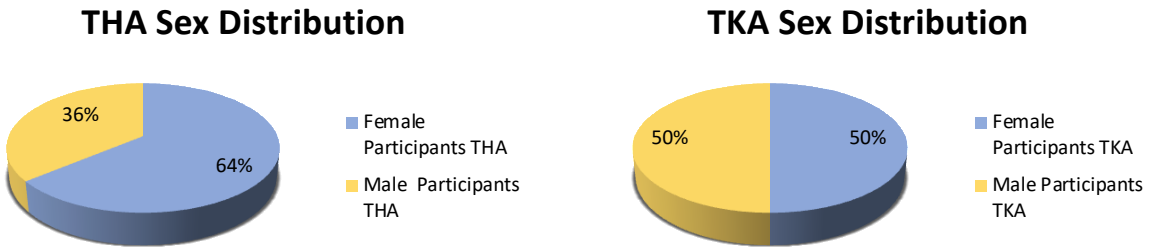


Figure 4.8 Sex distribution of qualitative study participants

4.3.3 Total Hip Arthroplasty Thematic Analysis Results

The main themes and sub-themes developed in the THA group are depicted in Figure 4.9. Each theme and the subsequent sub-themes will be discussed separately. A reflective journal evidencing how the data was analysed for the THA group is attached as Appendix H.

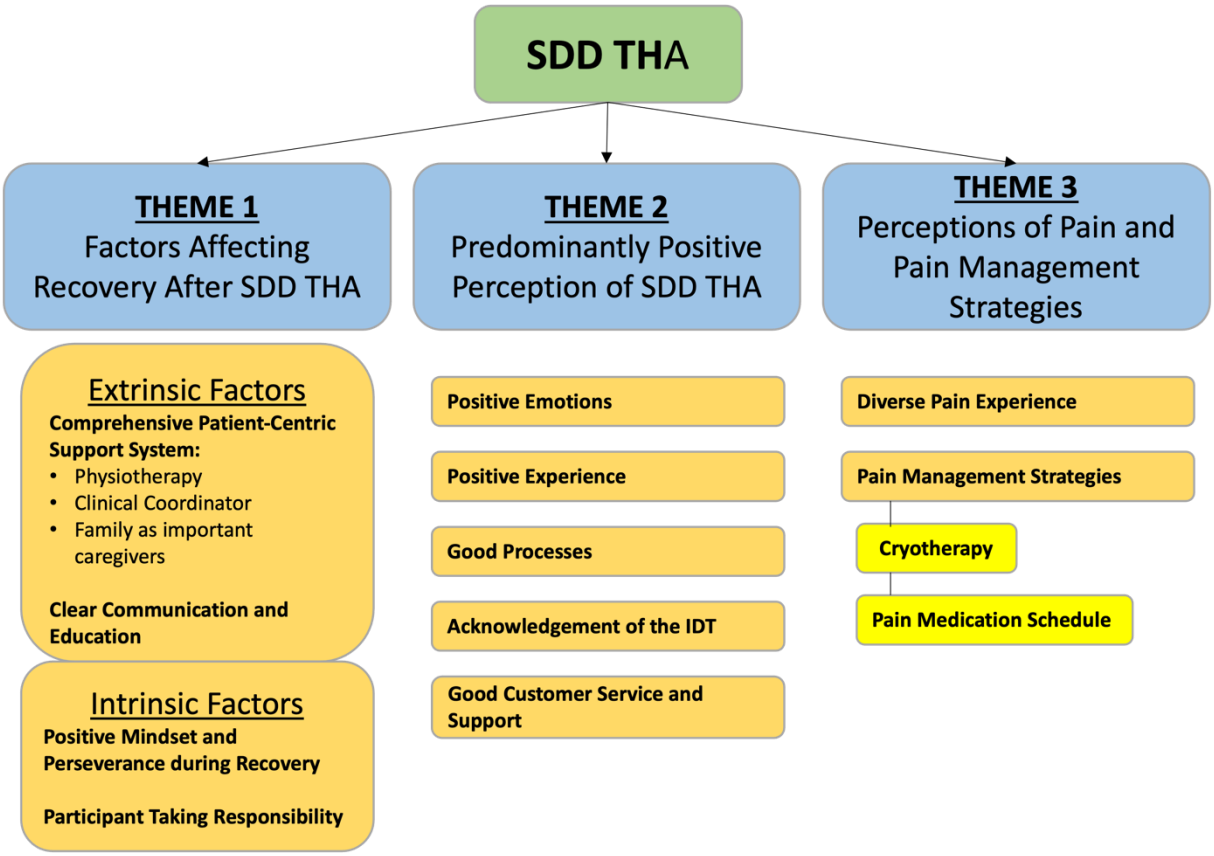


Figure 4.9 Same-Day Discharge THA Thematic Analysis

4.3.3.1 Theme 1: Factors Affecting Recovery after SDD THA

This theme identifies extrinsic and intrinsic factors that play a role during the recovery process following SDD THA.

4.3.3.1.1 Sub-theme 1: Extrinsic Factors

Extrinsic factors that influence the recovery experience include a comprehensive patient-centric support system, which is interconnected and relies heavily on communication and education.

Comprehensive Patient-centric Support System

Figure 4.10 overviews the first of the two main extrinsic factors identified. The comprehensive patient-centric support network comprises the IDT with specific mention of the role of the clinical coordinator, physiotherapists, and family as important caregivers. The importance of a collaborative support network was evident in most interviews.

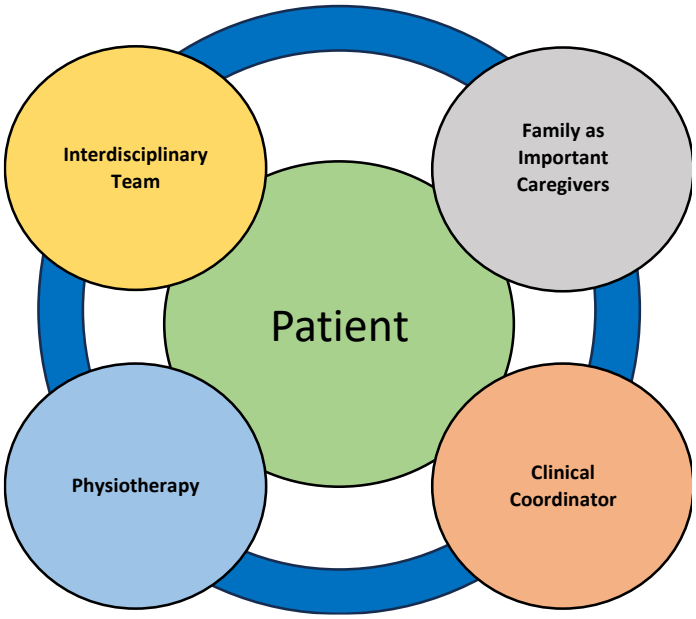


Figure 4.10 Sub-theme 1 of same-day discharge total hip arthroplasty

The Interdisciplinary Team

The IDT involves orthopaedic surgeons, physiotherapists, anaesthetists, clinical coordinators, and administrative support staff. Within this sub-theme, participants highlighted the importance of accessible healthcare professionals who promptly addressed their concerns and queries. The participants valued having a point of contact, such as the clinical coordinator and physiotherapist, who aided, communicated, and guided throughout the recovery journey. Family caregivers are a vital component of the support system. This theme underscores the role of these various support systems in the recovery process and how they collaborate to provide an ideal recovery environment.

The following quote highlights the holistic and collaborative approach of the IDT, providing preparation and support from the start of the SDD THA process. Participant H55 responded when asked which aspects of the healthcare received worked well for

them: *"You know, it's just, it's a holistic approach... that everything you people give us and the way it's done. I had my open-heart surgery last year, and I often think, if these people had done what you guys did with my hip, I would never have worried about that, but the heart op was a big worry, but you weren't informed. You can just say I wasn't well-prepared for it. I mean, I Googled, and I asked them, but you guys from beginning to end support, supported us. We knew exactly what to expect."* (H55, Pos. 49 [1]).

Participant H8 responded with sincere gratitude to the same question regarding the health care services provided. He emphasised the amount of appreciation he had for being treated with respect. He compared this with solid and damaging accusations of how medical professionals usually treat their clients, even using foul language to emphasise his point: *"No, it was good! I really have no complaints. And I really am a person that's very, very, very prepared to complain about any little thing. I will say one thing because you're asking kind of negative things. The one thing I really, really appreciate about all… everybody that I've met here, from the people at the desk to you to everybody, you treat them with respect, and support and friendliness ... and doctors are bastards ... they treat their clients like rubbish! ... You know what I'm saying? And you guys have been wonderful! And I really, really, really, really appreciate that!"* (H8, Pos. 96-100).

These quotes provide insights into the support system provided by the IDT, which contributes to an environment that promotes recovery.

Physiotherapy

The expertise, support, and guidance physiotherapists provide are appreciated and viewed as instrumental in the recovery process. Specific mentions include formulating tailored rehabilitation plans, conducting exercises, and improving mobility and functionality after surgery.

This quote from Participant H38 is valuable, as it illustrates how instrumental the physiotherapist is in the patient-centric support structure. The participant felt that physiotherapy was the most important part of the healthcare he received during the SDD THA process: *"The most influence, from ... from all the healthcare was uh… from*

[1] H55 refers to THA participant 55 and Pos.49 refers to the position of the quote in the transcript.

how I see it as the most important part, as well is the ... you know the physio afterwards to get you back in operating conditions as soon as possible." (H38, Pos. 92).

Likewise, Participant H53 responded with certainty that SDD THA would not be possible without physiotherapy support: *"Just information and exercises ... but definitely ja, the physio. You have to have that; you cannot do it without it!"* (H53, Pos. 66-68).

These two quotes shed light on the vital role of physiotherapy in promoting recovery following SDD-THA.

Clinical coordinator

Participants indicated the clinical coordinator's value in facilitating effective communication, support, and reassurance during the SDD THA recovery process. Specific mention is made of the phone calls or "check-ins" that the clinical coordinator provided, creating a reliable point of contact throughout the recovery journey.

Participant H1 highlighted how essential they believed the phone calls provided by the clinical coordinator were, describing how comforting it was knowing there was support during the recovery process: *"Do you know that the phone calls from ... from Noelle* (clinical coordinator) *and from you* (physiotherapist)*! That just ... it really made a difference just to know that there's someone else out there that, that is wondering how you are. The phone calls were, I think, essential."* (H1, Pos. 96).

The following quote from Participant H38 further supports the idea of comfort or setting at ease. He responded to a question regarding whether he felt prepared for SDD as follows:"*... my mind wasn't in a bad place because everything went well from the start, all the explanation and phone calls afterwards from ... from the, what's that lady* (clinical coordinator)*, every day, for four days and all that was ... was just making me at ease and you know, if there is anything that, that you worried about, you can just call and ask her or Stephen* (physiotherapist) *as well and so on. So that's the only thing, I was fairly prepared, everything was explained nicely, it was a… it was very good."* (H38, Pos. 20).

The role of the clinical coordinator as a reliable point of contact and the support created in the recovery process following SDD THA is clear.

Family as important caregivers

This sub-theme emphasises the critical role of family members in supporting participants' recovery. Participants often expressed gratitude and reliance on family members, highlighting how their emotional support, assistance with daily activities, and encouragement positively impacted recovery. Family caregivers assist with various aspects, including mobility, medication management, and psychological well-being.

The following quotation from Participant H8 indicates the comprehensive assistance she received from her husband, confirming how this made her recovery easy. *"No, at home, everything was well, and then I, I do have the assistant, my husband. Anything I wanted, he is the one who assist me and everything. When I bath, everything."* (Pos. 46) *"So, it was not difficult for me to do these things, because I have the assistance for my husband when I want something to do for me, asking him to do those things."* (H48, Pos. 110).

Participant H8 highlighted the emotional and practical support of having family around as carers: "*...and they waited on me hand and foot. So I think if I hadn't had that help, and I mean, even emotionally, having my kids there made such a difference to me, it would have been a different experience if I didn't have them*." (H8, Pos. 68).

There were numerous references, such as these from most participants, regarding the support provided by their families as caregivers during the recovery process.

Clear Communication and Education

This sub-theme emphasised the importance of empowering participants with the necessary knowledge and resources for effective self-management during recovery. Participants expressed gratitude for comprehensive information about their condition, exercises, pain management, and required lifestyle modifications. They appreciated the educational materials and the preoperative anaesthetic clinic, which facilitated active participation in recovery. The participants highlighted the significance of clear communication and efficient coordination in the IDT within this sub-theme. Participants valued accurate surgery, recovery protocol, and postoperative care information.

Participant H53 made it clear that he was well informed and bluntly made it clear how important it was to follow the information and education given by the IDT:' *I mean you are well informed, and it is up to you basically to listen to the health professionals and do what they tell you basically. But the most important thing, don't be stupid and do things that you are not supposed to do."* (H53, Pos. 56).

The effectiveness of educating participants with sufficient and detailed information is evident in this quote from Participant H38, in this case providing peace of mind: *"...for me it was really nice to know exactly what's going to happen and exactly how your medication works and you got your prescriptions, you've got all the medication... was checked through it and I know exactly what ... what I should do so I don't think, I can't think of anything that you should've add to that, but I don't think you can leave anything out if you… it's just a peace of mind to know in advance all the details."* (H38, Pos. 24).

These two sub-themes are closely related. A comprehensive patient-centric support system is impossible without clear communication, collaboration between all role-players, and sufficient education for patients and primary caregivers.

4.3.3.1.2 Sub-theme 2: Intrinsic Factors

Intrinsic factors affecting the recovery process included themes related to participants' perceptions, mindset/beliefs, resilience, and taking responsibility for their recovery. The extrinsic factors discussed in Sub-theme 2 create an opportunity for participant empowerment, allowing and encouraging participants to participate actively in their recovery process.

Positive Mindset and Perseverance During Recovery

The participants highlighted the importance of maintaining a positive outlook and demonstrating mental resilience throughout their recovery. This included staying motivated, being optimistic about the healing process, and having a proactive approach to rehabilitation exercises and activities. A positive mindset was a driving force in overcoming challenges and building resilience.

Participant H38 indicated a commitment to the exercise programme and performed it to the best of their abilities. There is a level of trust evident in the information, in this

case, the exercise programme, that was given in advance: *"So having ... having a program that ... it's like, I mean, you trust in advance, what, what's been given to you, and you do it to the best of your ability to the program, the intervals it says."* (H38, Pos. 92).

When asked if there were any safety concerns once discharged home after SDD THA, Participant H43 responded that there were none due to the advice received from and faith in the IDT. Once home, the participant emphasised the importance of taking a positive approach and putting in the work required during recovery: *"I was absolutely happy! I mean, I had so much faith in you guys. You know, in Doctor Monni* (orthopaedic surgeon) *and yourself and Stephen* (physiotherapists)*, and the advice that I got that I was… yeah. And I think I was healthy enough that I wasn't sick. I'm not a sickly person. So, we took the positive: when you come home, then you know that you have to work at something."* (H43, Pos. 88).

Commitment and perseverance with exercises are evident in the following excerpt from Participant H15 regarding essential information provided to him before surgery. He found the home exercise programme essential and described how he persevered: *"I think those* (exercises*) were important because those have helped. I've sensed improvement as I've done them and stuck with it. I've sensed improvement regularly. And every now and again where I've pushed hard, and I've felt a little bit of stiffness or pain or whatever, I've deliberately taken a day's break and come back the day after feeling an awful lot stronger."* (H15, Pos. 16)

These excerpts provide evidence of the intrinsic commitment, perseverance, and positive mindset that participants required to promote recovery following SDD THA.

Patient Taking Responsibility

In this sub-theme, patients assumed a proactive and engaged role in their recovery, expressing a sense of responsibility and taking ownership of managing their pain, being dedicated to and complying with the SDD protocol during their recovery.

Participant H38's belief in being independent and not relying on others provides positive encouragement when they experience progress. This highlights an extreme of taking responsibility for recovery: *"I'm of the thought that if somebody wants to do*

something themselves. It's better to let them try rather than to assist with anything. So that's... that's why, that's how I go about. If I can help myself, it's really positive input for me to do that and to ... to progress and to see how you can sort things out." (H38, Pos. 72).

Dedication to the SDD THA protocol is evident, specifically related to taking responsibility and performing the exercises in this excerpt from Participant H43: *"That's one thing I must say I had to do and I… that I knew in my mind that if I didn't do my exercises, I wouldn't come right, you know it would, it… it would work against what the good work of the op ... I did it, I was dedicated to do it."* (H43, Pos. 16).

These two excerpts indicate the level of commitment and responsibility that participants undertook to optimise their recovery following SDD THA.

4.3.3.2 Theme 2: Predominantly Positive Perception of SDD THA

This theme highlights overwhelmingly positive feedback regarding the SDD process. Participants expressed satisfaction, happiness with the outcome, overall comfort with the approach, benefits of recovering in their home environment rather than in a hospital setting, contentment, convenience, and a sense of normalcy that reduced hospital stay brings to their recovery. There were also negative perceptions of SDD THA; however, these had a much lower frequency (32) than positive feedback (168). Five sub-themes (Figure 4.11) were identified: positive emotions, positive experience, good processes, acknowledgement of the IDT, and good customer service and support, which will be discussed separately.

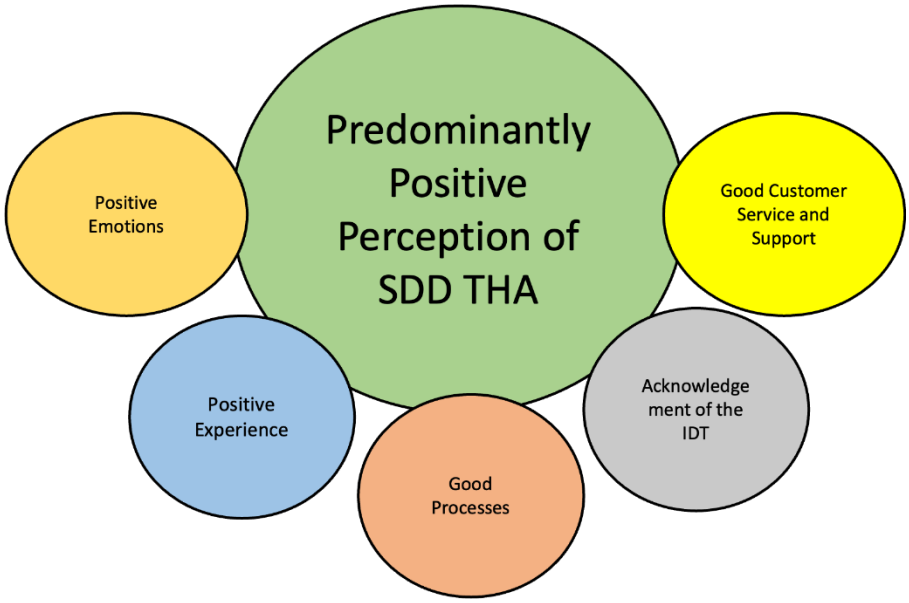


Figure 4.11 Theme 2 of same-day discharge total hip arthroplasty

Sub-theme 1: Positive Emotions

This sub-theme involved positive emotions that participants experienced related to not experiencing anxiety, feeling confident, feeling safe going home, and satisfaction/happiness with the outcome of SDD following THA.

Participant H47 indicated how the SDD experience was best for them emotionally. They indicate the desire for independence, being with family, and the excitement experienced with having the option of not staying in the hospital: *"I think emotionally it does a lot. Because I mean, well that is just me, I am a family person. I want to be... I don't like being in a hospital. So for me, when I first heard they had options, there I was very excited because I don't want to lay in a hospital for a week-long and not see anybody, not do my own thing, not being able to lay on my couch and be with my family. So, it went specifically well when I went home. I think emotionally, it was the best thing."* (H47, Pos. 4).

The following excerpt from Participant H45 indicates that the participant was not stressed about anything due to being well-informed. They go on to indicate how the SDD THA process worked perfectly for them: *"I think, just the thing that I was well informed about everything. So, I wasn't stressed about anything. I think that the whole program just worked out perfect even with the medication."* (H45, Pos. 86).

Many responses highlighted various positive emotions in the SDD THA process.

Sub-theme 2: Positive Experience

In this sub-theme, comments regarding a good or positive experience about going home for SDD following THA were identified. Descriptions such as stunned, remarkable, wonderful, brilliant, and recommended SDD THA were frequent.

The following quote from Participant H43 clarifies the positive experience:
"For me, it was, it was, it was such a brilliant experience in that I could go home, sleep in my own bed, and your mind is positive. You prepare yourself beforehand, afterwards… really, it was the best experience. I would recommend it to anybody." (H43, Pos. 4).

Participant H55 was adamant that having an SDD THA worked and recommended the process:'*...but I just say, well, if anybody needs a similar op, just come to this place. Don't even consider going anywhere else. It really worked. "*
(H55, Pos. 49).

Sub-theme 3: Good Processes

This sub-theme included positive perceptions of the SDD THA process, including frequent comments about how well everything went and rating the SDD THA process as 100%, amazing, good, and even easy.

Comparing SDD THA to a previous experience with neck surgery, Participant H43 found SDD THA to be a remarkable process and attributed this to the good IDT.
"No, no, I mean, I had a neck op in 2020, and it was dreadful. I was in there for four days ... for a neck op ... and I go in for a hip replacement, and I come out the same day! It's remarkable! But I think it is the good team." (H43, Pos. 36).

The SDD THA process was recommended to anybody requiring THA by Participant H53. The following extract provides insight when we understand the participants' broader context wherein they had previously experienced a traditional LOS THA. The suggestion of SDD THA in this context was surprising; however, the SDD process positively impacted mental well-being during recovery and was considered an amazing experience: *"I think maybe... I am probably not the best candidate to ask because I have had another hip replacement. In that sense, I wasn't fearful going home; it was just... what? Okay, they can't be serious... it is like really? You know? But my*

experience with the second time around doing it this way, was a huge improvement mentally, all the way. So, to me, it was a very positive experience, and I would recommend it to anybody. It was actually amazing." (H53, Pos. 26).

These excerpts demonstrate that the SDD THA process is experienced as good and even remarkable.

Sub-theme 4: Acknowledgement of the Interdisciplinary Team

This sub-theme deals with recognising the IDT's skills, competence, and effectiveness, incorporating references to an excellent, amazing, and good clinical team. Participants mentioned how impressed they were with the innovation of the IDT, appreciated the IDT, and mentioned their faith in it.

Participant H15, a businessperson, expressed this clearly, drawing on his business experience: *"I move in circles, where I'm on the board of different farming enterprises and what have you. Where we're always striving for excellence outside and looking for new ways of doing things and innovation and stuff. And there is a vibe that…you see farms where it stagnates, and businesses stagnate, and you see enterprises that thrive, and they thrive because people are sort of stretching themselves and just really... excellence is the guide word... and there's a team that works together. You've got it going here! You really do. There's a good thing going here."* (H15, Pos. 112).

Participant H47 considered the IDT to be amazing and felt appreciative of the care received. The participant was prepared to travel long distances to access the assistance of the IDT: *"So no, the medical team that took care of me was really amazing. I really appreciate that action. I don't mind, you know if I can say this, driving this far to get the assistance that I get."* (H47, Pos. 60).

Sub-theme 5: Good Customer Service and Support

This sub-theme deals with references in the data related to support, friendliness, and good customer service experience.

The quotation below from Participant H18 sums up this theme succinctly. The words are specifically valuable as the participant spent his career working in the customer service industry: *"No. I think I'm always happy to come to this place and always feel as*

if I'm in the right hands. It's actually pleasant to come to this office. My wife says it's just because these people make you feel like a celebrity ... and I like the friendliness, I like the openness of everything. I honestly do. So, to me, I think you guys should just keep on doing what you're doing at this point in time, and I've never got here, and people are grumpy or ... or whatever the case, I always felt welcomed. And I think that's the one thing that you want from your doctor and his staff or even if it's not his team. I feel I'm in the right hands." (H18, Pos. 152).

When asked if there were anything else the participant would like to add regarding the care received during SDD THA, Participant H48 summarised the experience well with the following words: *"No, I am so happy and the health service that I received, it is..., it is very, very excellent and very good."* (H48, Pos. 188).
There were numerous comments, such as these from most participants.

4.3.3.3 *Theme 3: Perceptions of Pain and Pain Management Strategies*

This theme dealt with participants' varied experiences of pain during recovery, ranging from discomfort to severe pain. The participants also mentioned different strategies employed to manage pain effectively, including cryotherapy and adherence to the pain medication schedule. Some patients highlighted specific circumstances or movements that triggered the pain, the most frequently mentioned being transferring to and from their beds and changing their position in bed.

Sub-Theme 1: Diverse Pain Experience

This sub-theme deals with varied and diverse experiences of pain with a spectrum ranging from no pain to severe and terrible pain. Two-thirds of the references to pain reported minimal or no pain. The remaining third is related to severe pain. It is interesting to note that severe pain was primarily reported a few days after surgery. The following quotation from Participant H8 is an example:
"I can't remember. I think it was the second day. Maybe the third day, I can't remember. But it just was too sore to even think about moving to begin with." (H8, Pos. 20).

Likewise, Participant H21 experienced severe pain immediately after surgery:
"...and I woke up, and I was just... I had so much pain." (H21, Pos. 24). Interestingly, this participant continued to experience pain throughout the six-week recovery period,

did not have a positive experience of SDD THA, and would not recommend the process.

In contrast, the following two quotes are examples of non-severe pain symptoms. Participant H45 only required pain medications for the first two weeks after surgery: *"No, that was just what was so excellent for me because that pain medication they gave you ... say it is a full two weeks, and after that, when it was finished, I just went on without any pain medication. There wasn't pain."* (H45, Pos. 58-59). Participant H53 found the pain manageable: *"So, pain wise... really, really manageable."* (H53, Pos. 36).

These excerpts provide evidence of the diverse types of pain experienced by various participants.

Sub-Theme 2: Pain Management Strategies

Two frequently mentioned pain management strategies were found to be effective. Cryotherapy, advised and advocated by the IDT, was reported to be particularly important and helpful. Participant H53 went as far as stating that using ice was a game changer for them:'*...ice, that was a huge, a huge game changer I think for me. Because I had a lot of swelling..."* (H53, Pos. 66). Participant H51 concurred with this sentiment, emphasising how vital ice was in managing pain symptoms: ”*Ice packs very important! Very, very, very important... and ja that I would say, that's all."* (H51, Pos. 60).

The prescribed pain medication schedule is frequently mentioned as effective for managing pain symptoms. As with cryotherapy, the IDT advocates strict adherence to the schedule and spends considerable time reinforcing this with participants. Participant H47's explanation of their pain experience provides insight into this: "*The pain wasn't unbearable; it was normal. I mean, you just had major surgery, your body is going to be in shock and in pain. The painkillers that was provided, if you drink them on time, it was perfect."* (H47, Pos. 32).

As Participant H45 quoted earlier, Participant H38 only required pain medication for two weeks after surgery, attributing the reduction in discomfort experienced to the prescribed pain medication: *"So, every day it got better and better…because I didn't have any… really discomfort, the pain block and painkillers worked. I only took them, which was prescribed, so it was for two weeks, I think, and then afterwards, I didn't take any painkillers after that up till now."* (H38, Pos. 8).

The frequent mention of these two pain management strategies provides evidence of their perceived effectiveness in the participants.

4.3.3.4 *Summary of the same-day discharge total hip arthroplasty thematic analysis results*

In summary, thematic analysis of the SDD THA results identified the key factors that influence recovery. The first theme emphasised the crucial role of a comprehensive patient-centric support system. The extrinsic factors highlighted include the collaborative approach of the IDT, with the instrumental roles of the physiotherapists and clinical coordinators, and the impact of family support and care. Furthermore, the importance of clear communication and education were identified. Intrinsic factors

affecting recovery include taking responsibility for and having a positive mindset and perseverance during recovery. The second theme revealed predominantly positive perceptions of the SDD THA process, including satisfaction, positive emotions, positive experiences, and sound processes. The third theme delved into the diverse pain experiences and pain management strategies used by the participants. These results contribute valuable insights into understanding participant perceptions and recovery experiences following SDD THA

4.3.4 Total Knee Arthroplasty Thematic Analysis Results

The main themes and sub-themes developed in the TKA group are shown in Figure 4.12. Each theme is discussed separately, followed by subsequent sub-themes.

A reflective journal evidencing how the data was analysed for the TKA group is attached as Appendix I.

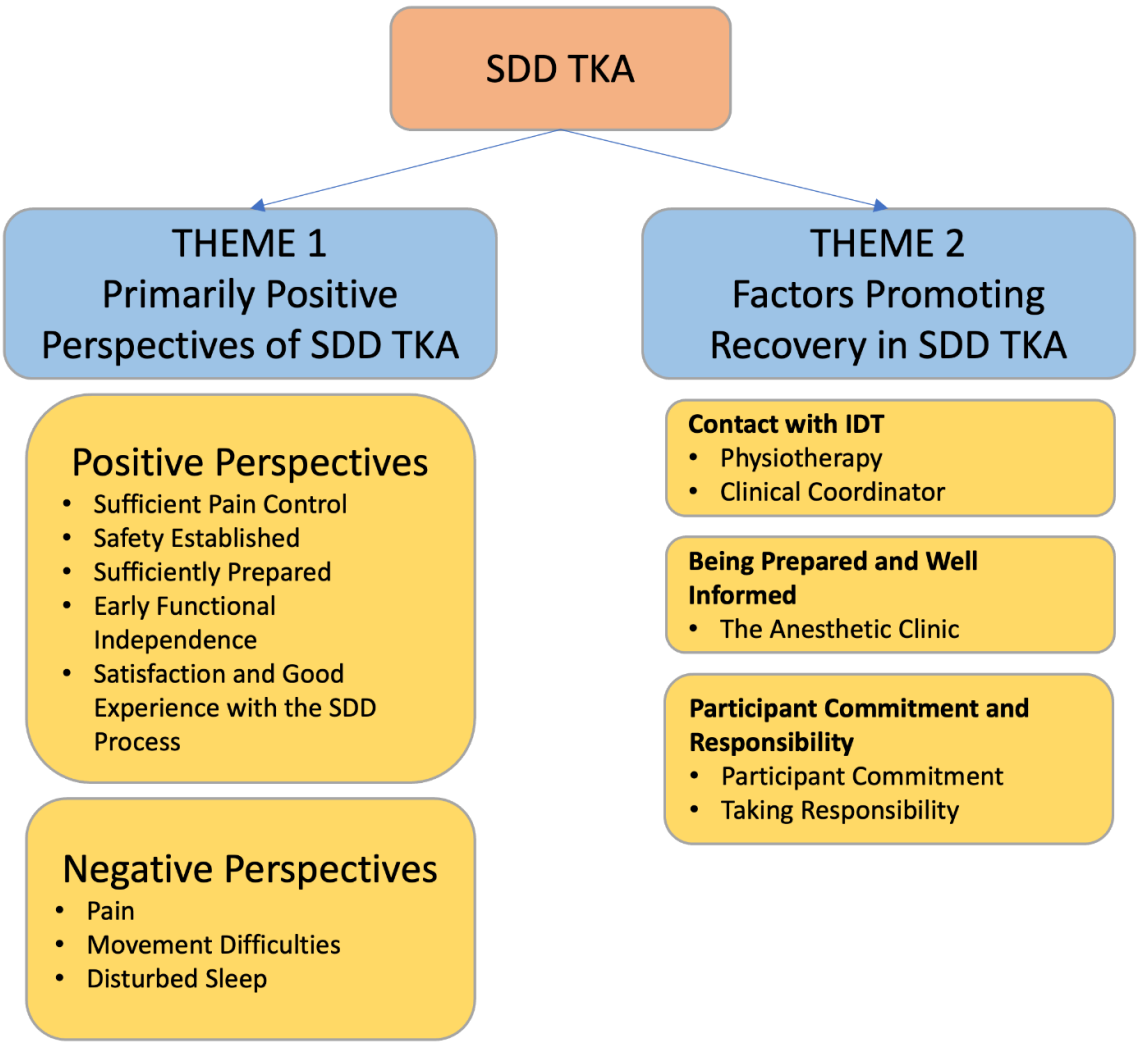


Figure 4.12 Overview of same-day discharge total knee arthroplasty thematic analysis

4.3.4.1 Theme 1: Primarily Positive Perspectives of SDD TKA

This theme encompasses the positive experience of the SDD journey and five common sub-themes which are important contributors to the positive experience. Sufficient pain control, feeling safe, being well informed, attaining early functional independence, and experiencing SDD TKA as good with elevated levels of satisfaction are important. Negative perspectives represent 11,01% of the coded segments in the SDD TKA data. Figure 4.13 provides a visual representation of the coded segments related to the experience of SDD TKA. The inclusion of negative perspectives as a sub-theme contributes to understanding the sub-themes and positive perspectives.

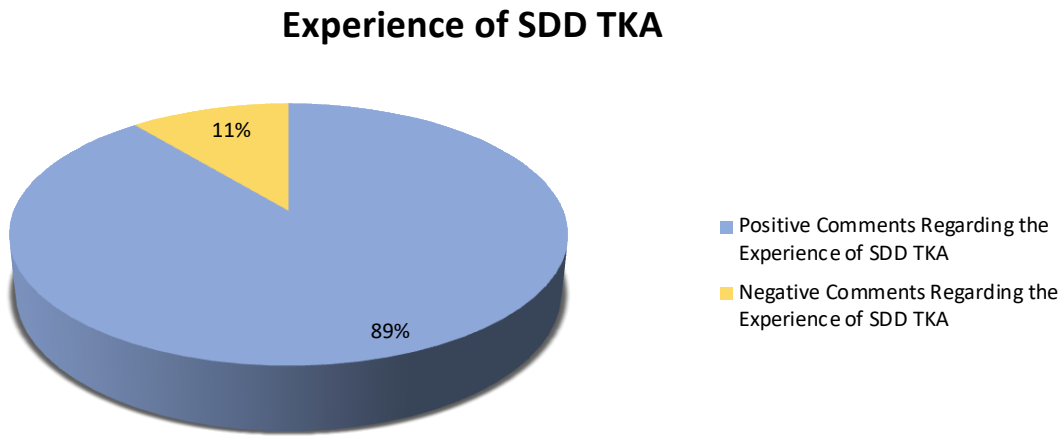


Figure 4.13 Percentage of positive and negative comments regarding the experience of same-day discharge total knee arthroplasty

4.3.4.1.1 Sub-theme 1:Positive Perspectives

Sufficient Pain Control

Participants shared experiences of pain being managed with the medication schedule and referred to the medication "cheat sheet" provided by the clinical coordinator as valuable. The pain was less severe than expected, and the participants found that they could cope. Pain medications assisted recovery by aiding in maintaining activity levels, mobility, and promoting well-being.

When asked if participants received any specific information before surgery that was found to be essential, Participant K43 responded about how excellent the pain medication prescription had worked to provide pain relief. They further emphasised the importance of taking the medications according to the prescribed schedule (shared and emphasised by the IDT throughout the recovery period), including the time that

the medications be taken: *"That was very good, and the times that they gave me to take them, to keep my pain levels at bay, you know, that was very good, that's excellent ... because some people don't always take their tablets when they are supposed to, and then the pain levels strike and then it is bad. No, that was very good... ja excellent."* (K43, Pos. 34-36).

Likewise, Participant K20 was quite confident and emphasised that their pain levels were adequately managed by the medication schedule, resulting in no problems with symptoms of pain: *"No, that was properly managed by the medication! So, I didn't have any complaint concerning that, the, the medication was adequate to control the pain. So, I don't have any, any, any, problems there."* (K20, Pos. 44).

Safety Established

Participants expressed no safety concerns but confidence, reassurance, and a sense of security when discharged on the day of surgery, which underscores the importance of building trust during the SDD process.

When asked about their experience of SDD and how the first two weeks went, Participant K4 responded about how well it went and how good it was. They revealed that it went well as they were not frightened and felt relaxed about the initial recovery process following SDD TKA: *"I'm so relaxed, and then I didn't feel anything like frightening."* (K4, Pos. 8).

In response to being asked if they experienced any anxiety before being discharged on the day of surgery, Participant K15 responded that there was not really anxiety as they felt prepared: *"No…not really…I was prepared!"* (K15, Pos. 32).

Likewise, Participant K39 reiterated and repeated that they experienced no anxiety at all, explaining the reason for this being due to being prepared. They further mentioned how performing functional tasks after surgery, such as walking and climbing stairs, in line with what had been explained before surgery, further reinforced feeling safe and not being anxious before being discharged on the day of surgery: *"No, I think, I think the preparation, just the simple thing of telling somebody that you will be able to stand on your knee, and you will be able to climb stairs before you go home, and then you actually do that, it is a confirmation of you again, that is fine. So, it is ... It is simple but*

that qualifies you to actually go home, and it is a simple thing. And you don't think it is going to be possible, but it is. So no, no, I wasn't anxious at all." (K39, Pos. 64-66).

Sufficiently Prepared

Many participants praised the preoperative information they had received, stating that it helped them feel prepared, informed, and confident about the recovery process. Being prepared on how to manage pain, use medications, and knowing what to expect after surgery were considered essential information. This highlights the importance of obtaining clear and accurate preoperative information.

When asked about their experience of going home on the same day as surgery, Participant K8 expressed how being thoroughly prepared before surgery gave them confidence. They elaborated on how, in their experience, it was abnormal to receive so much information, and this prepared them for the SDD process: *"Going home, I think what... what gave me confidence is the pre-operation procedures that were followed in the hospital, in the practice, I knew exactly what to expect all the time. I was well-informed of what happened what's going to happen. And when I left the hospital with the information that I received from... from you from physio side as to what to do, what to expect, there was a lot of information that I think that it's not normally shared with, in my experience with... with a patient. So, I was well prepared of what to expect."* (K8, Pos. 4).

Participant K19 also stated that being sufficiently prepared before surgery and knowing what to expect helped. Following the information given made the SDD and recovery thereafter possible: *"Eh...I can say I was just having the full information because I was briefed before. I was briefed before here, at hospital. I was given an induction after surgery that expect this and this and this and this… and it will happen. By complying and following the instructions then I can survive. So, I recommend that going home the first day really helped me, helped me a lot... since I was given induction."* (K19, Pos. 47-48).

Early Functional Independence

Participants frequently achieved early functional independence and progress in their recovery. Positive remarks were made about performing ADL independently, such as showering, dressing, and managing toilet transfers. There was minimal need for a

caregiver or supervision early in the recovery process. The participants were often surprised by the early recovery of basic and personal ADL.

Participant K8 explained their experience and surprise at the early functional independence they attained: *"No. Again, you know before the, before the operation, I thought that I would have to make some modifications to the... to the shower, didn't know how I was going to handle it and... ja, I was really surprised that it wasn't a problem. I didn't need any special care special equipment to move around. Nothing like that. In fact, there were times that I thought I may be pushing it too far by... by trying to... to do it on my own. But I think it's quite quick to get into a specific routine as to how, using... using it, making use of a toilet. The position where you put your leg before you guys sit down is important. Those are the sort of things that you realise very soon how to manage yourself. Then, of course, my wife is very caring and helpful."* (K8, Pos. 52).

Despite having access to assistance from family members, Participant K1 explained how he was able to do most things himself, even while using his crutches when he was alone at home: *"I was fortunate; I was strong enough to do everything with my crutches that I needed to do, I could get ice for my knee, I could prepare food, etc. I did have quite a big and helpful family that helps a lot. But even when they weren't there, and they weren't there often, on, on regular occasion because they were working or in school, and I could take care of myself, it wasn't an issue."* (K1, Pos. 92).

Participant K15 provided another perspective of being determined to be independent of all ADLs and motivated more by wanting to be independent. This was despite having access to assistance from family and a domestic worker: *"I helped myself with everything, although I've got a daughter, I've got granddaughters and all, I've got children… got maid at home…everything... but I didn't want anybody to help me because I wanted to be independent from the word go!"* (K15, Pos. 60).

Satisfaction and good experience with the SDD Process

Participants rated the healthcare services received positively, often expressing satisfaction and gratitude for their excellent care. Positive comments and praise were directed towards the IDT. The SDD process was perceived as good, amazing, and even surprising. Participants recommended SDD, stating that they would choose it

again, highlighting the benefits of recovering from the comfort and convenience of their familiar home environment.

Despite emphasising the amount of pain experienced during initial recovery, Participant K19 was grateful for the excellent service they received, explaining how the service they received led to transformation in their health at the six-week follow-up appointment: *"Yes, but uh... I think the service that I received from here… it was excellent to me. It helped me a lot… because today I'm not the same than that day. I'm quite different, different..."* (K19, Pos. 12).
The same participant later rated the healthcare service as excellent in the interview. Explaining how the IDT went above and beyond in service delivery: *"Uh …really… I can say… that's why I rate the service 100% on 10 out of 10… because really the staff, the doctor, the staff as well… they are going extra miles really, they are professionals with their duties…have been excellent. Excellent in their duties."* (K19, Pos. 64).

Participant K43 hesitated when responding to what aspects of the healthcare they received during the six weeks after surgery worked well for them. They began trying to explain, seeming to struggle for the right words. They settled by describing their experience as amazing: *"Everything was... I just... it was just an amazing experience"* (K43, Pos. 74).

Participant K39 recommended SDD TKA, emphasising being in a familiar home environment with those close to them around as the best place to recover: *"...it was a good, it was a good alternative to stay in the hospital. I would suggest that really, for anybody. I think I think being at home is the best place to recover, in a setting that you know, with the people that you know."* (K39, Pos. 3-4).

Participant K8 was grateful for the support and care received, emphasising how they felt cared for and never felt unsupported, even at the six-week follow-up appointment: *"All I can say is that I'm thankful for the support and... and the care that I... that I did get on... even with hospital and the whole practice setup, that this was well thought out. You're not just someone who comes into a hospital. Go through the operation and you are on your own. I never felt like that. I mean, I feel even today still It feels there's a team that's caring."* (K8, Pos. 88).

4.3.4.1.2 Sub-theme 2: Negative Perspectives

Pain

The participants shared their experiences of severe pain, which was challenging. Some reported insufficient pain medications, difficulty in getting repeat prescriptions, and complexity of analgesia prescriptions (overwhelming). However, few participants shared this view. This reinforces the importance of sufficient pain control, which leads to a positive experience, as presented in Section 4.3.4.1.1. (p75)

Participant K1 had a problematic recovery, which was complicated by additional health issues such as developing "shingles", receiving a COVID-19 vaccination, and experiencing symptoms of post-traumatic stress disorder (unrelated to SDD). The participant explained that it was a difficult and very painful six-week recovery: *"For me, the six-week period was very painful and was not easy. I'm ready in my mind for the next one because I know there's got to be a next one. But it wasn't an easy journey."* (K1, Pos. 164).

Another Participant (K34), who had a good and positive experience of SDD TKA, was quite animated and serious in reporting the intensity of the pain experienced: *"... it's freaking sore!"* (K34, Pos. 40).

Despite finding pain relief with medication and cryotherapy, Participant K15 explained and repeated for emphasis that they did experience severe pain that took time to subside: *"Yeah, I manage with Panado, six Panado a day and put the ice packs. So, up till now, I'm on Panados. Also, when I get severe pain… you do get severe pains… it well, it won't subside immediately. It takes time. So, I am still taking Panado, and it's… it's helping me."* (K15, Pos. 44).

Movement Difficulties

Participants described various difficulties with mobility, including bending, getting up from the toilet, transferring in and out of motor vehicles, and lifting the leg.

The movement difficulties were described well by Participant K20, specifically earlier on in the recovery: *"So it was, in the beginning a bit difficult to raise it onto the bed, but I had assistance there, and eventually I found that I could do it myself by just using the crutch and just lift it up and put it on the bed."* (K20, Pos. 8).

Participant K43 had similar experiences of struggling with movement; which was also experienced in the early stages of recovery after surgery. In both these participants, despite the challenges, there was still a sense of managing to cope with the movement difficulties and figuring out how to move with less pain: *"Yes, there was a bit of pain at home, obviously lifting my leg, up on to the bed and getting off... but not that I could not handle it. Sore, yes, but not that I couldn't handle, ja. Then getting up, I got, I get up once or twice at night, just to go to the loo; that was a little bit of a challenge because the knee is very stiff, obviously from sleeping. But I managed, ja, so I got to do it ja."* (K43, Pos. 2-4)

Disturbed Sleep

Some participants reported sleep problems with pain or discomfort that affected their sleep. The inability to find comfortable positions and change positions during sleep is painful. This theme is mentioned as it is closely related to pain; however, it was not a frequent theme.

Participant K34 explained this succinctly: *"Sleeping had a few challenges; you just had to use, get used to the fact that there is a change on the leg. Can't just turn around when you want to turn around or do whatever. It gives you a good notice that this… yeah, that was a bit painful sometimes for the leg."* (K34, Pos. 4).

This quote from Participant K1 (mentioned earlier) indicates the intensity of their sleep struggles. The participant was sincere and almost disheartened when describing the struggle with sleep: *"The nights were the worst. I would be thankful if the sun rose in the morning. So, days were my friend; nights were my enemy. I couldn't sleep."* (K1, Pos. 16).

4.3.4.2 Theme 2: Factors Promoting Recovery in SDD TKA

This theme encompasses the importance of being well-prepared, informed, and well-supported throughout the SDD process. The theme includes the participants' efforts to ensure a smooth and successful recovery in SDD TKA by being committed and taking responsibility for their recovery.

4.3.4.2.1 Sub-theme 1: Contact with the IDT

This sub-theme dealt with the communication, support, and guidance that participants experienced from the IDT. Support, communication, and availability of the IDT resulted in participants not feeling abandoned. The problems or queries that arose could be handled efficiently by a responsive IDT. Initial frequent contact made by the clinical coordinator was seen as a good thing. The roles of the clinical coordinator and physiotherapist were frequently mentioned.

When asked about what went well during the SDD process, Participant K0 offered her experience of the support she had received. She felt this was crucial and likened it to having an anchor: *"I think what, what went well is that there was a support structure. I think what was crucial, is that you are not feeling adrift, that there is still an anchor. "(K0, Pos. 24-27).*

When asked what worked well or what did not work well during the SDD process, Participant K34 expressed the comfort brought about by being able to contact the IDT with any problems. Having this contact allowed for clear explanations when problems arose: *"And also, the fact that I had access to people, that I could phone if there was a problem... and explain that, hang on, this is becoming uncomfortable…whatever. So, I had access to people number one, and then things was clearly... clearly explained in terms of what you need, and then what you can do... what you can and cannot do. And I was comfortable with that, yes."* (K34, Pos. 32).

Likewise, Participant K39 reinforced this by explaining that it was good to receive phone calls from the IDT and be able to contact the IDT. This resulted in knowing what to do throughout the recovery process: *"I think the fact that it is multi-disciplinary, and I had access to, to Noelle (*clinical coordinator) ... *and you* (physiotherapist) *were phoning and, I mean I can phone anybody, any time, so definitely... it is not like you have been in the dark or you don't know what to do or who to call. So, so that was good."* (K39, Pos. 96).

Physiotherapy

The participants found physiotherapy helpful in their recovery, providing valuable guidance, support, and exercises. Participants appreciated the role of physiotherapy, often stating it as crucial for successful recovery, reassuring, comforting, and providing

a sense of calm. Physiotherapy assistance with checking exercises and progress was considered reassuring.

Participants were asked if they felt that the physiotherapy service was valuable and, if so, what was found to be valuable. Participant K8 responded with no doubt that physiotherapy was valuable and essential for navigating SDD TKA. Emphasis was put on the guidance and explanations provided by physiotherapists throughout recovery. This brought comfort: *"Absolutely! Absolutely! It gave me a lot of comfort. By the explanation as to what exactly is happening. What is … what's the situation? How to handle it. Ja, no, no, that is, I don't think one can do without it."* (K8, Pos. 84).

Despite reporting that physiotherapy was painful, Participant K39 found it valuable and saw the benefits thereof, even suggesting that they would have liked more frequent physiotherapy sessions: *"Yes, very painful ... it is excruciating, but no... it is always painful, but I know afterwards the mobility, and everything is so much better. So, it is painful and ja, I think maybe, maybe one can start with every week and not, not every two or three weeks. I think so; I think I would like an extra session."* (K39, Pos. 100).

Participant K4 echoed the sentiments, rating the physiotherapy service at 100%, adding that they appreciated the physiotherapy role and explicitly mentioning the assistance received with home exercises: *"Ja, ja... a very 100 percent! Really, that one is really 100% really. I really thank you for that...You taught me how to exercise at home. And then everything that you were doing to me here. So, I got a chance of doing it also at home."* (K4, Pos. 120-132).

Clinical Coordinator

The clinical coordinator's telephonic "check-ins" were well received by participants and found comforting and essential in the recovery following SDD. They provided connections to the IDT and were valuable for any required queries or additional support.

Participant K39 shared that contacting the clinical coordinator was good, specifically when they were not coping. It was clear that the support and reassurance were good and assisted in coping with the recovery process: *"...and then with Noelle* (clinical coordinator) *phoning and we can ask questions, that is a good thing. I think once or*

twice I have mentioned that it was just too much for me, and then she just said, well, you know what, that is part of the healing process and just keep on icing. So, it is good to have somebody on the inside, just, just checking with them. So that was good." (K39, Pos. 49).

The same theme emerged with numerous participants. Participants felt taken care of, comforted, and not abandoned, which contributed to a valuable experience during recovery: *"The other comforting thing is... is that there was someone who followed up at night to give you a call – Noelle* (clinical coordinator)*, uh, how's things going? Don't worry about that. That's normal. I think that communication, you're not on your own. I never felt that I was on my own; all along, I felt that I was taken care of. So ja, no, that was a good experience."* (K8, Pos. 12).

4.3.4.2.2 Sub-theme 2: Being Prepared and Well-Informed

The participants expressed that comprehensive information and education regarding their recovery was well received. This theme reflects the importance of being well-informed and encompasses preoperative and postoperative information and access to information throughout the recovery period. This empowered the active participation of participants in their recovery. Participants remarked on how well they were educated about the SDD process and stressed the importance of being well-prepared and informed to make informed decisions regarding SDD.

Participants were asked if they felt they had sufficient information before their SDD to manage at home. Participant K1 answered that he was well-prepared, as was his support structure: *"Yes, it was well prepared. I was well prepared... we were well prepared, and I could refer back to the information that was handed - the information package, and read up, etc."* (K1, Pos. 48).

Participant K20 offered similar comments regarding having sufficient information for SDD, explicitly mentioning the physiotherapist's role in providing the information: *"Yes, I had full instructions. You, your… your surgeon has got a great, great team. And they, they, they gave me everything I needed to know. Especially you (physiotherapist), I think that you did most of the, of the preparation."*
(K20, Pos. 16).

Anaesthetic Clinic

Frequent mention of the preoperative preparation that took place at the anaesthetic clinic was made. Participants often mentioned how abnormal the anaesthetic clinic and receiving healthcare in this manner was. Participants found the anaesthetic clinic helpful and mentioned that it was good to meet the IDT.

When asked what aspects of the healthcare received in the six weeks following the SDD TKA worked or did not work for them, Participant K43 responded how amazing the anaesthetic clinic was. They experienced thorough assessment and preparation at the anaesthetic clinic: *"You know what, the pre-op appointment that I had was amazing. All the questions that the anaesthetist went through, going through my blood tests, telling me exactly what was going to happen and what they were going to do. Your information* (physiotherapist)*, because you come, you come around from your anaesthetic, and you don't always feel focussed if the physio comes and tell you what exercise to do."* (K43, Pos. 16).

After being asked if he had any anxiety about going home on the same day as the surgery, Participant K34 responded that he did not experience anxiety. He continued that, the anaesthetic clinic resulted in him being able to prepare himself due to receiving important information. Meeting the IDT facilitated building trust in the IDT, as did the perceived honesty of the team: *"No. No, I was fine. No, I think these sessions we had here, discussions we had here, discussions we had, meeting the people helped. You could ask questions beforehand, get a feel for it and I think what was key for me was the fact that these people were honest. Not come with a lot of "BS" and tell me this is not a painful thing, and this is not this… people are honest, so at least I knew exactly what I was going into. So, I knew exactly what I needed to deal with and what I was going to prepare myself. So don't tell me it's not a, it's not a critical or major operation. It's not going to be painful, it's not… it's freaking sore! Okay, so I knew it… and I could prepare myself for it. And I think that was, that was key information I had here from everybody, telling me exactly what it is, what's going to happen, how it's going to work. And what they're going to do basically."* (K34, Pos. 40).

4.3.4.2.3 Sub-theme 3: Participant Commitment and Responsibility

This theme encompasses the participant's determination and participation in the recovery journey by committing to the SDD care pathway and taking responsibility for their recovery.

Participant Commitment

Participants being committed to the SDD recovery care pathway by following IDT instructions and information, taking pain medications according to the prescribed pain medication schedule, and ensuring that the postoperative exercise regime is followed were frequently mentioned.

Participant K43 was asked if anything specific to the physiotherapy service was helpful. They responded with certainty that the physiotherapy-prescribed exercises were beneficial and continued reporting on how they diligently performed the home exercises and how it was good to do them, leading to a quicker recovery: *"So, the exercises for sure. Because I wanted to be diligent in doing them, to be able to get back, you know to, to walking normally, I was just sick of this painful knee. So, it was good to be able to... and I made sure that I wanted to do that so that I could get better …quickly."* (K43, Pos. 82).

While discussing pain during the recovery process, Participant K19 offered that complying with the prescribed medication schedule and taking the medications on time helped manage their pain levels: *"...on the right schedule, by taking the medication on the right schedules, really by complying… helps a lot!"* (K19, Pos. 84).

Participant Taking Responsibility

Participants indicated that taking responsibility for their health played a role in their recovery following SDD TKA. They did this by maintaining a positive mindset, committing to the care pathway, taking proactive approaches, contacting the IDT if needed, and following postoperative exercises prescribed during physiotherapy sessions.

Participant K34 suggested that they made a choice to take responsibility for their health and decided to partner with the IDT during their recovery as opposed to being passively involved: *"... I think one takes responsibility for your own health anyway... and so it's*

just, it's a choice yes, this isn't just ... sit back and say right you guys did your job and I keep you liable for everything. Basically, you have responsibility. So, this is a joint effort, so I need to get, I want to get up. So, I'll do certain things to get up." (K34, Pos. 100).

Similarly, Participant K15 explained that recovery also depended on the patient. They found the physiotherapy service helpful but emphasised that the patient could not neglect themselves, they need to take responsibility by helping themselves too: *"Yes, they were also very helpful. They did the best what they could and then also it depends on the patient. The patient also must help himself. You can't let somebody help you and neglect yourself."* (K15, Pos. 92).

4.3.4.3 Summary of the same-day discharge total knee arthroplasty thematic analysis results

In summary, the thematic analysis of SDD TKA identified two main themes. First, the primarily positive perspectives of the SDD TKA care pathway include effective pain control, feeling safe, being well prepared, achieving early functional independence, and overall satisfaction with the SDD TKA process. Negative perspectives, albeit in a minority, highlight challenges with severe pain, movement difficulties, and sleep disturbances. The second theme identified the factors that promote recovery in SDD TKA. The participants emphasised the importance of comprehensive preoperative and postoperative information, support from the IDT, including physiotherapists and clinical coordinators. Participants' active commitment to the care pathway, specifically taking prescribed medications and performing prescribed exercises, played crucial roles in successful recovery. These results provide valuable insights into participant perceptions and recovery experiences following SDD TKA.

4.3.5 Summary of the Qualitative Results

While the THA and TKA groups were analysed independently, as evidenced in the reflective journals (Appendices H and I), there are considerable similarities in the final themes. Although the themes and sub-themes varied between the THA and TKA groups, they included many comparable sub-themes. The following section discusses the results in detail.

4.4 Conclusion of the Quantitative and Qualitative Results

In Conclusion, the integrated results from the qualitative and quantitative analyses provide holistic and valuable perspectives on pain, HRQOL, and the patient perspective following SDD, shedding light on the distinct aspects of THA and TKA. The upcoming chapter will discuss and compare these findings with existing research on the SDD LLA.

Chapter 5 Discussion

5.1 Introduction

In this chapter, the research outcomes are discussed using a threefold approach. Firstly, discussion of the quantitative results and their implications are addressed. Analysis of the qualitative findings follow, shedding light on the perspectives and insights derived from participants. The final section of this chapter will involve the integration of both sets of results, allowing comparisons to be made and conclusions to be drawn from the study's combined quantitative and qualitative dimensions. This three-part structure aims to comprehensively understand the research questions and objectives, combining both aspects of the study into a cohesive and insightful narrative.

5.2 Quantitative Results Discussion

5.2.1 Introduction

In this section, dedicated to the quantitative aspects of the discussion, we commence with an analysis of the baseline scores for both groups. Individual outcome measures will then be explored for significant findings and any valuable non-significant results will be noted. As the chapter progresses, highlighting the significant differences between the groups addresses the secondary objective of comparing the THA and TKA groups. Literature will be utilised to either support or refute the findings. This structured approach offers a methodical evaluation of the quantitative findings, covering both significant and non-significant aspects and critical group comparisons.

5.2.2 Quantitative Discussion

The only significant differences between the THA and TKA groups in the baseline preoperative PROMs were found for EQ-VAS and the EQ2 Self-care dimension. The THA group demonstrated a significantly lower mean EQ-VAS score and a highly significant difference in the EQ2 self-care dimension. These two findings suggest that persons with hip OA have a lower overall rating of HRQOL than those with knee OA. Secondly, persons with hip OA also have greater difficulty with self-care, potentially explaining the lower EQ-VAS overall HRQOL rating. This finding is supported by Scott *et al*. (2019), who found that patients awaiting THA for OA had a worse quality of life and a significant deterioration in clinical frailty scores than those waiting for TKA. Salaffi

et al. (2005) reported hip OA HRQOL being more strikingly affected than in knee OA, particularly in physical function.

An unexpected finding of this study was the difference in pain intensity ratings after mobilisation on the day of surgery. There was a significant increase in pain in the THA group and a significant decrease in pain in the TKA group after mobilisation on the day of surgery. The contrasting finding may be attributed to the position the participants lie in while recovering from the surgery. Total hip arthroplasty and TKA participants lie in the semi-Fowler position following surgery and maintain this until they are mobilised out of bed by the physiotherapist. This position places the new hip joint in a comfortable mid-range of movement, whereas a new knee joint would be in an end-of-range extended position. Subsequent mobilisation of TKA participants potentially alleviated the strain on the extended knee joint, resulting in less pain after mobilisation. In THA participants, getting out of bed may have aggravated the joint which was recovering in a comfortable mid-range of movement position. Abduction and adduction of the hip joint involved in getting in and out of bed may also have contributing to more pain, considering that all THAs in this study were conducted via a posterolateral surgical approach. A systematic review of acute pain trajectories following elective THA reported significant dynamic pain during mobilising two to four hours after surgery (Panzenbeck *et al*., 2021), which supports the finding of increased pain after mobilisation on the day of surgery following THA.

The highly significant decrease in NRS of pain in both the THA and TKA groups by six weeks following surgery is comparable to the findings of a systematic review of SDD THA (Shapira *et al*., 2021), which indicated significantly improved pain scores after SDD THA. A local study by Prinsloo and Keller (2022) also found a significant improvement in pain scores at six weeks following SDD THA and SDD TKA, with no significant differences between the THA and TKA groups; these findings support the findings of this study.

The downward trajectory of NRS pain scores over the six weeks in this study is contrary to the results reported by Hoeffel *et al*. (2019) (who reported increased pain immediately postoperatively and 48 hours later in both SDD THA and TKA), Greimel *et al*. (2018) and Schindler *et al*. (2022) (both reported increased pain one week postoperatively following THA and TKA). This is an interesting finding as this study

found no significant increase in NRS pain scores at 48 hours or at one week postoperatively in either the THA or TKA groups. This difference in findings may be due to variances in pain management regimes used in the Hoeffel *et* al. (2019), Schindler *et al.* (2022) and Greimel *et al.* (2018) studies. While this study's findings may diverge from those reported by Greimel *et al*. (2018), an interesting parallel in both studies is a consistent decline in pain levels. The correlation in findings continues despite time limitations in both studies, with Greimel et al. (2018) observing trends over the initial four-week postoperative weeks, which aligns closely with the six-week time frame of this study. The Greimel *et al*. (2018) and Schindler *et al*. (2022) studies were notably not conducted on SDD LLA but on traditional LOS following LLA. Both these studies attributed the increased pain levels to physiotherapy rehabilitation increasing at one week postoperatively. However, this study did not demonstrate increased pain levels at one week postoperatively, even though physiotherapy intervention after discharge also commenced at one week postoperatively. The difference in findings may be explained by varied physiotherapy protocols; however, the specific protocols in the studies were not mentioned.

Interestingly, the finding of no significant difference between the THA and TKA groups in NRS Pain scores over time in this study, is contrary to numerous studies indicating more severe pain after SDD, ERAS, and traditional LOS TKA (Shapira *et al*., 2021; Hoeffel *et al*., 2019; Li *et al*., 2019; Pinto *et al*., 2017; Wylde *et al*., 2011; Andersen *et al*., 2009; Pang *et al*., 2000). This may be explained by the unidimensional nature of the NRS of Pain PROM which may not have detected differences between the two groups as the SF-MPQ-2 did.

The statistically significant decrease in the total pain score, continuous pain, and intermittent pain sections of the SF-MPQ-2 for all time points in both the THA and TKA groups aligns with the literature mentioned earlier regarding the decreased NRS of pain over time. Studies reporting specifically on SF-MPQ-2 scores in LLA TKA and THA were not found to compare the results of this study.

Two interesting findings in the SF-MPQ-2 results indicated that the differences between the THA and TKA groups were in the neuropathic pain and the affective pain descriptor score sections, which will be discussed below.

As expected, in the acute postoperative phase, the THA and TKA groups showed no significant improvement in neuropathic pain scores on day two after surgery. The THA group demonstrated highly significant and rapid decreases in neuropathic pain at weeks two and six postoperatively. Conversely, the TKA group revealed no significant changes in neuropathic pain scores over time up to six weeks postoperatively.

These findings concur with those of Phillips *et al.* (2014), who reported neuropathic pain in 35% of their patients, with a peak incidence between six weeks and three months after traditional LOS TKA. Numerous studies have reported the incidence of neuropathic pain after traditional LOS TKA to be between three and 11% in the period of three months to a year postoperatively (Phillips *et al*., 2014; Lavand'homme *et al*., 2014; Buvanendran *et al*., 2010). Șahin *et al*. (2021) reported that 40,4% of their TKA sample developed neuropathic pain. Their small sample size (n= 42) and being a single-centre study may have influenced the higher reported incidence.

Lavand'homme *et al*. (2014) demonstrated neuropathic pain in 11% of their cohort of TKA at three-month follow-up. Interestingly, patients who developed neuropathic pain and more severe persistent pain had higher acute pain scores at all time points in the first eight days postoperatively ($p<0.05$). Razmjou *et al*. (2015) reported that 14% of patients developed neuropathic pain following TKA; their study followed patients over five years. Despite neuropathic pain following TKA, Lee *et al*. (2022) found that neuropathic pain did not adversely affect outcomes, including HRQOL measures (EQ-5D-5L) at one year postoperatively. Notably, all these studies dealt with traditional LOS TKA and not SDD TKA. However, there seems to be concurrence with the findings of neuropathic pain after SDD TKA in the present study.

The same trend was found with the affective pain descriptors component of the SF-MPQ-2, with no improvement in either group on postoperative day two. However, unlike the neuropathic pain component, both the THA and TKA groups continued to show highly significant decreases in these affective pain descriptors at two and six weeks postoperatively. The lack of meaningful change in day two affective pain descriptors compared to preoperative results in both groups could be explained by the expected occurrence of acute postsurgical pain following LLA.

The THA group showed a trend similar to the affective pain descriptors with the EQ-VAS of overall HRQOL scores. The THA group also improved EQ-VAS scores faster after day two. It appears that, after day two, the THA group felt better and

improved more rapidly in terms of overall HRQOL. This may also be attributed to the lack of neuropathic pain in the THA group.

Conversely, there was a significant worsening in EQ-VAS overall HRQOL ratings in the TKA group on day two and no further statistically significant change at weeks two and six postoperatively. Findings reported by Van Egmond *et al*. (2015) support the findings of this study, with mean EQ-5D scores decreasing one week after discharge following TKA (following ERAS and not SDD protocols). Unlike the findings of this study, they reported a gradual increase until week six; however, the mean EQ-5D scores at week six were still lower than the preoperative scores. Similarly, Miettinen *et al.* (2021) found more significant improvement in HRQOL after THA than after TKA. The worsening of the overall HRQOL ratings in this study may be related to the neuropathic pain experienced by SDD TKA participants in the six weeks following surgery. Lee *et al*. (2022) conversely found that neuropathic pain did not influence HRQOL ratings, their study, however, was based on a one-year follow-up and not the acute and sub-acute postoperative periods, as in this study.

The odds of encountering mobility-related problems exhibited a substantial and statistically significant decrease across all assessment time points (day two, week two, and week six) for both THA and TKA groups. This is an interesting finding, indicating that mobility was not an issue throughout the six weeks following surgery despite following the SDD care pathway. Furthermore, although the EQ-VAS and SF-MPQ-2 (neuropathic pain and affective pain descriptors) did not improve in either THA or TKA on postoperative day two, mobility was not a problem. No problems with mobility in the early stages of recovery (postoperative day two) indicate immediate improvement in mobility in patients with hip and knee OA following arthroplasty compared to baseline scores. The early mobilisation of patients on the day of surgery, as evidenced by Prinsloo and Keller (2022), further supports the notion of decreased mobility problems that were evidenced in this study.

The difference between the highly significant reduction in the odds of self-care problems by six weeks postoperatively in the THA group and the significant reduction in the TKA group could be explained by the following. The THA group's baseline odds of having self-care problems were significantly higher preoperatively. Similar improved self-reported functions in patients undergoing THA were demonstrated (but with

ERAS and not SDD protocols) by Klapwijk *et al*. (2017). By six weeks, self-reported function improved significantly, measured with the Oxford Hip Scores and the Hip Injury and Osteoarthritis Score Physical Function Short Form (HOOS-PS).

Both the THA and TKA groups experienced significant increases in the odds of having self-care problems on day two, which is understandable given the acute stage following surgery and the subsequent need for assistance with self-care at home. The significance was more apparent within the TKA group because their baseline preoperative scores were not as poor as those of the THA group. There were notable between-group differences, with THA scores consistently higher than TKA scores, indicating that THA participants struggled more with self-care and may have required more assistance during the postoperative recovery. Klapwijk *et al*. (2017) reported a significant drop in EQ-5D scores one day after discharge from ERAS THA. These scores gradually increased by week five, significantly improving the HRQOL. These findings were for ERAS THA; however, the similarity with this study's findings of an initial increase in problems with self-care after SDD THA is evident and indicates a similar recovery trajectory.

The THA and TKA groups showed significant reductions in the odds of experiencing problems with usual ADL, with no group differences by week six postoperatively. The results of the local study by Prinsloo and Keller (2022) concur with these findings. Their findings indicated significantly higher physical function measured with WOMAC scores following SDD THA and TKA six weeks after surgery.

The pain and discomfort dimension scores of the EQ-5D-5L were significantly reduced by the sixth week after SDD THA. The lack of significant changes in the odds of encountering problems with pain and discomfort on day two and week two in the THA group followed the same trends as the EQ-VAS and SF-MPQ-2 (neuropathic pain and affective descriptors of pain) results. Interestingly, this trend was not evident in the NRS of pain over time, as discussed earlier.

The GEE statistical model could not be effectively applied to the TKA group data due to insufficient responses indicating "no problems." This may indicate that the TKA group had more problems with pain and discomfort than the THA group. The subsequent significant group differences when comparing the pain and discomfort

dimensions of the EQ-5D-5L may be explained by the presence of neuropathic pain in the TKA group.

The anxiety/depression dimension of EQ-5D-5L revealed no meaningful change in the odds of experiencing problems over time in the THA group. Conversely, although the between-group differences were not significant, the TKA group demonstrated a significant reduction in the odds of problems with anxiety/depression at day two and week two, with borderline non-significant reductions at week six. This finding contradicts the findings regarding the overall HRQOL ratings reported in the EQ-VAS for the TKA group. One would expect that the odds of having problems with depression/anxiety would increase considering the no change in the overall HRQOL scores found in the TKA group. Knapp *et al*. (2021) reported that patients undergoing TKA with diagnosed anxiety, depression, or both were at a statistically significant risk of readmission within 90 days compared to patients without these diagnoses. Interestingly, the patients who underwent THA did not have the same risk. Hoorntje *et al*. (2017) reported significantly lower median Hospital Anxiety and Depression Scale (HADS) scores on day one and the final postoperative follow-up in SDD unicompartmental knee replacements. These findings are inconsistent with those of the present study. It is, however, essential to note that the HADS PROM is a more thorough (14-item questionnaire) and specific measure designed to assess depression and anxiety in non-psychiatric patients in hospitals. The anxiety/depression dimension of the EQ-5D-5L is only one question, leading to results with less depth regarding this dimension.

5.2.3 Quantitative Discussion Conclusion

In conclusion, pain decreased significantly for THA and TKA at six weeks postoperatively, with no specific difference between THA and TKA when considering the NRS of pain over time. There were however, significant differences between the TKA and THA groups when considering the SF-MPQ-2 scores in that the TKA group experienced significant neuropathic pain, which did not improve by six weeks postoperatively. Likewise, the EQ-VAS score for overall HRQOL in the TKA group was significantly worse after surgery and did not improve significantly by six weeks postoperatively. The pain/discomfort dimension of the EQ-5D-5L could not be run for the TKA group due to insufficient "no problems" with pain responses, indicating that the TKA group had more problems with pain than the THA group. No significant

problems with mobility were observed throughout the postoperative period in either group. The THA group had significant problems with self-care at day two and week two but improved significantly by six weeks postoperatively. There was no effect on the odds of having problems with anxiety/depression throughout the six weeks following surgery in the THA group. However, TKA patients experienced significantly reduced odds of having problems at days two and week two and borderline non-significant change in odds at six weeks after surgery.

These findings indicate that SDD LLA successfully improved PROMs and decreased pain by six weeks postoperatively in both the THA and TKA groups. This aligns with the evidence in systematic reviews, as presented in Section 2.3.1 (p. 6). The between-group differences in the type of pain experienced and in HRQOL measures indicated similar recovery trajectories for SDD THA and TKA, albeit with unique variances.

5.3 Qualitative Results Discussion

5.3.1 Introduction

In this section dedicated to the qualitative aspects of the discussion, we will commence with an analysis of the themes presented in the results section regarding patient perceptions and experiences related to reported pain and the SDD process after THA and TKA. The discussion will then proceed to compare the two groups in line with the secondary objective of comparing the perceptions and experiences of the SDD THA and TKA groups. This structured approach offers a methodical evaluation of the themes, as well as group comparisons.

5.3.2 Total Hip Arthroplasty Themes

5.3.2.1 Theme 1: Factors Affecting Recovery After Same-day Discharge Total Hip Arthroplasty

An essential theme presented in the data was the importance of a patient-centric approach in promoting recovery following SDD THA. The results indicate that both external and internal factors are important in the recovery process. The patient plays an important intrinsic role in enhancing recovery by taking responsibility and being actively involved in the recovery process. External factors that facilitate recovery in SDD THA are the provision of adequate preoperative preparation and information, combined with the IDT's and caregivers' support. The collaboration of the IDT,

caregiver and participant completes the extrinsic factors that participants deemed necessary for successful recovery in SDD THA.

The comprehensive support a patient requires was reported in a study examining outcomes and experiences in the early recovery phase following THA and TKA in the United Kingdom (Strickland *et al*., 2018). This study was not conducted on SDD LLA; however, the theme similarity of being supported by family and healthcare professionals and being able to contact the healthcare team after discharge were identified as needed during early recovery.

A similar theme was reported by Boogmans *et al*. (2023) in their study of patients who underwent ERAS and outpatient THA. The need for a paramedical and a social "safety net" was a key factor for successful SDD THA. Specht *et al*. (2018) found that participants were uncertain and afraid of being left alone after discharge following ERAS LLA. They suggested the need to develop specific partnerships with the patients. This lack of patient-centred care was also reported in a review and synthesis of patient experiences following THA and TKA in the context of decreased hospital LOS (Makimoto *et al*., 2020). The identified subthemes were poorly coordinated care, poor discharge planning, and inadequate care plans for physiotherapy. The findings of the Specht *et al*. (2018) and Makimoto *et al*. (2020) studies are contrary to those of this study, in which participants report the existence of collaboration and further stressed the value of collaboration between all stakeholders. This collaboration is potentially the backbone of a comprehensive patient-centric support system.

The sub-theme in this study emphasising how clear communication and preparation for SDD THA affect recovery was similarly identified by Boogmans *et al*. (2023). Multimodal preoperative education was vital in reducing stress and building self-confidence in SDD THA. The benefit of preoperative education in preparing patients for ERAS LLA has also been reported by Strickland *et al*. (2018). Notably, Churchill *et al*. (2018) (This study's semi-structured interviews were based on the Churchill *et al*. study) identified the importance of the timing of education. They emphasised that patients and caregivers require this essential information timeously in order to decrease stress and confusion often experienced after SDD THA. Jansson *et al*. (2019) identified poor communication between stakeholders and patients during

recovery following ERAS THA and TKA which, was contrary to the findings of this study.

Other studies have also reported the intrinsic factors identified in this study that affect recovery after SDD THA. Jansson *et al*. (2019) report themes of patients taking active roles and committing to exercise programmes during recovery. Strickland *et al*. (2018) identified the substantial role of patients' attitudes in dealing with the recovery process. Interestingly, motivation and self-discipline were identified as factors that patients struggled with in the Specht *et al*. (2018) study of patient experiences in ERAS THA and TKA. This may be due to the longer follow-up duration in their study (12 weeks of recovery), unlike the six weeks in this study. Participants who followed this study's SDD THA care pathway highlight the significance of self-motivation and self-discipline. Their experiences emphasise that when these key factors are embraced, they contribute to an enhanced recovery process.

Both extrinsic and intrinsic factors affecting recovery, which were identified in this study, contribute to the growing body of evidence. Comprehensive patient-centric support, clear communication, stakeholder collaboration, patient and caregiver education, and the patient's active role in recovery are essential to promote successful recovery following SDD THA.

5.3.2.2 Theme 2: Predominantly Positive Perception of Same-day Discharge Total Hip Arthroplasty

Key sub-themes contributing to positive perceptions of SDD THA included positive emotions, positive experiences, good processes, acknowledgement of the IDT and good customer service and support (Figure 5.1).

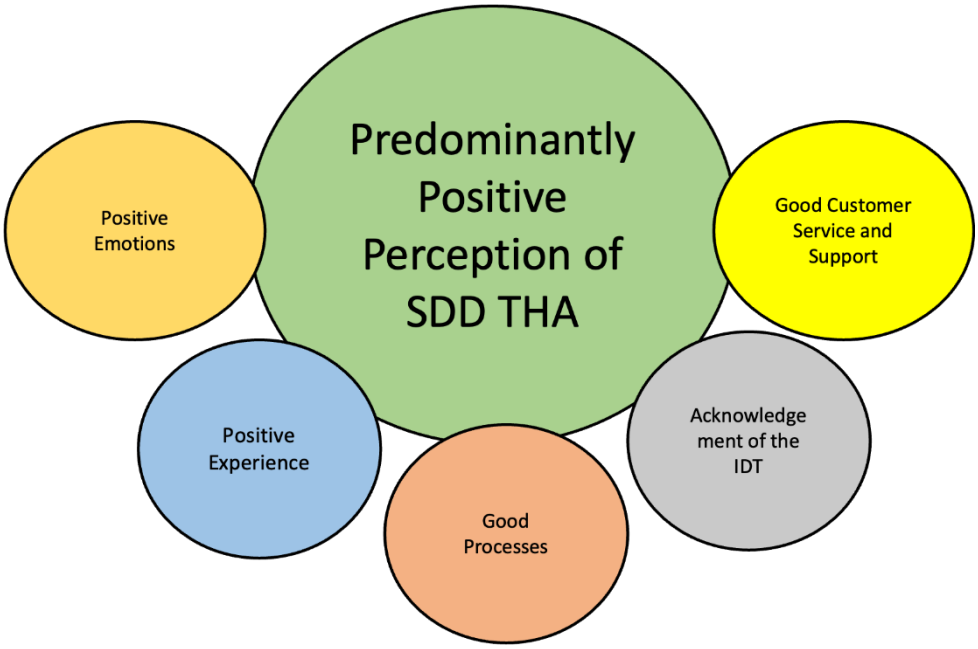


Figure 5.1 Theme 2: Predominantly positive perception of same-day discharge total hip arthroplasty

Boogmans *et al*. (2023) reported that all participants (n=15) would undergo SDD THA again; however, only 85% would recommend it. Strickland *et al*. (2018) reported that participants expressed a general feeling of well-being in the postoperative period, attributing this to relief from preoperative debilitating pain and stiffness. Churchill *et al*. (2018) reported elevated satisfaction levels with overall care processes and their assigned care pathway (either SDD or ERAS). Similarly, a recent local study reported elevated levels of patient satisfaction (98%) following SDD THA and TKA (Prinsloo and Keller, 2022). The mean overall patient satisfaction score on a numerical rating scale of 0 to 10 was 9.0 (SD 1.1) following ERAS THA and TKA, as described by Jansson *et al*. (2020). Interestingly, satisfaction with post-discharge care (recovery and rehabilitation) in their study had lower scores (7.7 (SD 3.2)) than satisfaction scores in other categories. Churchill *et al*. (2018) identified higher expectations regarding the ease of recovery in SDD THA, which could explain lower satisfaction scores in other studies.

Jansson *et al*. (2020) highlighted various process-related problems in their study. Similar perceived poor post-discharge service was identified in a review of ERAS THA and TKA patient experiences conducted by Makimoto *et al*. (2020). Specht *et al*. (2018) specifically identified themes of patients experiencing post-discharge abandonment during the recovery phase of ERAS THA and TKA. Conversely, the sub-themes of

Positive Emotions, Positive Experience, Good Customer Service and Support that emerged in this study (which focused on the recovery phase) did not indicate decreased satisfaction, lack of support, or process-related issues after SDD THA.

The effective collaboration and clear communication between the clinical coordinator, physiotherapist, caregiver and participant played an important role. Participants had continuous access to the IDT through the clinical coordinator ensuring that any concerns were promptly addressed by the appropriate team member. The physiotherapist additionally maintained direct contact with the orthopaedic surgeon to resolve any issues raised by participants. This efficient communication within the IDT likely eliminated the risk of post-discharge abandonment, process-related issues and poor service, problems noted by Jansson *et al*. (2020), Makimoto et al. (2020) and Specht *et al*. (2018).

5.3.2.3 Theme 3: Perceptions of Pain and Pain Management Strategies

The diverse pain experiences identified in this study concur with the findings of several studies investigating the patient experience of ERAS or SDD THA. Churchill *et al*. (2018) emphasise recovery's complexity and multidimensional nature following ERAS and SDD THA. A systematic review of patient experiences following ERAS THA and TKA revealed variability in pain experiences and differing views on pain medications (Makimoto *et al*., 2020). Strickland *et al*. (2018) identified themes of welcomed relief from debilitating pain and stiffness experienced before surgery. In the context of preoperative and postoperative pain, patients reported that pain was something they knew how to deal with, positively affecting their resilience to pain.

Two-thirds of the participants in this study reported experiencing minimal or no pain. The third group reported extreme pain levels. This finding aligns with the evidence mentioned earlier regarding the diversity of reported pain. Unlike Boogmans *et al*. (2023), poor postoperative pain management was not a common theme in this study.

Beneficial pain management strategies, including cryotherapy and effective pain medication prescription and use, have been frequently mentioned in previous studies (Churchill *et al*., 2018; Specht *et al*., 2018; Strickland *et al*., 2018) and in a systematic review by Makimoto *et al*. (2020), which, further affirmed the findings of this study.

In this study, participants were frequently reminded by the physiotherapist and clinical coordinator about the importance of adhering to the prescribed pain medication regime, using cryotherapy, and managing their activity levels. If participants encountered pain management issues, they could contact the IDT, who would explain that pain is a normal response and reinforce previously discussed pain management strategies. If the pain persisted, the orthopaedic surgeon would be consulted to adjust the pain prescription. This dynamic communication between the IDT and participants facilitated tailored and effective pain management for participants, thereby enhancing overall care.

5.3.2.4 Summary of the Total Hip Arthroplasty Discussion

Exploring patient perspectives and experiences after SDD THA has revealed vital insights that contribute to understanding the factors influencing recovery. Theme one, which focuses on extrinsic and intrinsic factors that affect recovery, emphasises the significance of adopting patient-centric approaches. The findings highlight the importance of a comprehensive support system involving clear communication, stakeholder collaboration, and patient and caregiver education. These elements form a foundation for successful recovery following SDD THA, aligning with the existing literature on the importance of support networks and communication in healthcare. Empowering the patient encourages the activation of intrinsic factors, which allows the participant to take an active role in recovery.

The similarities with other studies, particularly those examining early recovery experiences after THA and TKA, further strengthened the validity of the identified themes. This study further highlights the positive impact of effective collaboration and clear communication between the clinical coordinator, physiotherapist, caregiver, and the participant in SDD THA care pathways. Continuous access to the IDT ensured prompt resolution of concerns, reducing the risk of post-discharge problems noted in other studies. Regular reminders about pain management and activity levels, along with tailored adjustments to pain prescriptions, facilitated effective and personalised care. This dynamic patient-centric approach emphasises the benefits of stakeholder collaboration and timely education in improving patient outcomes.

Theme two explored the predominantly positive perceptions of SDD THA, highlighting subthemes such as positive emotions, experiences, efficient processes,

acknowledgement of the IDT, and good customer service and support. Besides acknowledging the positive aspects, the study also drew attention to the subtle nature of patient satisfaction, as evidenced by various recommendations for SDD THA. The insights derived contribute to a comprehensive understanding of patient perceptions, allowing for an interesting evaluation of the overall success of SDD THA from the participant's perspective.

The third theme explored the perceptions of pain and pain management strategies, revealing diverse experiences. Acknowledging the multidimensional nature of pain experiences aligns with existing literature on the complexity of recovery after LLA. This study's contribution to the available literature is identifying beneficial pain management strategies, such as cryotherapy and effective medication prescription, which enhance participant experiences.

A holistic approach, including patient-centric care, effective communication, and collaboration between stakeholders and participants, is essential for successful recovery after SDD THA. Integrating extrinsic factors enriches understanding of the SDD THA care pathway and provides insights for healthcare practitioners. The relationship between themes, as depicted in Figure 5.2, emphasises the interconnectedness of these factors in creating an optimal environment for recovery and positive participant experiences in SDD THA.

In essence, placing the patient at the centre, supported by a reliable IDT and caregiver, along with effective two-way communication and information sharing, leads to positive outcomes in the SDD THA care pathway. Efficient communication among the IDT and the patient’s active involvement and responsibility contribute significantly to the positive perspectives.

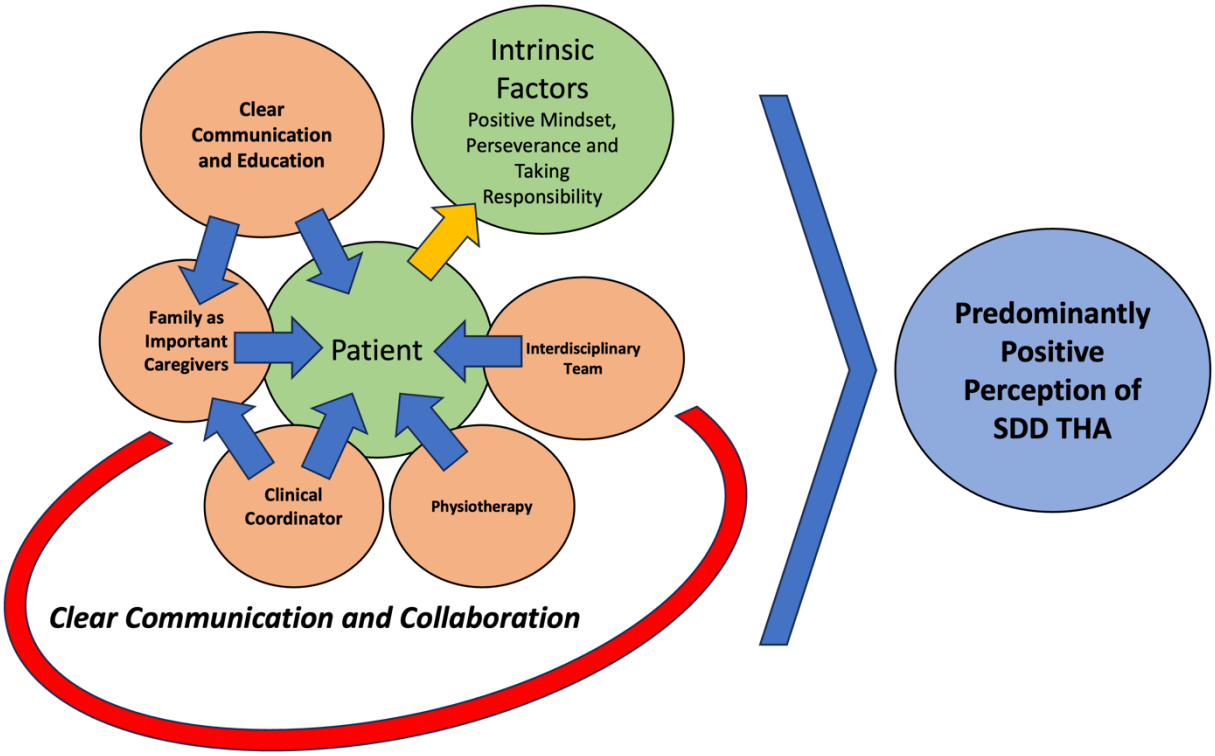


Figure 5.2 Relationships between themes in same-day discharge total hip arthroplasty

5.3.3 Total Knee Arthroplasty Themes

5.3.3.1 Theme 1: Primarily Positive Perspectives of Same-day Discharge Total Knee Arthroplasty

Diverse perspectives regarding SDD TKA were evident, with the majority (88,9%) of perspectives being positive. These are illustrated in Figure 5.3 below.

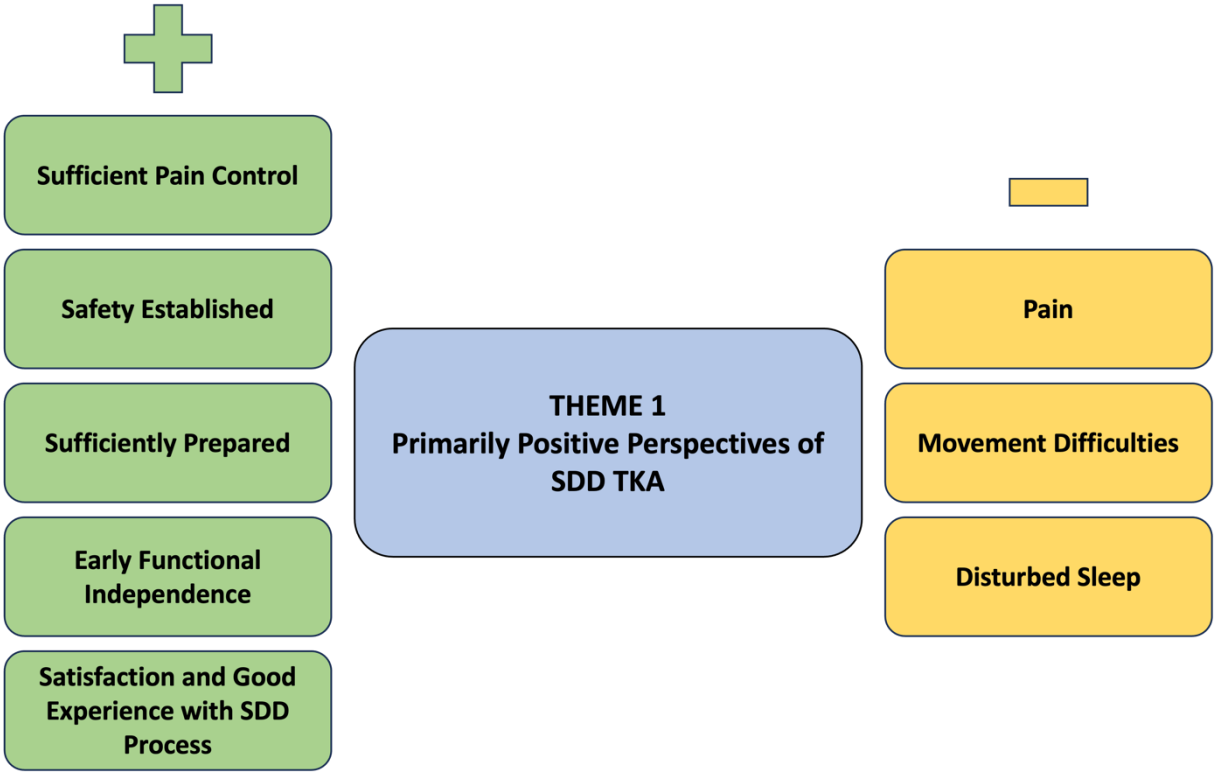


Figure 5.3 Perspectives of same-day discharge total knee arthroplasty

Høvik *et al*. (2018), in their study of ERAS following TKA, identified similar elements in their themes as did this study. Despite not being an SDD study and focusing on the first two weeks following surgery, the focus group interviews identified similar positive themes: a prerequisite identified for being discharged home was feeling secure (Safety Established). Although pain was a prevalent theme, patients reported being extensively prepared for this and early discharge due to sufficient provision of information (Sufficiently Prepared). Patients also reported being excited about early functional recovery, such as fully loading the operated leg while walking and managing normal ADL (Early Functional Independence). Høvik *et al*. (2018) did not report on the satisfaction or rating of the ERAS process as a theme. The negative perspectives reported by Høvik *et al*. (2018) are also related to pain but not movement difficulties or disturbed sleep, as in this study. However, Strickland *et al*. (2018) did identiy "Fatigue and sleeping" as a theme after ERAS THA and TKA.

The review by Makimoto *et al*. (2020) does not distinguish between THA and TKA and, as such, provides limited insight into the specific recovery trajectories of the different surgeries. Nonetheless, the review reported difficulties performing ADL as a theme, contrary to this study's sub-theme of positive perspectives, including Early Functional

Independence. The review's themes of variable pain experiences and difficulty performing ADL concur with the negative perspectives identified in this study, except for disturbed sleep, which was not mentioned as a theme by Makimoto *et al*. (2020). Specht *et al*. (2018) reported similar themes regarding dealing with pain, the importance of information and readiness for discharge. As with the review by Makimoto *et al.* (2020), the results were not distinguished between THA and TKA. However, their subthemes concur with the positive effects of being sufficiently prepared, leading to feelings of confidence in being discharged. They noted the importance of providing correct and unambiguous information to prevent uncertainty.

The lack of studies specific to the qualitative aspects of SDD TKA makes it challenging to draw firm conclusions from the current body of evidence.

5.3.3.2 Theme 2: Factors Promoting Recovery in Same-day Discharge Total Knee Arthroplasty

There is an overlap between the two main themes in SDD TKA, specifically, regarding being prepared and informed for SDD TKA . Contact with the IDT promoted the sense of safety perceived by participants and contributed to perceived satisfaction and good experiences with the SDD process. Theme two and its subthemes are essential factors that promote the primarily positive perspectives discussed in theme one.

The roles of the clinical coordinator and physiotherapist were highlighted by participants as integral in promoting recovery through the SDD TKA process. This link between participants and the IDT, identified in this study, is reported as missing in the review by Makimoto *et al*. (2020) and the participant abandonment themes identified by Specht *et al*. (2018). Makimoto *et al*. (2020) mentioned a sub-theme related to inadequate care plans for physiotherapy. The physiotherapy-related themes identified in this study were primarily positive regarding the role of physiotherapy in recovery after SDD TKA.

Although the study was conducted on ERAS THA, Strickland *et al*. (2018) similarly identified themes related to the support received at "joint schools", like the Anaesthetic Clinic in this study. There were no anaesthetists at the "joint schools"; however, occupational therapists were additional team members that this clinical pathway did not include. A similar "patient school" is mentioned under the theme of "security and

predictability" derived from focus group studies after ERAS TKA (Høvik *et al*., 2018). Participants were satisfied with the "patient school" providing extensive education and information. Interestingly, the Anaesthetic Clinic or similar interventions were not identified as themes in the review and synthesis conducted by Makimoto *et al*. (2020).

The theme of Participant Commitment and Responsibility as a factor promoting recovery in this study is supported by similar themes identified by Strickland *et al*. (2018) (patient attitudes) and Høvik *et al*. (2018), where patients' determination and ability to cope at home was the central theme identified after ERAS TKA. Specht *et al*. (2018) also reported similar themes of "Motivation and discipline – back in the saddle" and "Confidence and uncertainty during the rehabilitation". Notably, none of the supporting studies mentioned were conducted on SDD TKA.

5.3.3.3 Summary of the Total Knee Arthroplasty Discussion

In summary, the findings in 5.3.3 provide a comprehensive understanding of the participants' perspectives and factors influencing recovery in SDD TKA. The analysis of Theme one highlights primarily positive perspectives among participants, with the majority expressing satisfaction and enthusiasm for SDD. These positive sentiments align with previous studies conducted by Høvik *et al*. (2018) and Specht *et al*. (2018), emphasising the importance of feeling secure, experiencing early functional independence, and being sufficiently prepared.

Comparisons with available literature indicate both similarities and differences. The studies by Høvik *et al*. (2018) and Strickland *et al*. (2018) resonated with the positive themes identified in this research, emphasising the significance of pain management, provision of sufficient information, and early recovery. However, distinctions arise from negative perspectives within this study, highlighting movement difficulties and disturbed sleep, which contrasts the findings of Høvik *et al*. (2018) and Strickland *et al*. (2018).

Themes one and two overlap and emphasise the significance of being prepared and well-informed, underscoring these elements' vital role in forming positive perspectives. The factors promoting recovery in SDD TKA (Theme two) directly influence the primary positive perspectives (Theme one) of SDD TKA. This relationship is illustrated in Figure 5.4.

The integral roles of the IDT, with specific mention of the clinical coordinator and physiotherapists, have emerged as crucial facilitators of recovery. This collaboration was identified as a missing link in the review by Makimoto *et al*. (2020) and is evident in the abandonment themes reported by Specht *et al*. (2018), highlighting the significance of a cohesive team approach.

The roles of physiotherapists, clinical coordinators, and educational and preparation interventions in the Anaesthetic Clinic influence recovery. These elements were not identified in the review by Makimoto *et al*. (2020), which suggested the need for more targeted research on the qualitative aspects of SDD TKA. Furthermore, the emphasis on participant commitment and responsibility echoes the themes identified in other studies, thus reinforcing the role of patient attitudes and determination during recovery.

The themes developed in this part of the study provide valuable insights into the perspectives and factors influencing recovery in SDD TKA. Given the limited existing literature on the qualitative aspects of SDD TKA, the need for further research and understanding of this evolving clinical pathway is evident.

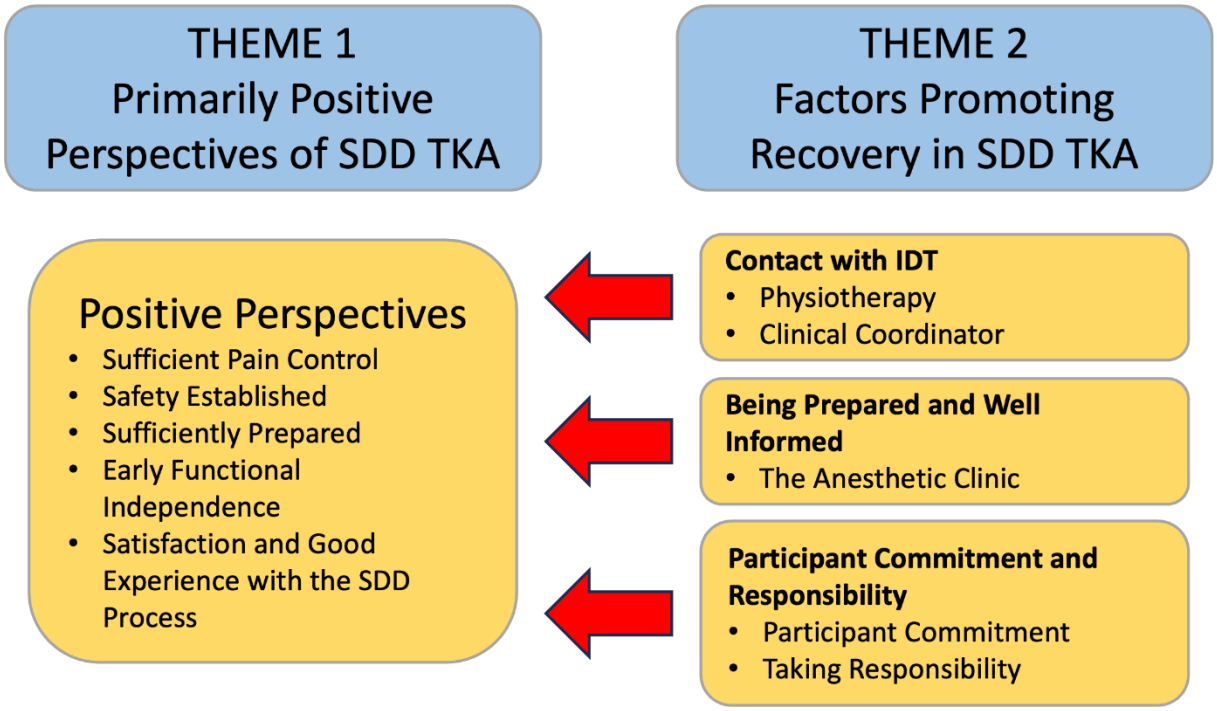


Figure 5.4 The relationship between themes in same-day discharge total knee arthroplasty

5.3.4 Comparison of Total Hip Arthroplasty and Total Knee Arthroplasty Themes

Same-day discharge THA and TKA analyses provide valuable insights into the factors influencing recovery. Interesting similarities and differences between the groups are evident and discussed below.

5.3.4.1 Patient-centric Approaches

The emphasis and significance of adopting patient-centric approaches for successful recovery were evident in the THA and TKA SDD groups. The patient-centric approach involves clear communication, stakeholder collaboration, and comprehensive support systems. Theme one in SDD THA highlights the importance of patient-centric care, and the analysis of theme one in SDD TKA also underscores the positive perspectives related to feeling secure and being well-prepared.

5.3.4.2 Collaboration of Stakeholders

Both SDD THA and TKA groups stressed the collaboration of stakeholders as an essential element for successful recovery.

5.3.4.3 Positive Perception and Efficient Processes

Theme two in the SDD THA group explored predominantly positive perceptions of SDD THA, emphasising positive emotions, positive mindsets, efficient processes, and good customer service. The analysis of theme one in SDD TKA also highlights primarily positive perspectives among participants, expressing satisfaction and enthusiasm for SDD TKA. However, in the SDD TKA group, positive mindsets and emotions were not evident.

5.3.4.4 Negative Experiences

The SDD THA group contrasts with studies reporting negative patient experiences, emphasising the unique contribution of patient-centric care, stakeholder collaboration, and well-timed education. In contrast, the SDD TKA group noted movement difficulties and disturbed sleep as negative aspects, setting them apart from findings in previous research.

5.3.4.5 Pain Management Strategies

Both groups acknowledge the multidimensional nature of pain experience and emphasise the importance of effective pain management strategies. The SDD THA group identified beneficial strategies, such as cryotherapy and effective medication prescription, while the SDD TKA group resonated with previous studies emphasising the significance of pain management.

5.3.4.6 Participant Collaboration and Responsibility

The THA and TKA groups highlighted the role of participant commitment and responsibility during recovery, indicating the importance of patient attitudes and determination.

5.3.4.7 Distinct Recovery Factors

While both studies discuss being prepared and well-informed as essential factors influencing positive perspectives, the SDD THA study connects this with extrinsic and intrinsic factors, underpinning the interconnectedness of these factors in creating an optimal recovery environment. In the SDD TKA study, the integral roles of the IDT, particularly the clinical coordinator and physiotherapists, emerged as key facilitators of recovery.

5.3.4.8 The Role of Carers

The importance of the role of caregivers is not as evident in the TKA group; this may be linked to early functional independence, which is evident in the SDD TKA group.

In summary, both SDD THA and TKA studies advocate for a holistic approach, including patient-centric care, effective communication, stakeholder collaboration, and participant engagement, as essential for successful recovery after SDD THA and TKA. The interconnectedness of these factors is emphasised in both studies, providing valuable insights for healthcare providers and reinforcing the importance of these qualitative aspects in the evolving SDD THA and TKA clinical pathways. The SDD THA study highlights the contrast with the available studies reporting negative patient experiences, emphasising the positive impact of patient-centric care. However, the SDD TKA study emphasises the need for targeted research on the qualitative aspects of SDD TKA. Many available qualitative studies have focused on ERAS and a

combination of THA and TKA participants. These studies do not distinguish between the results of THA and TKA, making it more difficult to draw direct conclusions.

5.4 Integration of Quantitative and Qualitative Discussions

Figure 5.5 illustrates the integration of this study's quantitative and qualitative findings. Essential themes identified and congruency in the SDD THA and TKA studies are depicted. The significant improvements in the quantitative study are depicted in purple, indicating how these findings support the identified themes of positive perceptions and perspectives of SDD LLA.

Figure 5.6 depicts the unique considerations regarding SDD TKA, where there was no congruence between the SDD THA and TKA study themes. Quantitative findings that support and potentially explain these findings are included in purple. Considering the identified negative perceptions of SDD-TKA, worse EQ-VAS scores, neuropathic pain, and problems with pain/discomfort, it may be pertinent to address these issues with additional information and education, improved pain management strategies, and effective communication regarding the possibility of neuropathic pain. Furthermore, less pain identified after mobilisation on the day of surgery may lead to more active recovery and early functional independence. This may explain the decreased odds of having problems with anxiety/depression in SDD TKA on day two and week two. However, may play a role in creating more significant levels of pain and discomfort due to overdoing ADL, which in turn potentially worsens the EQ-VAS of overall health scores.

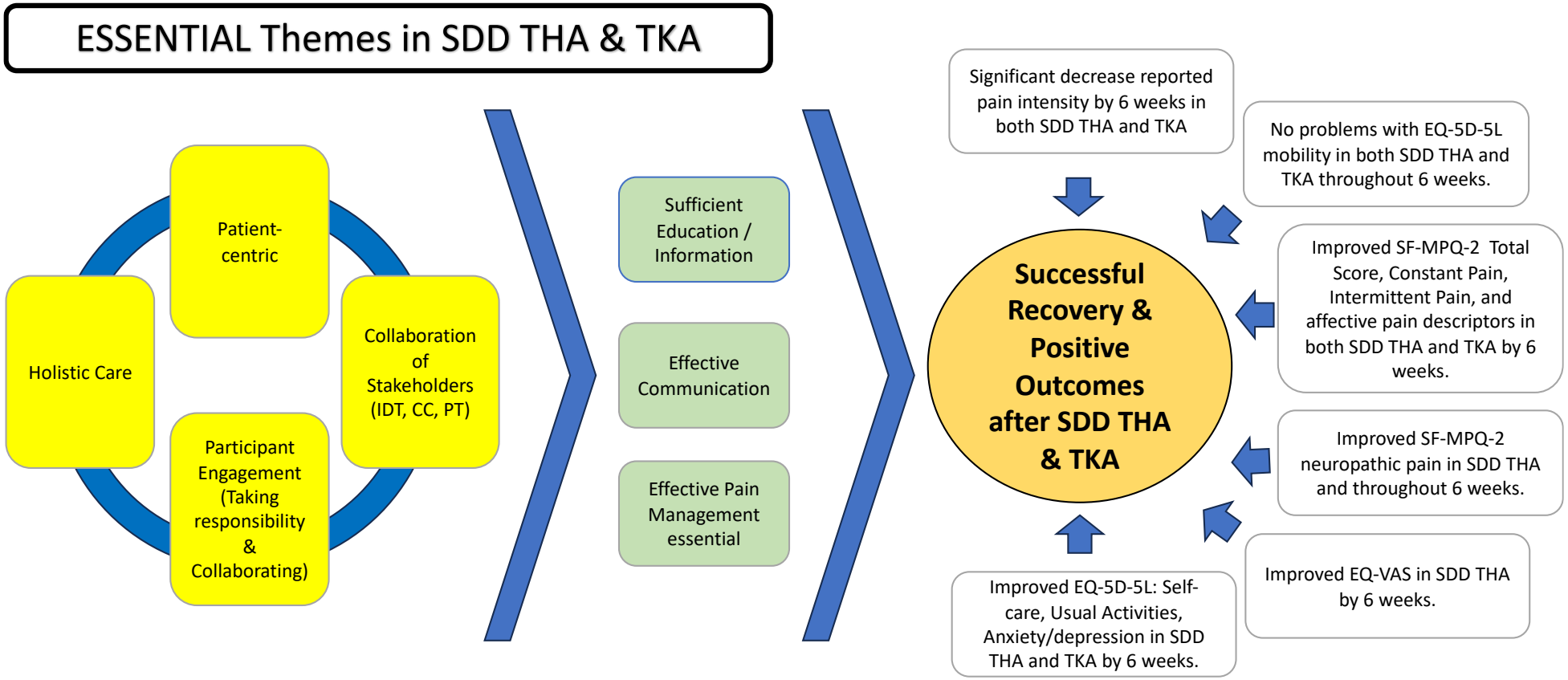


Figure 5.5 Integrating qualitative and quantitative results

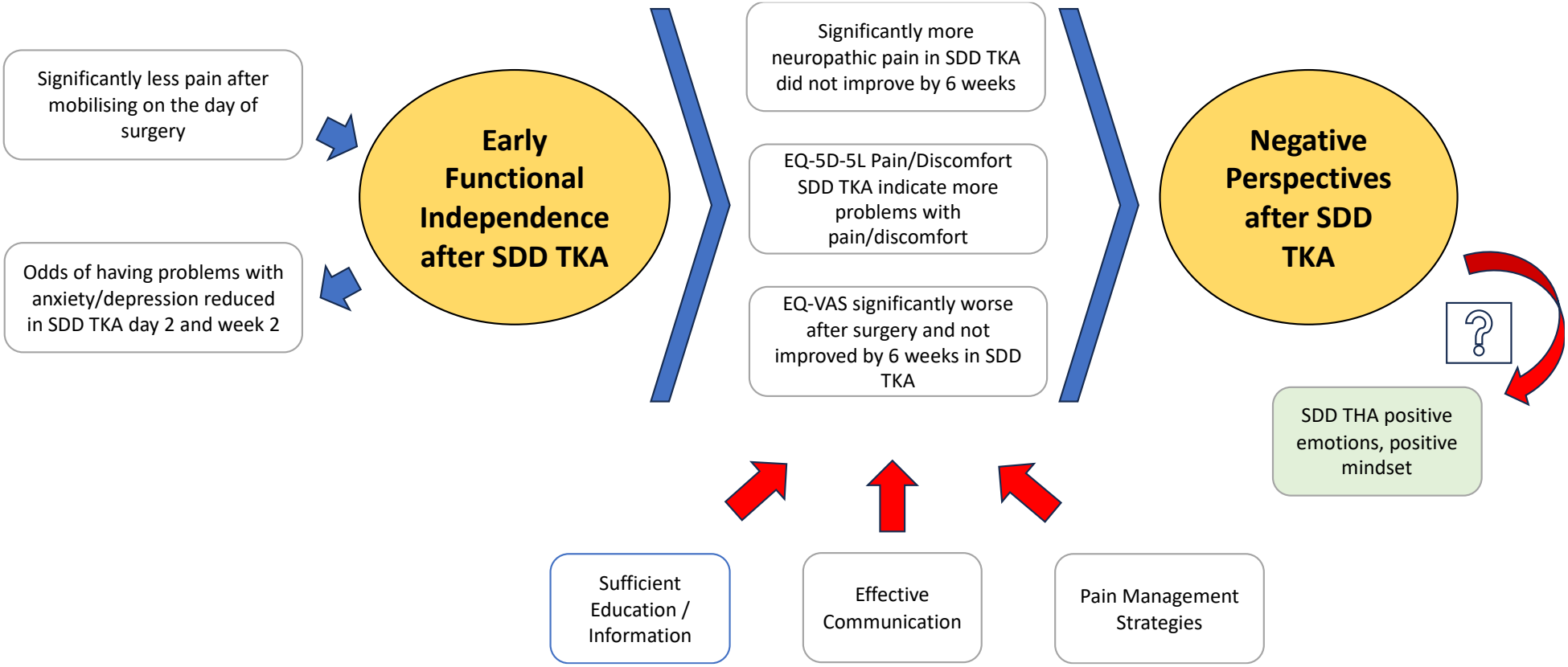


Figure 5.6 Unique considerations for same-day discharge total knee arthroplasty

Chapter 6 Conclusion and Recommendations

6.1 Introduction

This chapter concludes the study by addressing clinical and practical recommendations, reviewing the strengths and limitations of the study, and suggesting opportunities for future research. It concludes by summarising the key research findings concerning the research aims, objectives, and questions the value and contribution thereof.

This study aimed to investigate patient perspectives, pain and HRQOL following SDD THA and TKA. Furthermore, the study aimed to investigate the differences and similarities between SDD THA and TKA in the six-week recovery phase.

6.2 Clinical/Practical Recommendations

The finding of significant neuropathic pain in SDD TKA should be addressed in various ways. Changes to medication prescriptions could include the addition of medications that address neuropathic pain. Further information and preparation regarding the variability of recovery and pain experiences should be given to patients before SDD LLA surgery. Providing this information will potentially lead to improved management of patient expectations and better outcomes.

Informing prospective SDD TKA patients about neuropathic pain and early functional independence may assist in reducing pain levels. By providing this specific information, patients will be further prepared and cautioned not to overdo ADL in the early stages of recovery (despite being able to).

6.3 Recommendations for Future Research

Recommendations for further research include further investigation into acute neuropathic pain and reasons for poor overall HRQOL ratings in the first six weeks postoperatively following SDD TKA. Long-term follow-up could be explored relating to these two recommendations to explore if there are any links to persistent or chronic pain and neuropathic pain in SDD TKA. Future studies should include larger sample sizes, longer follow-ups, more surgeons and multiple sites.

Pilot testing of SDD care pathways in the public health sector has the potential to make a contribution to healthcare transformation in South Africa. Reducing hospital LOS following LLA has the potential to reduce the burden on public healthcare resources.

6.4 Strengths and Limitations

The limitations of this study are found in Table 6.1. The strengths of this study lie in the mixed methods nature, which provides a robust view of SDD LLA in a South African private healthcare context. A further strength lies in comparing THA and TKA, which provides valuable insights regarding the differences and similarities between the two surgeries. These findings contribute to the evolving clinical pathways of SDD LLA, emphasising the need for continuous improvement and optimisation of patient care.

Table 6.1 Study Limitations

Study Limitations
The small sample size of the quantitative sample; for example, Hoeffel *et al*. (2019) had a sample of 1000 participants compared to this study's 109.
This was a multi-centre study; however, the same three surgeons performed the surgery at both centres.
The participants were followed for six weeks after surgery, but there was no long-term follow-up.
The interviews were conducted in English, which was not always the participants' home language.
The questions in the interview guide could have been more open-ended to encourage further information sharing by participants. Probing was often required to gain additional information. Therefore, the resultant themes that developed were more deductive than inductive, which could have provided greater depth of understanding.
The PROMs were only available in English or Afrikaans, which could also have affected participants where English or Afrikaans were not the participant's first language.
The researcher contacted participants via telephone to collect PROMs, which would not usually occur in the SDD care pathway. This additional contact with the IDT may have affected the qualitative study results.

6.5 Summary

The results have provided valuable insights into SDD THA and TKA's outcomes regarding pain and HRQOL. Results suggest a significant decrease in pain for THA and TKA at six weeks postoperatively, with distinct variations between THA and TKA groups. Notably, significant neuropathic pain persisted six weeks postoperatively in the TKA group. Further findings indicate that the TKA group had more HRQOL challenges related to problems with pain/discomfort and poorer overall health ratings than the THA group. Despite this, it was interesting that mobility remained unimpaired in both groups throughout the postoperative period. The findings underscore the success of SDD LLA in improving PROMs in both SDD THA and TKA groups, which aligns with current evidence from systematic reviews.

Integrating quantitative and qualitative findings, as illustrated in Figures 5.5 and 5.6 (pp.107 and 108), further enhances our understanding of outcomes in SDD LLA. The interconnectedness of patient-centric care, effective communication, and stakeholder collaboration is crucial for successful recovery, as evidenced by the positive impact of thereof in the SDD THA study. Nevertheless, this study underscores the need for targeted research on qualitative aspects of SDD TKA, urging healthcare providers to address identified challenges with tailored interventions and further research. Doing so will foster optimisation of the clinical pathways utilised in SDD LLA.

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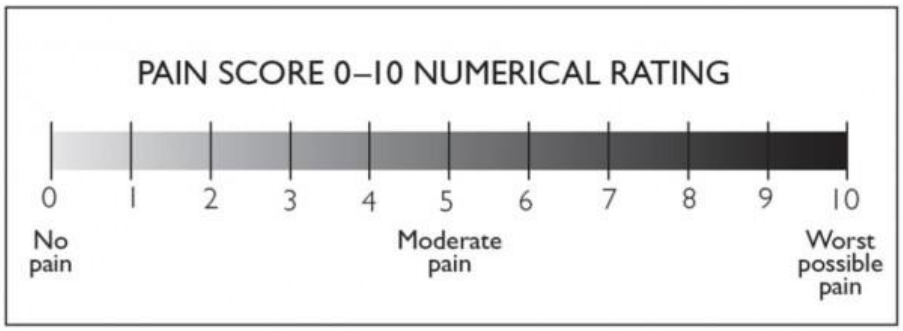
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Appendix

Appendix A Numeric Rating Scale of pain



Appendix B Short-form McGill Pain Questionnaire-2

Short-Form McGill Pain Questionnaire-2 (SF-MPQ-2)

This questionnaire provides you with a list of words that describe some of the different qualities of pain and related symptoms. Please put an **X** through the numbers that best describe the intensity of each of the pain and related symptoms you felt during the past week. Use 0 if the word does not describe your pain or related symptoms.

1. Throbbing pain	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
2. Shooting pain	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
3. Stabbing pain	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
4. Sharp pain	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
5. Cramping pain	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
6. Gnawing pain	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
7. Hot-burning pain	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
8. Aching pain	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
9. Heavy pain	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
10. Tender	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
11. Splitting pain	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
12. Tiring-exhausting	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
13. Sickening	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
14. Fearful	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
15. Punishing-cruel	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
16. Electric-shock pain	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
17. Cold-freezing pain	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
18. Piercing	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
19. Pain caused by light touch	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
20. Itching	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
21. Tingling or 'pins and needles'	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*
22. Numbness	*none*	0	1	2	3	4	5	6	7	8	9	10	*worst possible*

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Information regarding permission to reproduce the SF-MPQ-2 can be obtained at *www.immpact.org*.

Appendix C EuroQol 5-Dimension 5-Level and Visual Analogue Scale of overall health



Health Questionnaire

English version for South Africa

SCRIPT FOR TELEPHONE INTERVIEW

GENERAL INTRODUCTION

It is suggested that the telephone interviewer follows the script of the EQ-5D. Although allowance should be made for the interviewer's particular style of speaking, the wording of the questionnaire instructions should be followed as closely as possible. In the case of the EQ-5D descriptive system on pages 2 and 3, the precise wording must be followed.

It is recommended that the interviewer has a copy of the EQ-5D in front of him or her as it is administered over the telephone. This enables the respondent's answers to be entered directly on the EQ-5D by the interviewer on behalf of the respondent (i.e. the appropriate boxes on pages 2 and 3 are marked and the scale on page 4 is marked at the point indicating the respondent's 'health today'). The respondent should also have a copy of the EQ-5D in front of him or her for reference. If the respondent asks for clarification, the interviewer can help by re-reading the question verbatim. The interviewer should not try to offer his or her own explanation but suggest that the respondent uses his or her own interpretation.

If the respondent has difficulty regarding which box to mark, the interviewer should repeat the question verbatim and ask the respondent to answer in a way that most closely resembles his or her thoughts about his or her health today.

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INTRODUCTION TO EQ-5D

(Note to interviewer: please read the following to the respondent)

We are trying to find out what you think about your health. I will first ask you some simple questions about your health TODAY. I will then ask you to rate your health on a measuring scale. I will explain what to do as I go along but please interrupt me if you do not understand something or if things are not clear to you. Please also remember that there are no right or wrong answers. We are interested here only in your personal view.

EQ-5D DESCRIPTIVE SYSTEM: INTRODUCTION

First I am going to read out some questions. Each question has a choice of five answers. Please tell me which answer best describes your health TODAY. Do not choose more than one answer in each group of questions.

(Note to interviewer: it may be necessary to remind the respondent regularly that the timeframe is TODAY. It may also be necessary to repeat the questions verbatim)

EQ-5D DESCRIPTIVE SYSTEM

MOBILITY

First I'd like to ask you about mobility. Would you say that:

1. **You have no problems in walking about?**
2. **You have slight problems in walking about?**
3. **You have moderate problems in walking about?**
4. **You have severe problems in walking about?**
5. **You are unable to walk about?**

(Note to interviewer: mark the appropriate box on the EQ-5D questionnaire)

SELF-CARE

Next I'd like to ask you about self-care. Would you say that:

1. **You have no problems washing or dressing yourself?**
2. **You have slight problems washing or dressing yourself?**
3. **You have moderate problems washing or dressing yourself?**
4. **You have severe problems washing or dressing yourself?**
5. **You are unable to wash or dress yourself?**

(Note to interviewer: mark the appropriate box on the EQ-5D questionnaire)

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USUAL ACTIVITIES

Next I'd like to ask you about usual activities, for example work, study, housework, family or leisure activities. Would you say that:

1. **You have no problems doing your usual activities?**
2. **You have slight problems doing your usual activities?**
3. **You have moderate problems doing your usual activities?**
4. **You have severe problems doing your usual activities?**
5. **You are unable to do your usual activities?**

(Note to interviewer: mark the appropriate box on the EQ-5D questionnaire)

PAIN / DISCOMFORT

Next I'd like to ask you about pain or discomfort. Would you say that:

1. **You have no pain or discomfort?**
2. **You have slight pain or discomfort?**
3. **You have moderate pain or discomfort?**
4. **You have severe pain or discomfort?**
5. **You have extreme pain or discomfort?**

(Note to interviewer: mark the appropriate box on the EQ-5D questionnaire)

ANXIETY / DEPRESSION

Finally I'd like to ask you about anxiety or depression. Would you say that:

1. **You are not anxious or depressed?**
2. **You are slightly anxious or depressed?**
3. **You are moderately anxious or depressed?**
4. **You are severely anxious or depressed?**
5. **You are extremely anxious or depressed?**

(Note to interviewer: mark the appropriate box on the EQ-5D questionnaire)

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EQ VAS: INTRODUCTION

(Note to interviewer: if possible, it might be useful to send a visual aid (i.e. the EQ VAS) before the telephone call so that the respondent can have this in front of him or her when completing the task)

Now, I would like to ask you to say how good or bad your health is TODAY.

I'd like you to try to picture in your mind a scale that looks a bit like a thermometer. Can you do that? The best health you can imagine is marked 100 (one hundred) at the top of the scale and the worst health you can imagine is marked 0 (zero) at the bottom.

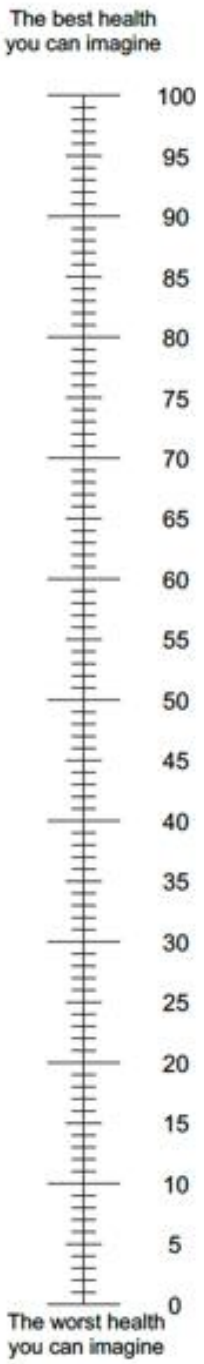
EQ VAS: TASK

I would now like you to tell me the point on this scale where you would put your health today.

(Note to interviewer: mark the scale at the point indicating the respondent's 'health today'. Now, please write the number you marked on the scale in the box below)

THE RESPONDENT'S HEALTH TODAY ☐

Thank you for taking the time to answer these questions.



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Appendix D Semi-structured Interview Guide

Interview Guide for Patients

1. Tell me about your experience of going home after your surgery, thinking particularly about the first few weeks.
Possible prompts: what went well; what did not go well?

2. As you were preparing for discharge following your surgery, did you feel that you had the information you required to manage your hip and other things you needed to do when you got home?
Possible prompts: what information was essential; what information would you have liked to know that you did not have; did you have anxiety about going home when you did?

3. Were there any issues that you faced after your discharge from hospital that you were unable to manage to your satisfaction? If so, can you describe these?
a. After returning home, can you describe if you encountered any issues related to pain and, if so, how these were managed.
b. After returning home, can you describe if you encountered any issues with the healing of your wound and, if so, how these were managed.
c. Did you experience any concerns regarding your safety?

4. After returning home, can you describe what sort of assistance you required to complete activities around your home, like toileting, bathing or getting around?
a. Were you able to get the assistance you required and, if so, from whom?
b. Were certain forms of assistance not available that would have been helpful?
c. How long did you require the assistance for?

5. Considering your progress over the past 6 weeks, what aspects of the health care you received worked well for you? What aspects did not work so well?

6. Did you find the physiotherapy service valuable/helpful? If so anything in particular?

7. Is there anything I have not asked about the care you received for your replacement that you would like to talk about?

Appendix E Participant Information Sheet and Informed Consent Document

INFORMATION DOCUMENT

Study title: Patient's perspectives, pain and health-related quality of life in same day discharge hip and knee arthroplasty.

Dear prospective participant,

I, Martin van Heerden, am conducting research on patient experiences and perspectives of same day discharge after hip or knee replacements. I will also be recording pain intensity and health-related quality of life scores.

In this study we want to learn how the same day discharge process is experienced by the patient. Being discharged on the same day of surgery is somewhat of an achievement and a relatively new concept in South Africa. Your experiences and perspectives of the process will help us determine if there are any changes required in our same day discharge process to make improvements. I also want to ascertain your experience of pain intensity and health related quality of life in the first few days following surgery and at the six weeks follow up.

I would be most grateful if you would be willing to participate in this research project. The project is scheduled to commence in June 2021 and finish in February 2022.

Who is eligible to take part in this study?
Male and female patients who have been identified as same day discharge total hip or total knee arthroplasty candidates by their orthopaedic surgeon. Participants must be discharged on the same day of surgery.

What is involved in the study?
Pain intensity, pain quality and health-related quality of life scores will be noted before surgery as well as on the day of your surgery once you have been mobilised. Some of these scores will be gathered on day one, two and three following your surgery by telephone call. Further scores will be collected during your one, two, four and six weeks follow up physiotherapy visits or via telephone call. These scores will only require 10 minutes of your time to collect.
After your six weeks follow up physiotherapy appointment, an individual interview may be conducted with you regarding your experiences of the same day discharge process. This interview will take between 45 minutes and 60 minutes. Only some participants who have been randomly selected will be offered an interview.

Will I be compensated for participation in this study?
There is no compensation for taking part in this study.

Are there any risks of taking part in this study?
You will not be exposed to any additional risks other than the risk that you are normally exposed to when undergoing total hip or knee arthroplasty.

What are the benefits of taking part in this study?
Non-identifiable, generalised results will be made available to all participants at the end of the study. No monetary reward will be given for taking part in this study.

Will information be handled as confidential?
The confidentiality of each participant will be maintained as your name, and personal details will be concealed. To ensure confidentiality, you will receive a participant code. The data obtained from you as a participant will stay confidential throughout the study, and the data will be utilised for the study only.
Your participation in the study is voluntary, and you are under no obligation to participate in the study. If you wish to withdraw at any time, you may do so. As mentioned, it will be of priority to keep your information confidential. Your identity will not be disclosed in the write-up of the study or any research publications. The only exceptions - and all of them are rare - would generally be:

1. Personal information may be disclosed if required by law.
2. The Human Research Ethics Committees of the University may require personal data to respond to a formal complaint or a compliance audit.

Contact investigator:
For further information or complaints, you are welcome to contact me on (012) 424 3851 or send an email to martinvanheerden2@students.wits.ac.za

Contact Ethical Committee:
If you have any concern over how the study is being conducted, please contact the Chairperson of the Human Research Committee (medical) of the University of the Witwatersrand, Johannesburg. Professor Clement Penny, who may be contacted on telephone number (011) 717 2301, or by email Clement.Penny@wits.ac.za. The telephone numbers for the Committee secretariat are (011) 717 2700/1234, and the email addresses are Zanele.Ndlovu@wits.ac.za and Rhulani.Mukansi@wits.ac.za.

This study has been approved by the Human Research Committee (medical) of the University of the Witwatersrand, Johannesburg. A principal function of this Committee is to safeguard the rights and dignity of all human subjects who agree to participate in a research project and the integrity of the research. (Clearance Certificate M 210534)

CONSENT FORM

Study title: Patient's perspectives, pain, and health-related quality of life in same day discharge hip and knee arthroplasty.

I_____ hereby agree to participate in the study as described to me in the information sheet, and I understand what my participation will involve.

My email address is: _____

My contact number is: _____

I am aware that I will not be exposed to any additional risks other than that usually experienced during total hip or knee arthroplasty and that I can withdraw from the study at any time without suffering any repercussions. I understand that there are no monetary rewards for my participation, that participation is voluntary, and I am not in any way obliged to take part. I hereby agree with the following:

(Please mark the relevant options with an X)

I agree that my participation will remain anonymous	YES	NO
I agree that the researcher may use anonymous quotes in his / her dissertation and subsequent articles	YES	NO
I agree that the interview may be audio recorded	YES	NO
I agree that the information I provide may be used anonymously after this project has ended, for academic purposes by other researchers, subject to their own ethics clearance being obtained.	YES	NO

Signature of candidate _____

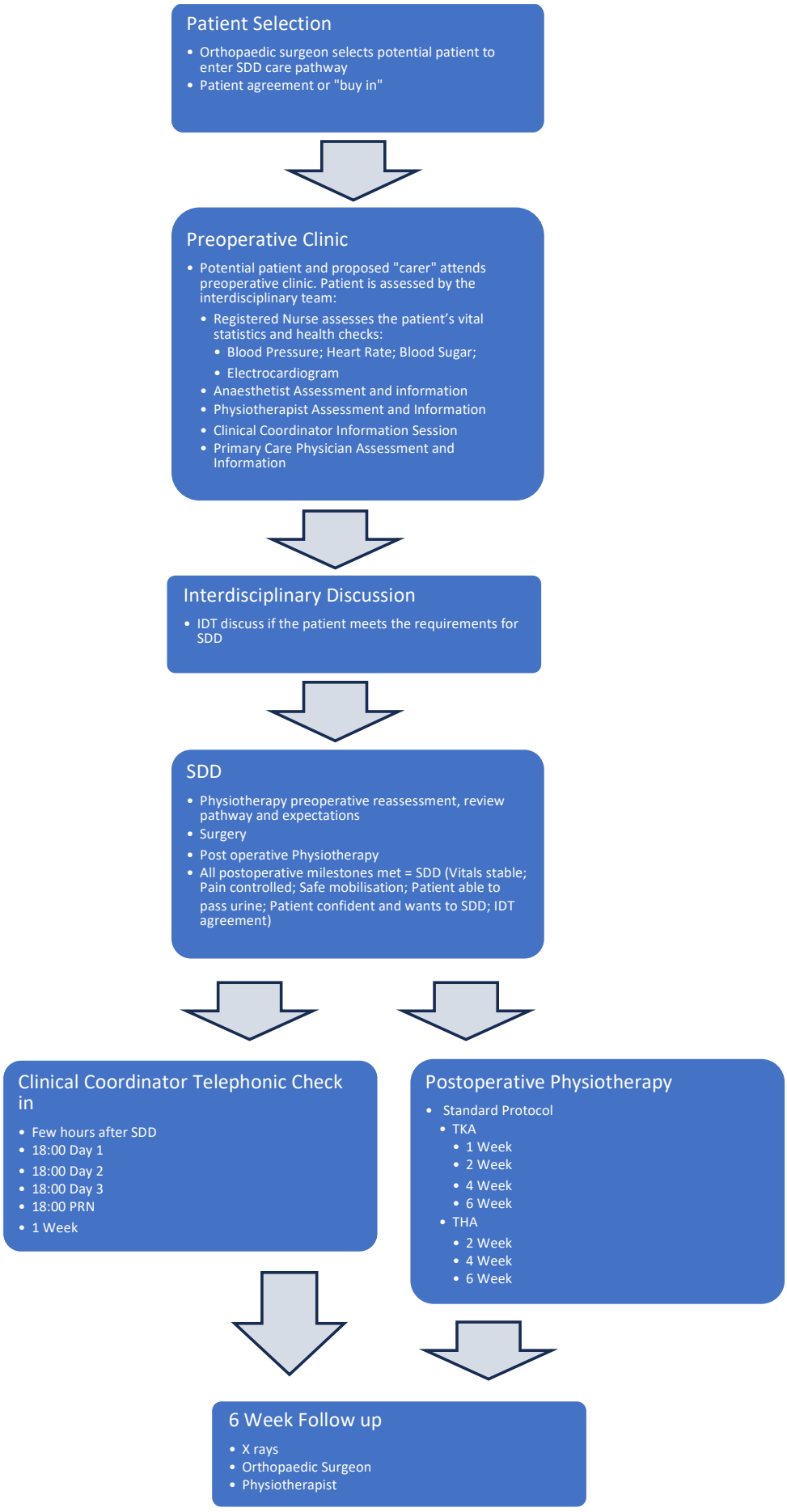
Date _____

Signature of researcher _____

For office use only:

Study number: _____

Appendix F Same-day Discharge Care Pathway



Appendix G Ethics Approval Certificate

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

R49 Mr MH van Heerden

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
CLEARANCE CERTIFICATE NO. M210534

NAME: (Principal Investigator)	Mr MH van Heerden
DEPARTMENT:	School of Therapeutic Sciences Department of Physiotherapy Medical School University
PROJECT TITLE:	*Patient's perspectives, pain and health-related quality of life in same day discharge hip and knee arthroplasty*
DATE CONSIDERED:	2021/05/28
DECISION:	Approved unconditionally
CONDITIONS:	This approval applies only to the study sites listed in Annex 1 attached Further sites may be added on presentation of evidence of management approval to the HREC (Med)
NOTE:	If contact information regarding student study participants is required, please contact the Registrar's office - <Nicoleen.Potgieter@wits.ac.za>
SUPERVISOR:	Mesdames S Lord and M Keller
APPROVED BY:	CB Penny Dr CB Penny, Chairperson, HREC (Medical)
DATE OF APPROVAL:	2021/08/04

This Clearance Certificate is valid for 5 years from the date of approval. An extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office secretariat on the 3rd floor, Phillip Tobias Building, Parktown, University of the Witwatersrand, Johannesburg.

I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated from the research protocol as approved, I/we undertake to submit details to the Committee. **I agree to submit a yearly progress report**. When a funder requires annual re-certification, the application date will be one year after the date when the study was initially reviewed. In this case, the study was initially reviewed in **May** and therefore reports and re-certification will be due in the month of **May** each year. Unreported changes to the study may invalidate the clearance given by the HREC (Medical).

MHvanHeerden — Signature of Principal Investigator

13/08/2021 — Date

Appendix H Reflective Journal Total Hip Arthroplasty

Reflective Journal – Qualitative Data Analysis THA Group

Study Title:

Patient Perspectives, Pain, and Health-related quality of life in SDD hip and knee arthroplasty

At the time of the conception of this study and during writing the proposal I held the following views about SDD hip and knee arthroplasty:

- It is feasible and anecdotally, most patients tend to do well and are happy with the process.
- The first few days, pain seems to be quite bad as one would expect after major orthopaedic surgery. However, some patients don't experience too much pain.
- Knee arthroplasty appears to be more painful than hip arthroplasty.
- Patients with severe preoperative pain tend to have "less" postoperative pain and appear to manage better.
- The support of the clinical team and having frequent contact/someone to call (the clinical coordinator) seems to be a very positive and important component for patients undergoing SDD.
- There could be an element of caregiver burden going through the process.

09/04/2022

Initial Coding with MAXQDA of interview H1 and H15

The course presented by WITS on MAXQDA, and qualitative coding was interesting and eye-opening. If anything, it made the task of coding seem like a mountain to climb. There was clarification on content analysis and thematic analysis. The latter is what is used in this study.

Using MAXQDA has proven to be challenging with getting used to the software. However, after the first two interviews initial coding is getting easier.

I can see an improvement between the first and second interview coding already.

At this stage basic coding of phrases has occurred but no subcodes or themes have been looked at. The focus is on identifying valuable/valid excerpts of information and then labelling such as certain codes.

I can see there are already codes that overlap or can be grouped.

I will revisit these interviews and code. I do believe I should code a few more interviews to improve the coding technique and then return to the initial interviews.

12/05/2022

Supervisor Monique Keller's feedback after coding one interview:

Probe more in the remaining interviews to gain richer data.

I have now coded another interview. The first interview had negative feedback about the SDD process.

The coding process is becoming easier. I am creating many different codes and will later start merging similar codes. There are currently many codes with some overlap and some categories that seem to be forming. I am not creating any categories yet—simple axial coding as set out in the protocol.

Sandy Lord (supervisor) suggested that I code accurately according to what is transcribed and avoid using the context I might have if I had treated the patient myself. If I know the patient had neuropathic pain, but the transcribed text does not involve these words then I cannot code for neuropathic pain, only "pain" as mentioned in the transcribed text.

17/10/2022

All interviews have now been transcribed.

I will now begin coding two groups. First the hips then the knees.

The two groups will be analysed independently as the research question is about comparing THA and TKA.

The Quantitative data collection has been collected and I can now focus on coding the qualitative.

This is why there has been no coding in the interim.

18/10/2022

I have now coded 5 interviews in the past two days. The process is easier, identifying valuable information and initially labelling a code is less prescriptive. At a later stage, segments can be grouped and coded accordingly if there are similar codes. Even recoding as necessary to get a better description of the data.

I will start looking for categories once I have completed all the THA transcripts.

I will also send three interviews to the supervisors for coding, and we can then compare and discuss.

21/10/2022

Fourteen THA interviews have been coded (Initial open coding or micro coding). Inductive coding was used (data-driven).

As the interview was semi-structured there will be themes that were introduced and will stand out.

Now the task lies in checking for duplicate codes and merging duplicate codes.

There are currently 1335 individual coded segments with 902 codes. There are duplicates. These will now be addressed.

See Initial Code Report 1

23/10/2022

It has taken a while to get to know the MAXQDA 2018.2 software, however, I have managed to start grouping the codes into broad categories (inductive /data-driven).

It took quite some time however the broad initial categories are now down to 49.

There are coded segments that fit into more than one group.

These code segments will now be duplicated and placed in each applicable category.

Any duplicate coded segments will be merged if they are the same. I will return to the original text to make sure the duplicate coded segments are duplicate codes.

See attached code report:

Code System

1 Personal Views
2 Motivation
3 Negative Feedback
4 What was helpful
5 Suggestions improvement
6 Recovery
7 Positive Feedback
8 Preparation
9 Medical issues / problems

10 Movement / Mobility
11 Family
12 Difficulty
13 Doubt / Uncertainty
14 Issues / Problems
15 Independence
16 Carer / Assistance Related
17 ADL Related
18 Hospital Related
19 Home Environment
20 Protocol
21 Health Service
22 Process / Administration Related
23 Sleep
24 Relaxed / Calm
25 Happy
26 Anxiety / Stress / Apprehension
27 Muscle Related
28 Expectations
29 Exercise Related
30 Team Related
31 Medication Related
32 Wound related
33 Cryotherapy
34 Quotations to remember
35 Clinical coordinator
36 Fear / Scary
37 Pain
38 Comfort
39 Improvement

40 Satisfaction
41 Experience
42 Physiotherapy Related
43 Phone calls
44 Safety
45 Discomfort
46 Confidence
47 Information
48 Encouragement
49 All went well

31/10/2022

Continual removal of duplicate codes and merging of codes has brought the total groups down to 30 which I have arranged from the group with the most coded segments to the group with the least coded segments.

I have also addressed coded segments that fit into more than one category and coded original transcripts accordingly.

Broad themes which were most frequently coded are starting to emerge.
Codes 1-11 have between 143 to 45 coded segments. Codes 12 – 30 have 29 to 2 coded segments. See attached:

Code System

1 Emotion Related	143
2 Symptom Related	141
3 Carer / Assistance Related	136
4 Physiotherapy Related	122
5 Positive Feedback	101
6 Information Related	101
7 Recovery Related	90
8 Team Related	82

9 Medication Related	54
10 Exercise Related	46
11 Home Environment Related	45
12 ADL Related	29
13 Experience Related	29
14 Expectations	29
15 Movement / Mobility Related	28
16 Wound Related	28
17 Process Issues / Problems	25
18 Negative Feedback	23
19 Motivation Related	22
20 Hospital Related	19
21 Medical issues / problems	19
22 SCDD Process / Protocol Related	15
23 Difficulty Encountered	14
24 Family Related	11
25 Preparation Related	10
26 Sleep Related	8
27 Health Service Related	6
28 What was helpful	3
29 Suggestions for Improvement	2
30 Administration Related	2
31 Quotations to remember	8

The task now is to discuss current groupings with supervisors. Then to decide which groups are not significant in forming major trends.

I am currently working within groups forming sub-groups.

Final Code set with Categories and Sub-categories.

Code System

1 The Recovery Process following SCDD	0
1.1 What improved the Recovery process	0
1.1.1 Recovery and mindset / perceptions	0
1.1.1.1 Patient Taking Responsibility	0
1.1.1.1.1 dedication/perseverance rehab process	4
1.1.1.1.2 Positive mindset approach helped recovery	5
1.1.1.1.3 Participant in control	3
1.1.1.2 Positive Beliefs about Pain	6
1.1.1.3 See progress encouraging	1
1.1.2 Clinical coordinator Phone Calls	0
1.1.2.1 Patient could contact / Availability of Clinical Team	9
1.1.2.2 Psychological booster	4
1.1.2.3 Reassurance	5
1.1.2.4 telephone calls coordinator essential	2
1.1.3 Things that decreased anxiety	0
1.1.3.1 Previous experience THA made comfortable with SCDD	1
1.1.3.2 make peace with recovery long process	1
1.1.3.3 Contact with IDT	1
1.1.3.4 no worry because back up plan	1
1.1.3.5 personal stress management strategy	1
1.1.3.6 good support system/carer decreases anxiety	2
1.1.3.7 less anxiety due to faith/belief system	1
1.1.4 Importance and benefit of the Pain medication schedule	8
1.1.5 Important having a carer/supervisor	7
1.1.6 Appropriate home environment helps	3
1.1.7 Resting improved recovery	3
1.1.8 avoid pain by following information given	1
1.2 The Role of Carers and Assistance Required during Recovery	0

1.2.1 Activities requiring assistance	0
1.2.1.1 Carer assist with lower limb PADL	9
1.2.1.2 Lateral Transfers	6
1.2.1.3 carer assist with medications	4
1.2.2 ADL Related	0
1.2.2.1 PADL No challenges	8
1.2.2.2 Supervision only PADL	4
1.2.2.3 Toilet Challenging	3
1.2.3 Who were carers	0
1.2.3.1 family carers	0
1.2.3.1.1 Child carer	4
1.2.3.1.2 Spouse carer	5
1.2.3.1.3 sister carer	2
1.2.3.1.4 parent carer	3
1.2.3.2 friends	1
1.2.3.3 full time domestic	1
1.2.4 Time periods care needed	0
1.2.4.1 carer two weeks	6
1.2.4.2 Less than 1 week	4
1.2.4.3 one-week carer	2
1.2.5 Not enough care at home	0
1.2.5.1 believes more assistance in hospital	1
1.2.5.2 Lack carer support	1
1.2.6 Minimal Care required	1
1.3 Assistive Devices and their role in recovery	0
1.3.1 Issues regarding Assistive Devices	0
1.3.1.1 lack of assistive devices for dressing in SA	1
1.3.1.2 can't carry coffee due crutches	1
1.3.1.3 crutches seen as nemesis	1
1.3.1.4 impractical crutches	1

1.3.2 Assistive devices that help	6
1.3.2.1 Elbow crutches / Walker	5
1.3.2.2 Shower chair	2
1.3.2.3 Higher Chair	2
1.3.2.4 Grab rail	2
1.3.2.5 Toilet seat Raise	7
1.4 Factors having a Negative impact on recovery	0
1.4.1 Personality type	0
1.4.1.1 Expectations to perform normal ADL but can't	1
1.4.1.2 frustrations simple ADL need assistance	1
1.4.1.3 perceived inability to cope	1
1.4.1.4 arthroplasty perception difficult	1
1.4.1.5 don't remember much	1
1.4.1.6 Thinking something went wrong	1
1.4.1.7 didn't want fake hip	1
1.4.1.8 catastrophize	1
1.4.1.9 False sense being ok	1
1.4.1.10 Type of person	1
1.4.1.11 Stage of life	1
1.4.2 Prescription Related	0
1.4.2.1 Not a repeat prescription made it difficult	1
1.4.3 recovery take longer if you are older	1
1.4.4 Medical issues / problems	0
1.4.4.1 Nerve block related	0
1.4.4.1.1 incontinence issue	2
1.4.4.1.2 numbness	1
1.4.4.2 Symptoms of fainting & dizziness first 24 hours while mobilising	1
1.4.4.3 Leg length	1
1.4.4.4 loss appetite initially	1

1.4.4.5 constipation first 2 days	1
1.4.4.6 had headache for full day	1
1.4.4.7 tiring, decreased energy levels	1
1.4.4.8 got sick	1
1.4.5 lack of trust in the operated leg	1
1.4.6 Overdid things	2
1.5 Reported Recovery Times	0
1.5.1 Rapid recovery few days	0
1.5.1.1 completely independent from 4 days	1
1.5.1.2 Getting better quickly	3
1.5.1.3 amazed by being to mobilise so quickly	1
1.5.1.4 completely independent from day 1	4
1.5.2 First Few days Difficult	0
1.5.2.1 first week most intense	1
1.5.2.2 Figuring out what could do first while	1
1.5.2.3 reluctance to mobilise immediately post op	1
1.5.2.4 extra careful first 3 days moving	1
1.5.2.5 after few days felt started coping with pain	1
1.5.3 Feels recovered by 2 weeks	0
1.5.3.1 first 2 weeks went so well (+)	2
1.5.3.2 recovered by 2 weeks	1
1.5.3.3 driving after 2 weeks	2
1.5.4 Gradual Recovery	0
1.5.4.1 up and going quickly but takes long recovery	1
1.5.4.2 gradually got better	1
1.5.5 Well recovered by 6weeks	0
1.5.5.1 walking 2Km every 2nd day at 6 weeks	1
1.5.5.2 now(6weeks) independent and recovered	1
1.6 Exercise during recovery	0
1.6.1 Improvement through exercise	4

1.6.2 Exercise challenges	2
2 Feedback following SCDD	0
2.1 Positive Feedback	0
2.1.1 holistic approach works well	1
2.1.2 no fuss approach clinical team worked well	1
2.1.3 Anaesthetic Clinic very well done	0
2.1.3.1 clinical coordinator discussions very well done	1
2.1.3.2 everything explained at anaesthetic clinic	2
2.1.3.3 Anaesthetic clinic helpful	1
2.1.4 wound Healed very well	11
2.1.5 Positive comment related to SCDD	0
2.1.5.1 Prefer support/care of family	5
2.1.5.2 Prefer being in home environment over hospital	6
2.1.5.3 more comfortable at home	4
2.1.5.4 Positive Emotions	0
2.1.5.4.1 No anxiety	10
2.1.5.4.2 Happy with outcome / satisfaction	7
2.1.5.4.3 Confidence/ emotional security	7
2.1.5.4.4 Feeling safe going home SCDD	8
2.1.5.5 Positive Experience	0
2.1.5.5.1 Positive comments about going home SCDD	0
2.1.5.5.1.1 recovering at home amazing	1
2.1.5.5.1.2 Initial disbelief SCDD possible	2
2.1.5.5.1.3 Happy not being in hospital	2
2.1.5.5.1.4 very good go home SDD	4
2.1.5.5.1.5 blessing going home SCDD	1
2.1.5.5.1.6 amazing going home SDD	2
2.1.5.5.1.7 no problem going home SDD	1
2.1.5.5.2 Positive Experience	6
2.1.5.5.2.1 Good experience	7

2.1.5.5.3 Good for family	1
2.1.5.5.4 Stunned	3
2.1.5.5.5 Remarkable	2
2.1.5.5.6 Brilliant	1
2.1.5.5.7 SDD wonderful experience	1
2.1.5.6 Good Experience during hospital stay	3
2.1.5.7 Recommend SCDD	7
2.1.5.8 Social circle friends impressed	4
2.1.5.9 Related to IDT	0
2.1.5.9.1 Positive Compliments	0
2.1.5.9.1.1 pain issue managed well clinical team	1
2.1.5.9.1.2 keep doing what we are doing	1
2.1.5.9.1.3 team supportive/friendly/good customer service	9
2.1.5.9.1.4 Impressed with innovation of clinical Team	4
2.1.5.9.1.5 Faith in Clinical Team	2
2.1.5.9.1.6 appreciates medical team	3
2.1.5.9.1.7 Excellence/Amazing/Good Clinical Team	8
2.1.5.10 SCDD Process	0
2.1.5.10.1 recovery amazing	3
2.1.5.10.2 Good thing	3
2.1.5.10.3 All went well SDD	11
2.1.5.10.4 SCDD process found to be easy	3
2.1.5.10.5 SDD Process 100%	8
2.2 Negative Feedback	0
2.2.1 Negative emotions	0
2.2.1.1 Fear / Scary	0
2.2.1.1.1 terrified preop	1
2.2.1.1.2 scared burden on carers	1
2.2.1.1.3 fear unknown	1
2.2.1.1.4 fear of dislocating	1

2.2.1.2 Anxiety / Stress / Apprehension	0
2.2.1.2.1 Anxiety - uncertainty surgery and general	6
2.2.1.2.2 nervous falling	3
2.2.1.2.3 Anxiety related to Support structure / carer	3
2.2.1.3 Doubt / Uncertainty	3
2.2.2 Expectations not met	3
2.2.3 Negative Effects on family	0
2.2.3.1 Not coping with family expectations	1
2.2.3.2 logistical issues with child transport	1
2.2.4 Problems / Issues	0
2.2.4.1 ran out of pain medication	2
2.2.4.2 Negative views on medication	0
2.2.4.2.1 drugs did not help when moving	1
2.2.4.2.2 unable to cope with medication	2
2.2.4.2.3 dislikes taking medication	1
2.2.4.3 Communication related	0
2.2.4.3.1 not told what time to be at hospital for admission	1
2.2.4.3.2 had additional questions but had no contact from team	1
2.3 Suggestions for Improvement	0
2.3.1 Medication related suggestions	0
2.3.1.1 having repeat original prescription would help	1
2.3.1.2 NSAIDS PRN for longer distance walking at 6 weeks	1
2.3.1.3 more information on painkillers	1
2.3.1.4 intervals between pain killer need cover	1
2.3.1.5 cautious with PADL after strong pain medication	1
2.3.2 suggest calls daily for 1,5 weeks	1
2.3.3 Personal decision SDD	1
2.3.4 earlier dc on day helpful	1
3 Symptoms experienced following SCDD	0
3.1 Pain	17

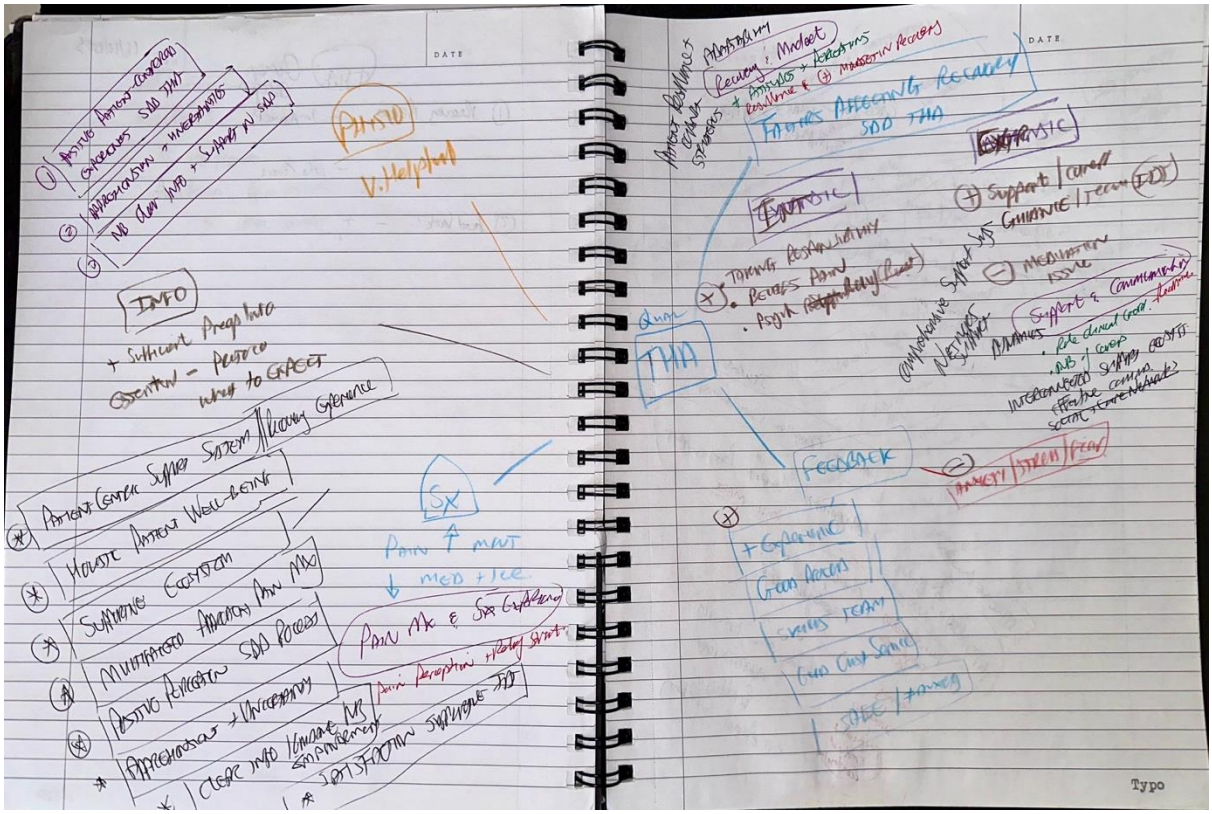
3.1.1 Aggravated Pain	0
3.1.1.1 pain with movement	0
3.1.1.1.1 avoided specific painful movements/activity	2
3.1.1.1.2 difficulty with moving around	5
3.1.1.1.3 exercises initial few days painful	2
3.1.1.1.4 pain certain movements/activities	0
3.1.1.1.4.1 bed transfer painful	1
3.1.1.1.4.2 car transfer difficult and painful	1
3.1.1.1.4.3 Turning at night painful	1
3.1.1.1.4.4 washing operated leg self-bit painful	1
3.1.1.1.4.5 sat in manner hip didn't like causing pain	1
3.1.1.1.4.6 Abduction painful	2
3.1.1.2 cold/rainy weather affected pain levels	2
3.1.2 Provided pain relief	0
3.1.2.1 Cryotherapy decreased pain	5
3.1.2.2 exercise helped with pain	1
3.1.2.3 Pain medication Effective	10
3.1.3 Pain Issue	0
3.1.3.1 Severe Pain	0
3.1.3.1.1 first night tough pain wise	1
3.1.3.1.2 one incident incredible pain and click	1
3.1.3.1.3 Bad intermittent pain	1
3.1.3.1.4 so much pain	1
3.1.3.1.5 terrible pain	1
3.2 Minimal or no pain	0
3.2.1 Discomfort	2
3.2.2 pain really manageable	6
3.2.3 No pain	4
3.3 Muscular system symptoms	0
3.3.1 Muscular pain	3

3.3.2 Muscle Stiffness	3
3.4 Negative side-effects Medication Experienced	0
3.4.1 medication drowsy	3
3.4.2 medications upset stomach generally	1
4 Information Provided in Preparation for SCDD	23
4.1 Information Positive Feedback	0
4.1.1 Sufficient/good information	12
4.1.2 Prepared What to expect	0
4.1.2.1 Preparation Calmed	3
4.1.2.2 Preparation empowered patient	6
4.1.3 information helped prepare	4
4.2 What Information was essential / valuable	1
4.2.1 preparing home environment info essential	1
4.2.2 knowing post operative recovery protocol essential	7
4.2.3 Driving	0
4.2.3.1 shouldn't drive before 4 weeks as info suggested	1
4.2.3.2 info about return to driving useful	1
4.2.4 Info about Assistive devices	0
4.2.4.1 Practice assistive devices	1
4.2.4.2 info regarding use of crutches useful	1
4.2.4.3 assistive device info NB	1
4.2.5 prepared what to do medication essential	2
4.2.6 essential know supported clinical team not left alone	1
4.3 Information that was lacking in the preparation for SCDD	0
4.3.1 What could go wrong info	1
4.3.2 prepare more info regarding wound size	1
4.3.3 Suggest upper body strengthening	1
4.3.4 information regarding time frames of healing	1
4.3.5 would have liked more info surgery approaches	1
4.4 Information Leaflets	0

4.4.1 prepare according to leaflet	1
4.4.2 read patient info more than once	1
4.4.3 information leaflet to refer to	1
5 Role of Physiotherapy in SCDD	18
5.1 Physiotherapy positive comments	0
5.1.1 Perceived well-being effects of physiotherapy	0
5.1.1.1 feeling comfortable with physio helped	1
5.1.1.2 liked physio interaction	1
5.1.2 Perceived recovery effects of physio	0
5.1.2.1 physiotherapy input makes you stronger	1
5.1.2.2 cannot do SCDD without physio	1
5.1.2.3 attributes physio to quick recovery	1
5.1.3 Physio helpful/valuable	0
5.1.3.1 post op physio valuable assisting with function/mobility/ADL	5
5.1.3.2 Physiotherapy perceived as good	5
5.1.3.3 physio helped	4
5.1.3.4 Definite physiotherapy valuable (+) (+) (+)	8
5.1.3.4.1 physio information given valuable	1
5.1.4 Essential/crucial (+)	4
5.1.5 Manual physiotherapy helps	2
5.2 Physiotherapy related to exercise	0
5.2.1 physio exercises valuable	7
5.2.2 physio exercises important	4
5.3 Physiotherapy negative comments	0
5.3.1 physio painful	1
5.3.2 Different exercises were better	1
5.3.3 Prefers own physio	1
6 Home Environment verses staying in Hospital	0
6.1 Hospital Stay Related	0
6.1.1 Beliefs about benefits of staying in hospital	0

6.1.1.1 medication in hospital - comfort	2
6.1.1.2 Peace of mind staying in hospital overnight	2
6.1.2 Negative Beliefs about staying in Hospital	0
6.1.2.1 Feel Restricted in hospital	2
6.1.2.2 motivated SDD by fear of infection in hospital	2
6.1.2.3 did not want to stay in hospital	2
6.1.2.4 Hospital is a negative thing	2
7 Quotations to remember	11

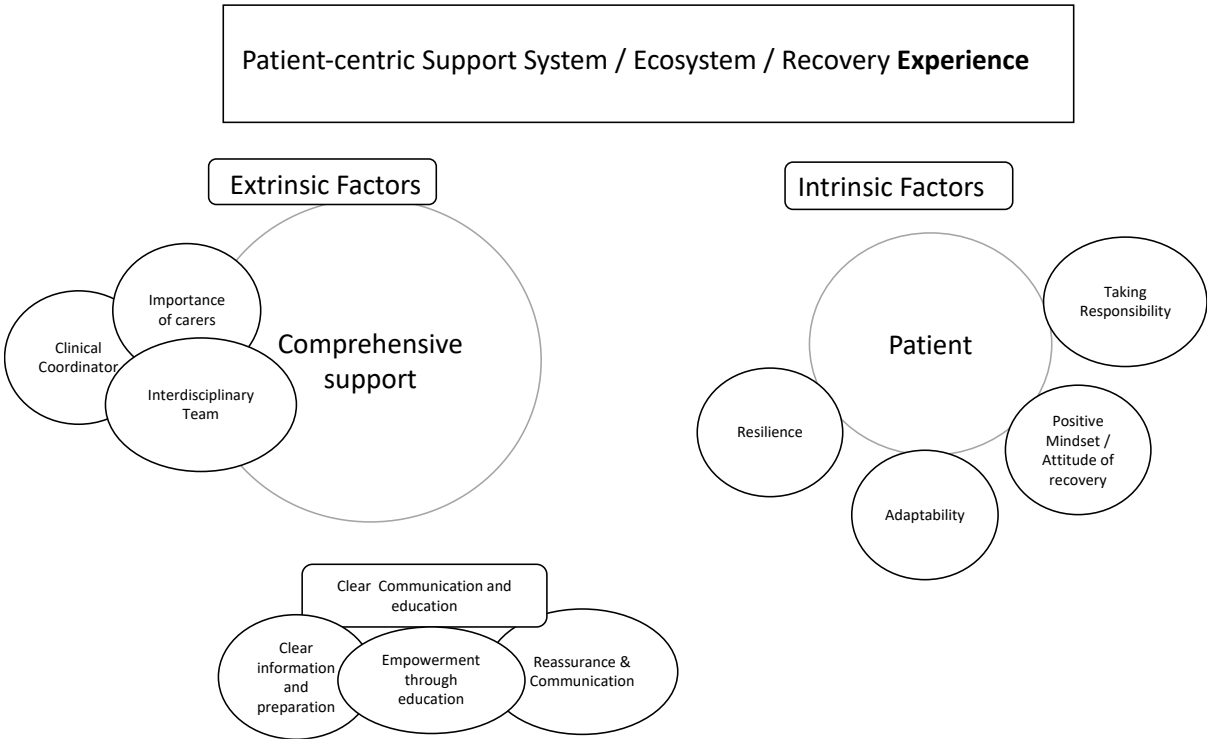
Initial theme Development Rough work



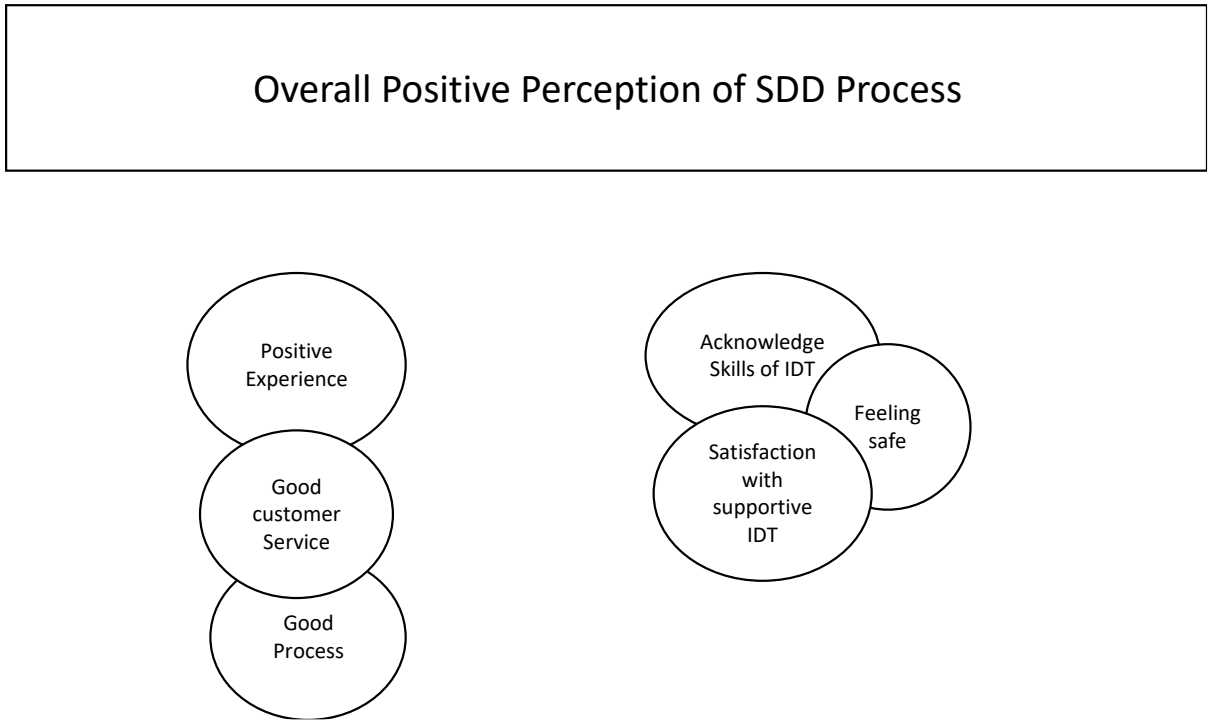
Initial Theme Development Round I

Themes were developed and then sent for comment to supervisors. Discussions, explanations, and further refinement continued for three rounds. These are represented below.

THA THEME 1

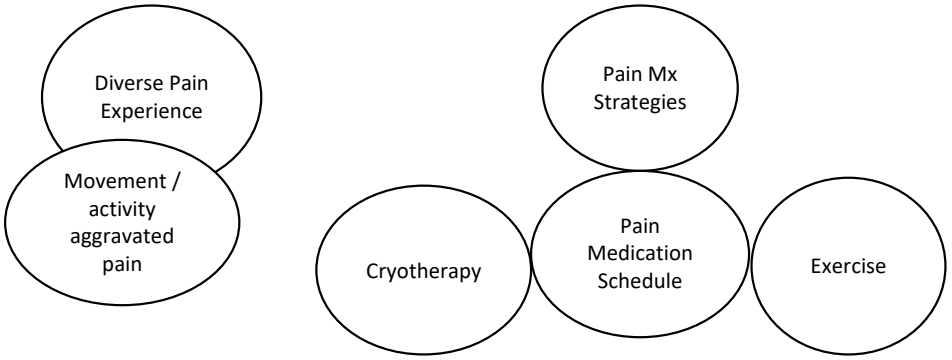


THA THEME 2



THA THEME 3

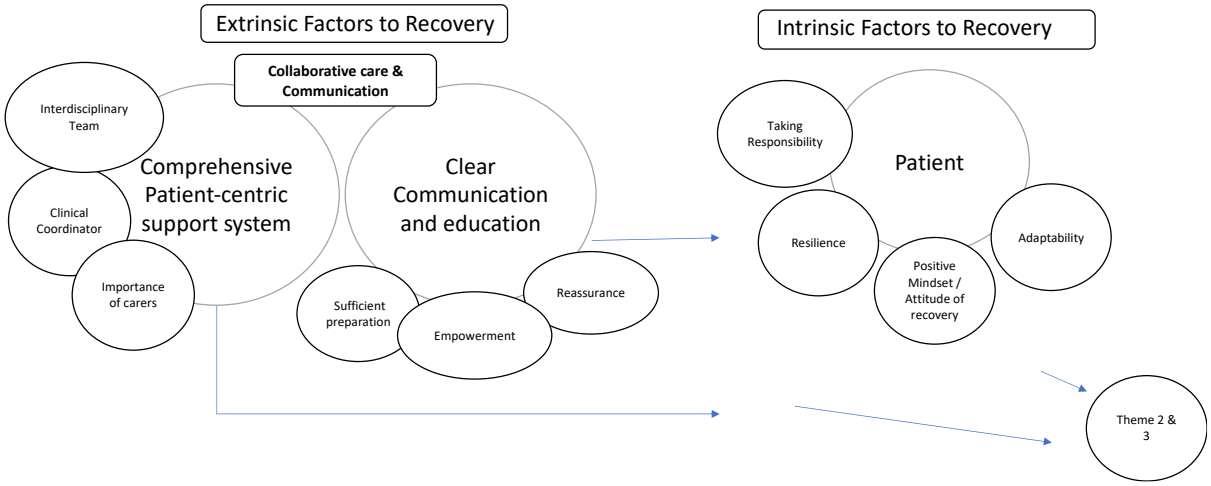
Perceptions of pain and pain management strategies



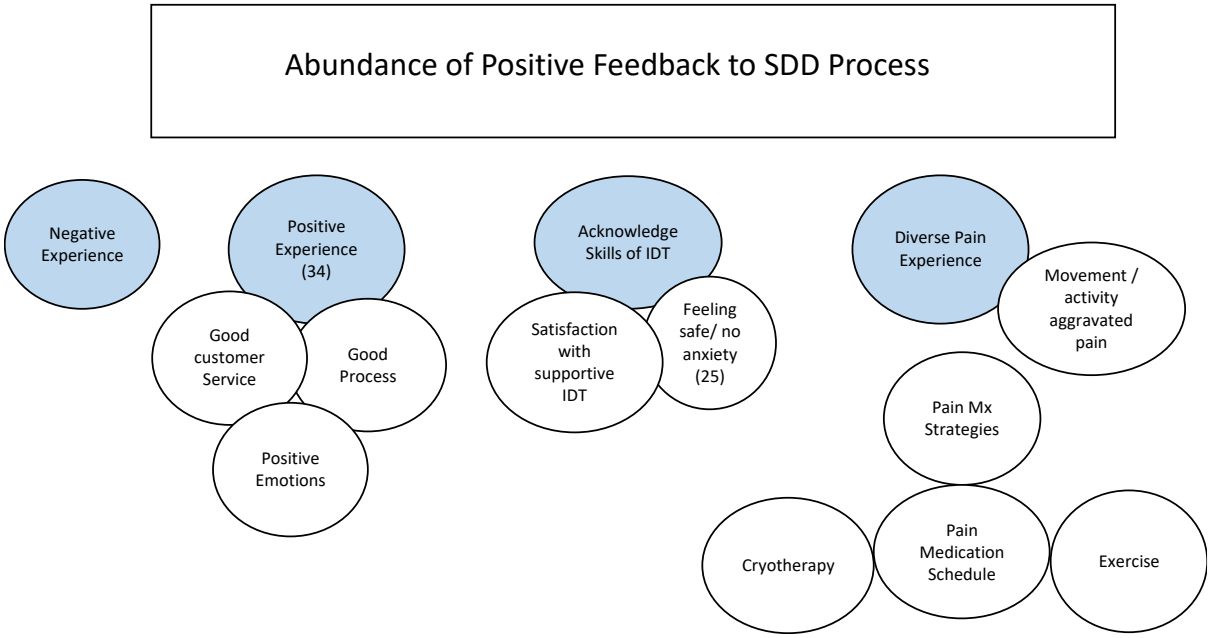
Theme Development Round II

THA THEME 1

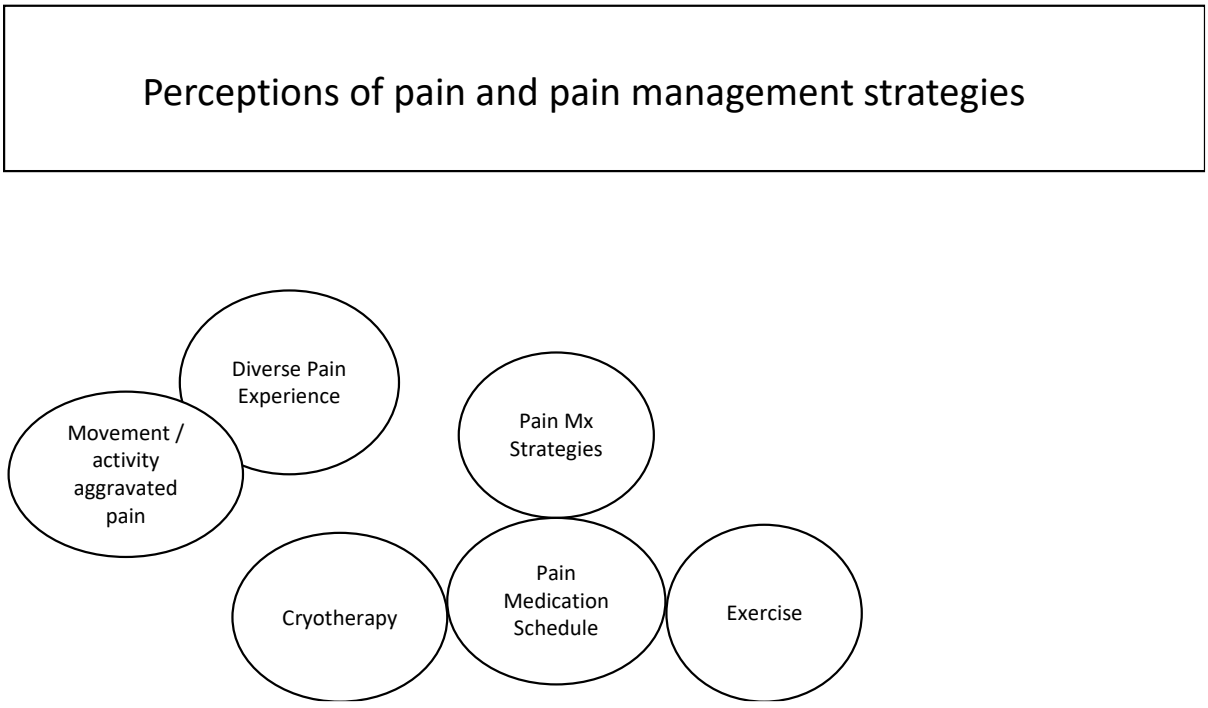
Factors affecting patient recovery



THA THEME 2



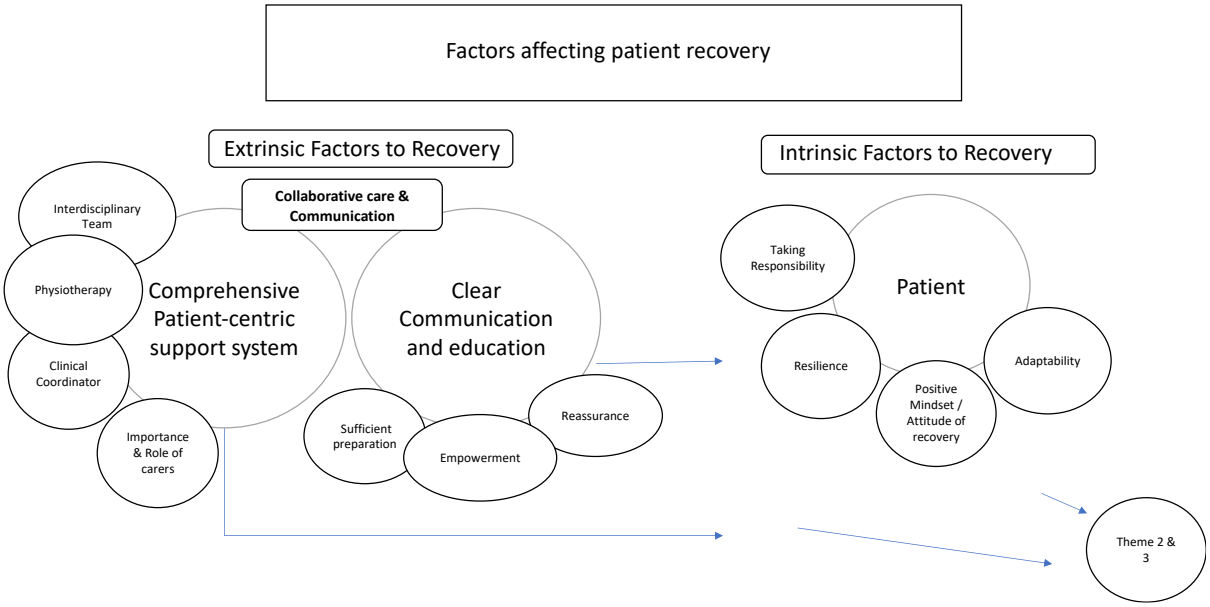
THA THEME 3



Theme Development Round III

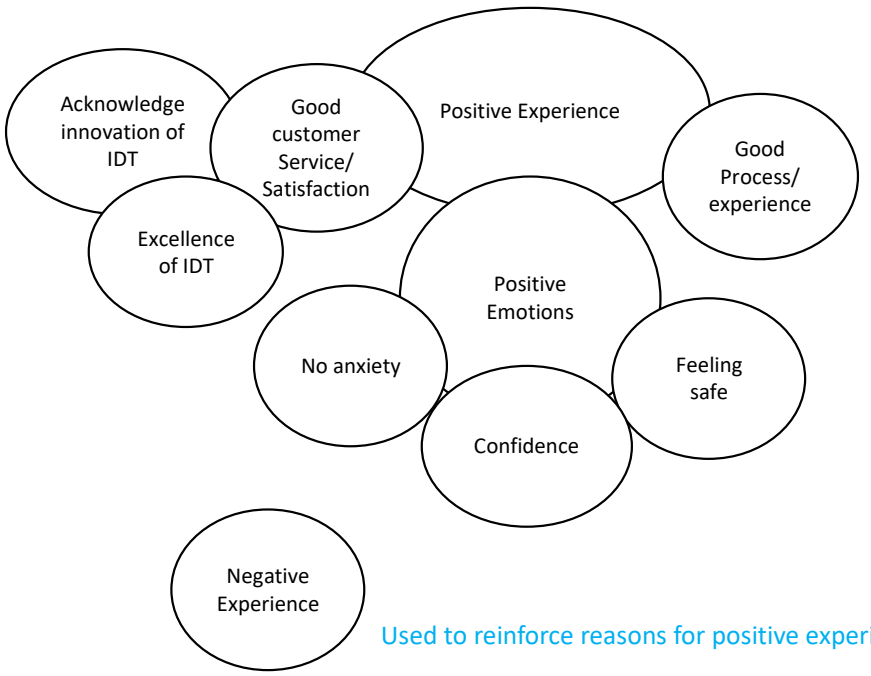
This was the final round and approved by Supervisors.

THA THEME 1



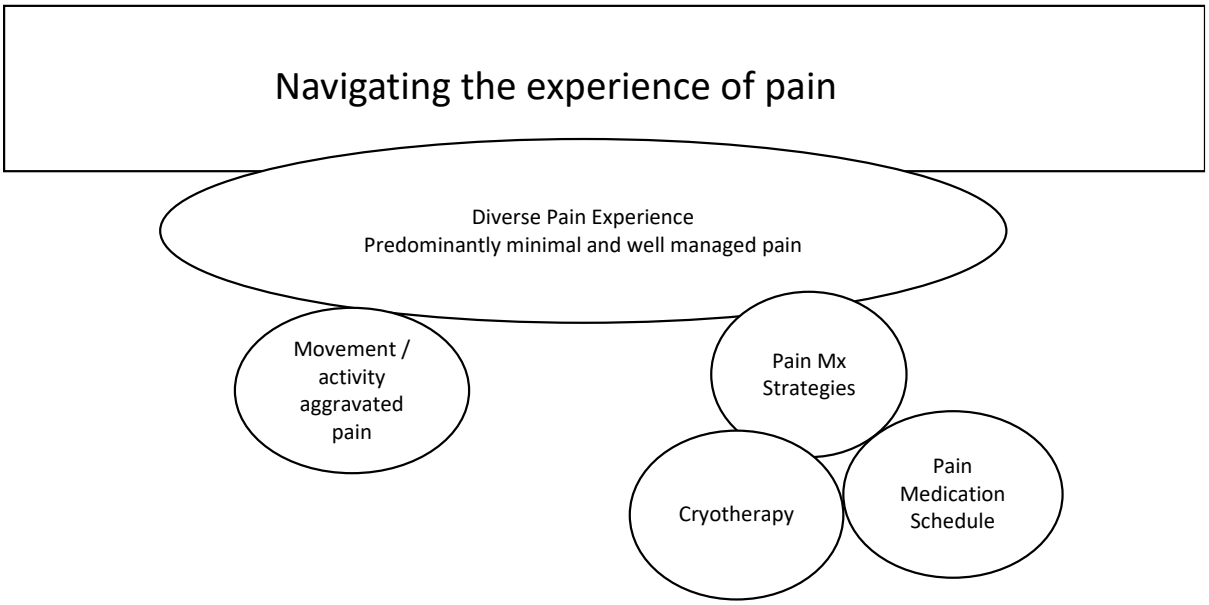
THA THEME 2

Predominantly Positive Perception of SDD Process



Used to reinforce reasons for positive experiences.

THA THEME 3



Member Checks

Participant H43

"Hi Martin, apologies for the delayed feedback I have been travelling and visiting family.

I agree with your observations and identified themes 😊 preparation was key both physically and mentally, I knew what to expect and what to or take in each scenario. Religiously sticking to the communicated schedule and treatments worked well. 2 years later and I haven't looked back or had pain or any negative side effects, getting older but feeling so much better than I did before the op.

All the best with your thesis 😊

Kind regards"

Participant H 55

"Good day Martin

Sorry for the late reply! Hope all is well in South Africa.

THEME 1 - I totally agree with the extrinsic and intrinsic factors. I would like to add, and I cannot stress this enough, the support and information/education received beforehand - by the anaesthetist, physio as well as the rest of the team, is irreplaceable. I absolutely cannot fault

the practice and it's team on this. This also adds to giving the patient the peace of mind before, and after surgery. Meaning that if the patient feels any unease at any time he/she knows there will be support, and quick feedback on enquiries/worries.

THEME 2 - Totally in agreement

THEME 3 - To add to this I think, even with other pain that I developed after the op - a knee pain which has since disappeared - I cannot praise the people enough for the advice given. Even after a period of three months. Well done.

I also used heat/cold compresses for pain relief which I found helped tremendously.

To add to the above, I am totally in agreement that one needs a positive outlook before and after the op - which is also aided by the attitude of the team. Well done.

Regards”

Appendix I Reflective Journal Total Knee Arthroplasty

Reflective Journal – Qualitative Data Analysis of TKA Group

Study Title:

Patients' Perspectives, Pain, and Health-related quality of life in SDD hip and knee arthroplasty

At the time of the conception of this study and during writing the proposal I held the following views about SDD hip and knee arthroplasty:

- It is feasible and anecdotally, most patients tend to do well and are happy with the process.
- The first few days, pain seems to be quite bad as one would expect after major orthopaedic surgery. However, some patients don't experience too much pain.
- Knee arthroplasty appears to be more painful than hip arthroplasty.
- Patients with severe preoperative pain tend to have "less" postoperative pain and appear to manage better.
- The support of the clinical team and having frequent contact/someone to call (the clinical coordinator) seems to be a very positive and important component for patients undergoing SDD.
- There could be an element of caregiver burden going through the process of SCDD. By not being in the hospital, additional pressure may be placed on the caregiver.

18/02/2023

It has been three months of no coding or work on qualitative data.

By the end of last year after a coding review and discussions with supervisors and another qualitative researcher, it was decided that the hip and knee interviews should be coded separately as the research question clearly states comparing the two groups. For this reason, I began coding the TKA interviews today, from scratch, developing a separate and new code book.

Having taken three months off has allowed me to have a fresh start without being biased or "clouded" by the THA coding and analysis.

One interview has been coded and I proceed with more.

02/05/2023

All 10 knee interviews have been coded.

Three of the interviews have been coded by supervisor Sandy Lord.

A meeting was held to review the current categorising which I am busy with.

We also looked at the hip categories as a way of establishing that I am following the right path in initial coding, and initial sorting into broad categories to form some organising of all the coded segments.

Coding resulted in 756 segments which needed to be arranged into broad categories.

I have commenced this, and the resulting 10 broad categories are:

Code System

Four major categories were identified after eliminating duplicate codes. These are the recovery process (307); Related SDD Care pathway (192); Related to Preparation/Information (100) and Related to Assistance (59).

1 Preparation Related	81
2 Pain Related	72
3 Recovery Process	68
4 Related ADL	60
5 Physio related	58
6 Things that worked or helped	49
7 Assistance related	48
8 Related SDD Care pathway	46
9 Difficulties Encountered	40
10 Team Related	40
11 Experience Related	30
12 Exercise Related	24
13 Home Environment Related	20
14 Assistive Device Related	19
15 Medication related	18
16 Sleep Related	17
17 Anxiety Related	16
18 Wound related	11
19 Related to safety	11
20 Related to Hospital	9

21 Ice Related	7
22 Related to expectations	5

I will now revise each category looking for duplication and making sure coded segments are appropriately assigned. I will also check if any coded segments need to be placed in more than one category.

21/08/2023

No further work on coding has been done to date. Further research into category development suggested that categories with little evidence or codes within should be moved to categories where they potentially would fit. If not and there are too few codes or outlier codes, delete codes (too little evidence).

I will begin this process from now on.

26/08/2023

Code System	Frequency
Code System	554
Recovery Process	308
Things that worked or helped	185
Physiotherapy	51
Physio Helpful/Needed	21
Physio good	3
Manual physio	5
Physio & Exercise	9
Physio effect	13
Mindset & Taking responsibility	24
Essential info helps recovery	17
What helped Mx pain	16
External physical support of leg	10

Medication schedule positive	10
Effects of preop information	10
Assistive Devices	9
Carer	8
Assistance House chores/food	7
Ice helped	7
Medication helped	6
shower not bath	4
Transfer assistance	3
Movement	3
Difficulties Encountered	81
Symptoms Experienced	21
Issues with pain	13
Pain severe	8
struggled with pain	3
Physiotherapy painful	2
Swelling/inflammation	4
Medical issues	4
Functional / movement difficulty	20
Issues with Sleep	16
Medication negative	11
Mental Health Difficulties	6
Negative comments exercise	5
Crutches negative	2

Recovery times	32
4-week function	1
5-week function	3
3-week function	4
6-week function	4
2-week function	7
1 week function	7
Amount time care needed	6
Assistance related	10
Who assisted / cared	10
Related SDD Care Pathway	241
Positive Experience Related SDD	0
Preoperative clinic/preparation positive	41
Praise / positive comments related IDT	32
IDT helpful	7
Perception IDT members are good	7
Appreciation / grateful	3
Clinical coordinator	10
IDT Contact	5
Related to functional recovery	26
Independent / no assistance required	22
Recommends SDD	23
Description SDD experience	18
SDD good alternative to hospital stay	1

suggest SDD for anybody	1
would do SDD in day clinic again	1
no doubts SDD right thing	1
recommend SDD	1
no safety/anxiety concerns going home SDD	25
SDD worked very well/ no issues	19
Pain well managed / no issues	16
expected more pain	2
Pain not severe	14
Rating Healthcare service received	9
Effect SDD Care Pathway on patient	2
Reasons for choosing SDD	24
Positive views recovery in Home Environment	18
Negative views staying in Hospital Environment	4
independent person	2
Negative Experience SDD	18
Info lacking or suggestions	12
Lacking info on pain management	5
Lacking information pain medications/scripts	5
More information on complications/abnormalities in recover	2
wasn't an easy journey recovery	2
difficulty getting appointment with surgeon	1
unfortunate health related events affected experience	1
overwhelmed at times	1

Felt abandoned	1
Doubting SDD	6

27/08/2023

Checking transcripts for coded segments allowed further refinement, categorising and forming subcategories. Two major categories have emerged: Recovery Process (308 Coded segments) and Related to SDD Care Pathway (241 coded segments). The final categories and subcategories are as follows:

Once a review of the above has been done with supervisors, the next step is developing themes.

14/09/2023

Meeting with supervisors to discuss current categories and sub-categories.

During this meeting, the various categories and sub-categories were demonstrated and explained using MaxQDA 2020. This was then discussed, and alternate ways of regrouping were explored.

The value of outliers was discussed, and I was reminded that valuable information can be gained from these. The information could potentially be used in the discussion chapter to increase understanding of the results.

I was once again reminded that this same set of qualitative data and codes would potentially look different if another researcher was given the same data. I also mentioned that I understand the SDD care pathway used in this study very well and would have certain views as a result. Despite this, I remain vigilant to not have biased or preconceived views.

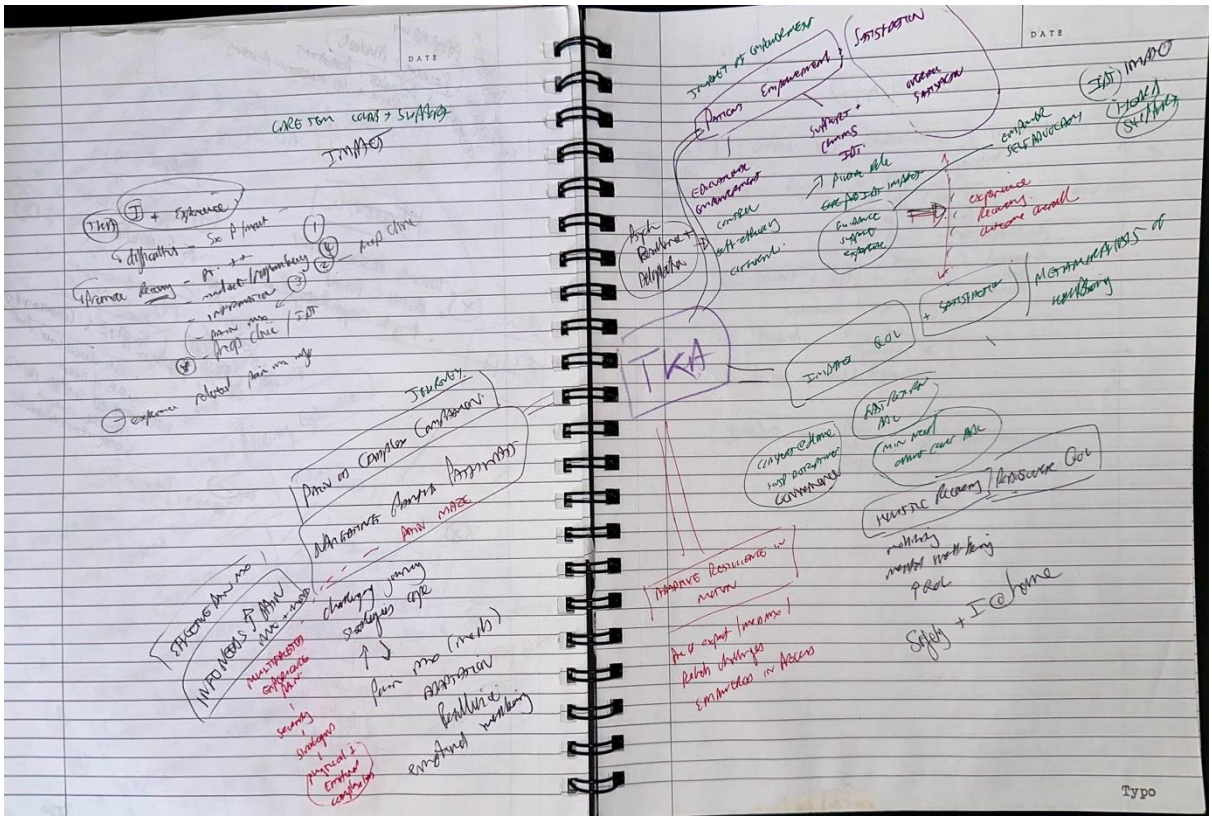
The importance of bracketing my data analysis of the THA and TKA groups was reiterated as the second objective of the study is to compare the two groups.

A discussion ensued regarding inductive and deductive reasoning in the study because of using the semi-structured interview. By nature of the questionnaire, certain subjects would arise, for example, pain, hence deductive. However, the interview process allowed for participants to elaborate, and a degree of probing occurred to increase the depth of collected data, thereby inductive. No preconceived theory was being tested. In this way, the combination of approaches or abductive reasoning will potentially allow the development of comprehensive explanations and make more sense of the data. It will also allow for outlier codes to potentially become a theme.

I will now revisit the TKA categories and sub-categories looking broader than the current main category names.

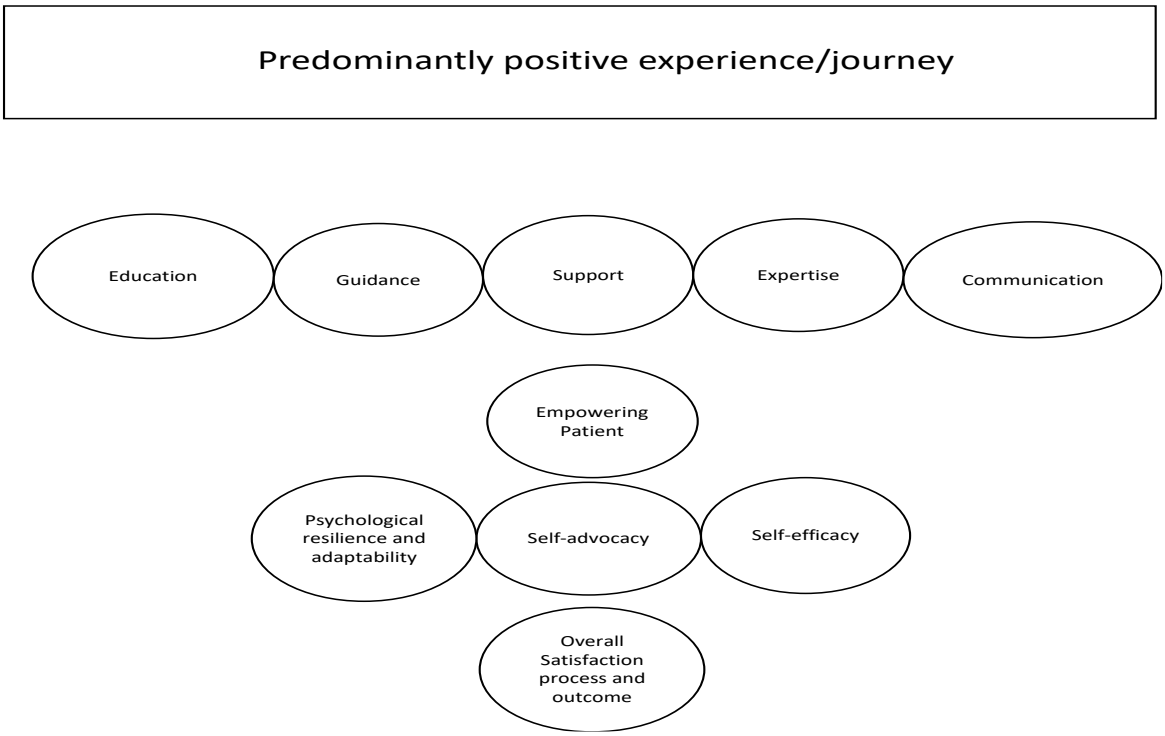
22 October 2023 Initial themes and sub-themes developed.

Initial theme Development

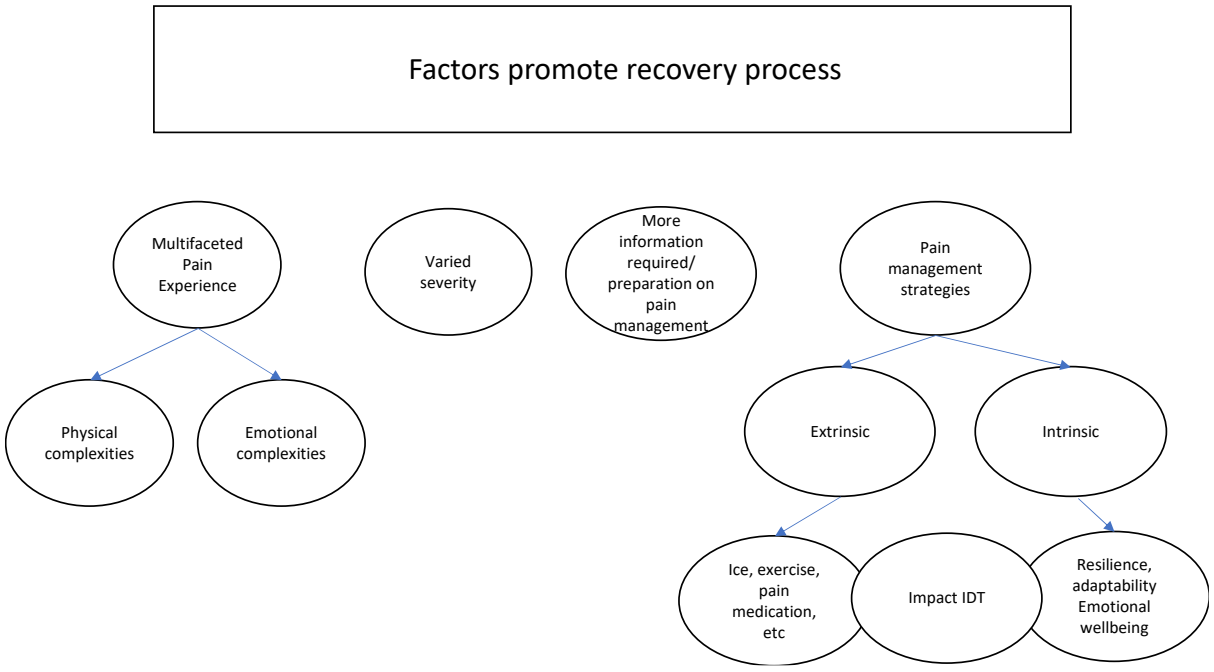


TKA Theme Round I

TKA THEME 1

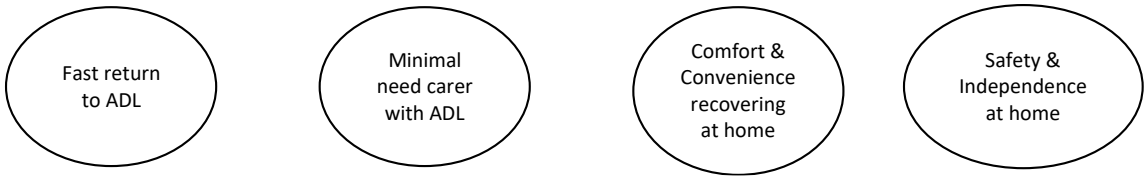


TKA THEME 2



TKA THEME 3

SDD Impact on quality of life

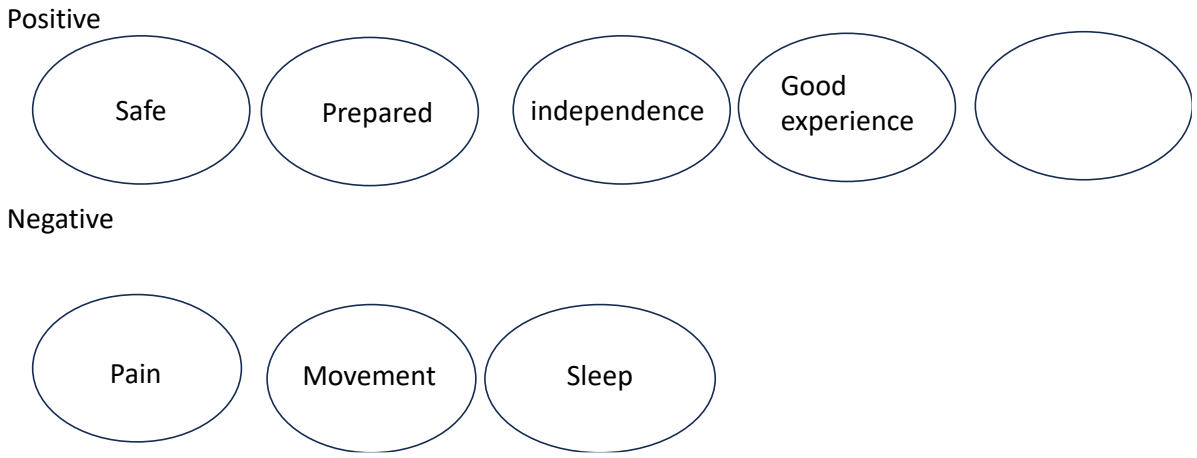


After discussion with supervisors, and reflection, the themes appear too abstract and influenced by the recent theme development of the THA group. Decided to leave the analysis for now and return at a later stage.

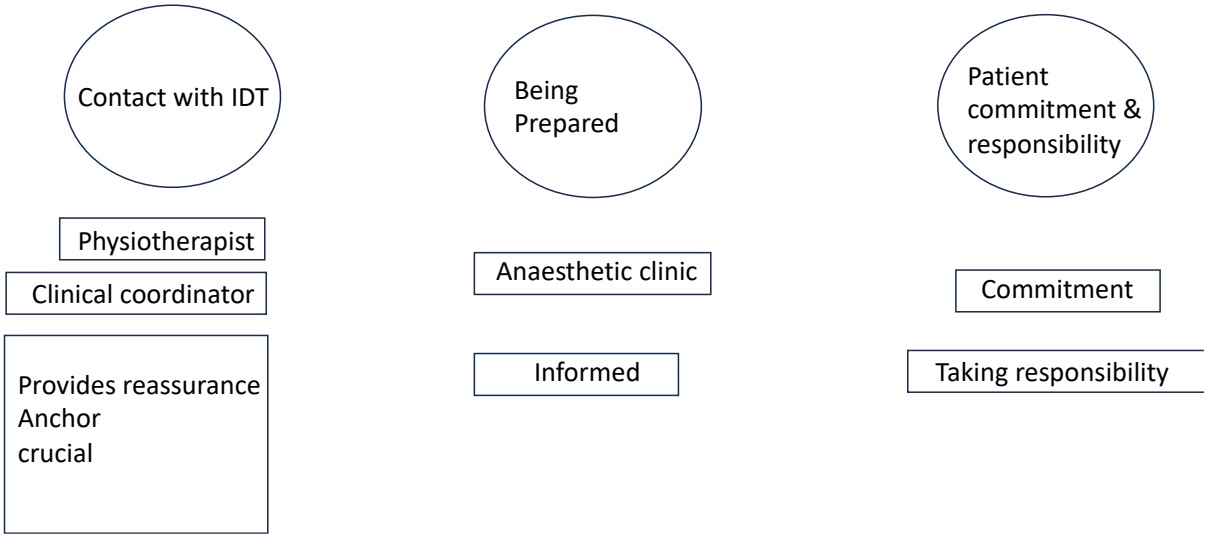
16/12/2023 Theme round II

Reassessed codes and developed new themes and sub-themes. See below.

Theme 1 SDD TKA



Theme 2 SDD TKA

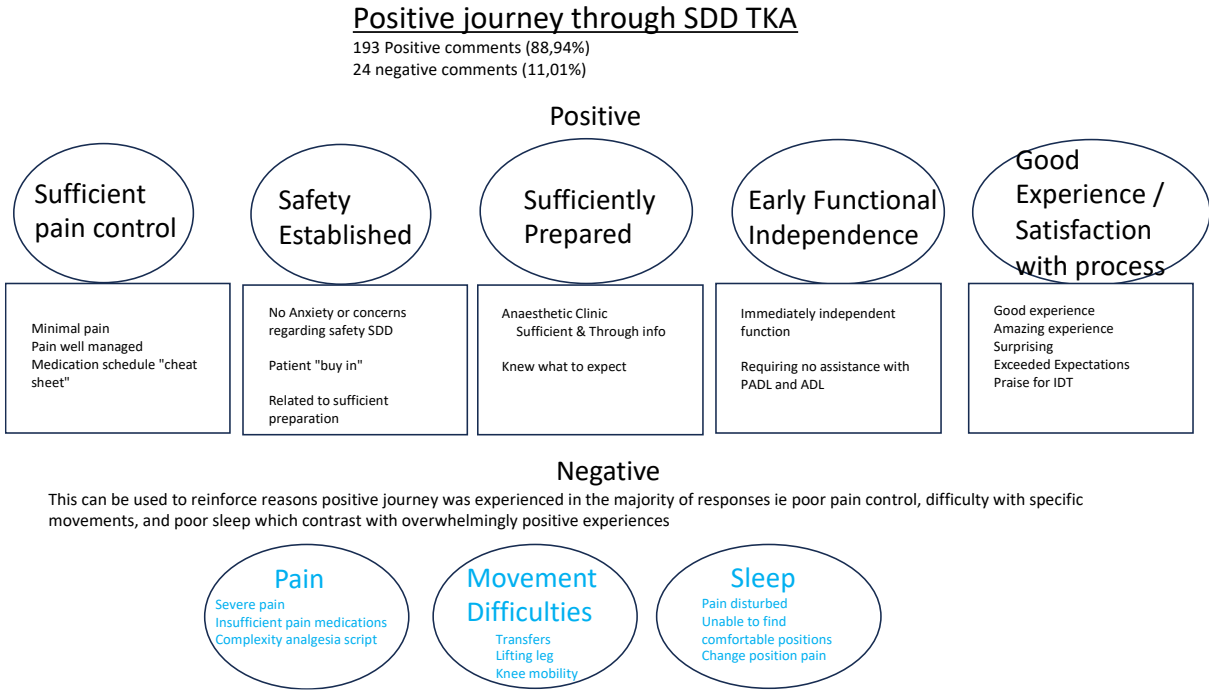


Submitted to Supervisors, not happy with theme 1, “Overall positive” as there was negative too.

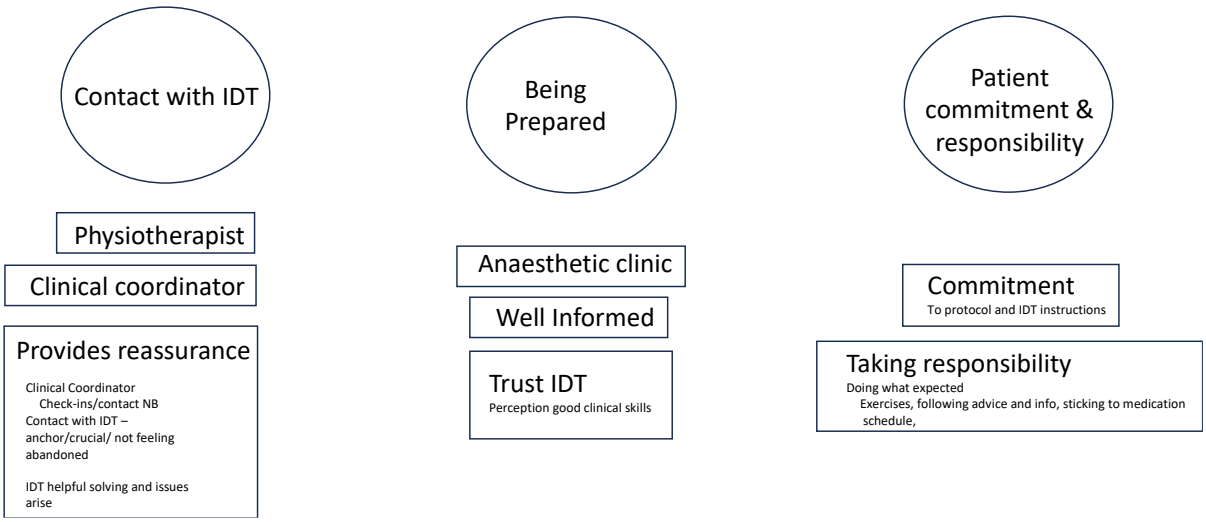
<u>03/01/2024 Theme Round III</u>

Further refinement of theme 1 and theme 2 including more explanation, see attached. For feedback from supervisors regarding agreement and naming themes**.**

Theme 1 SDD TKA



Theme 2 SDD TKA



Feedback from supervisors and final adjustments to theme names.

The theme I: It was decided to focus on names as “perspectives” and to mention the negative perspectives even though they were not predominant around 20%. Mentioning the negative perspectives may further reinforce what made the process positive.

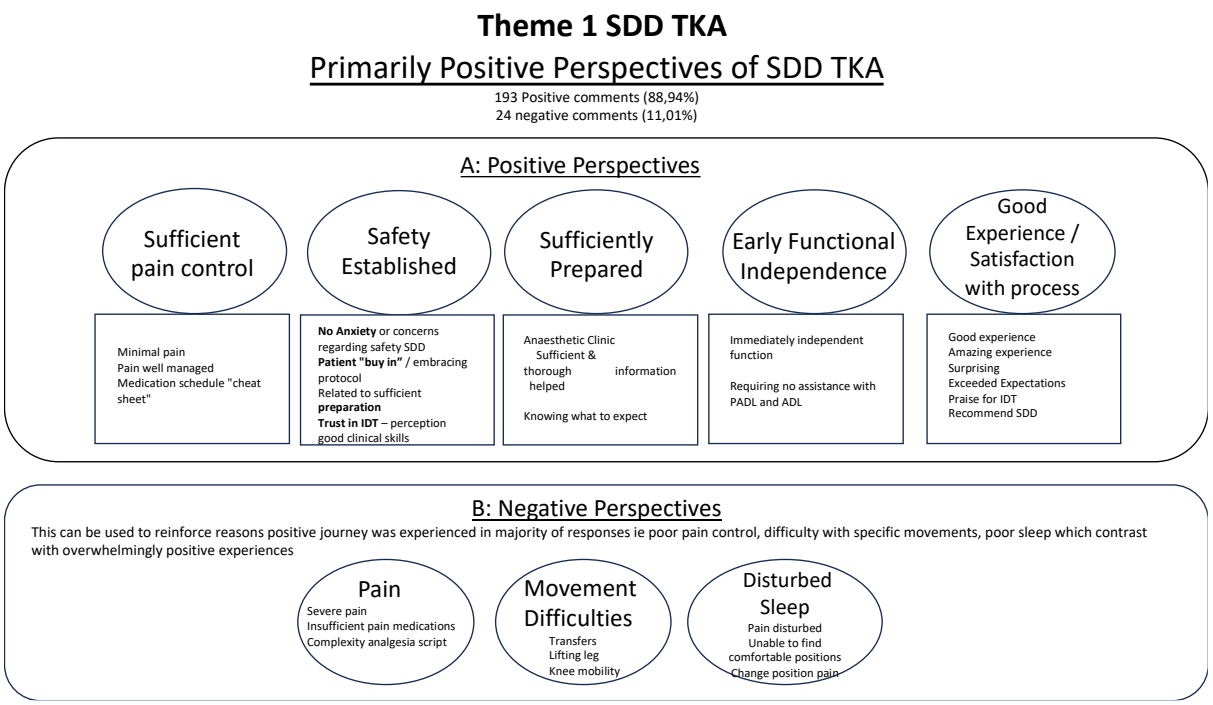
More information was required regarding theme II sub-themes.

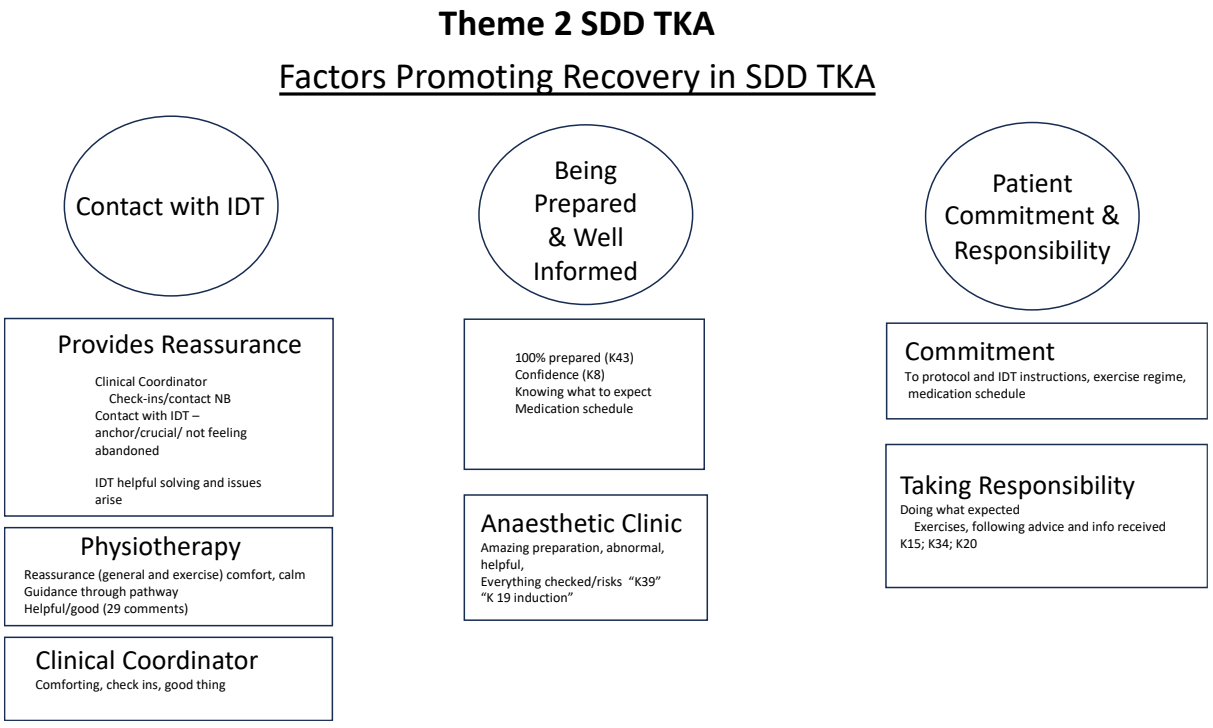
The themes have been diagrammatic.

They will be included in the dissertation as appendixes.

The themes have now been sent for final approval.

13/01/2024 Final themes approved by supervisors.





Member Check:

K0:

The participant was sent the final themes that were developed and asked to comment. The participant felt that the themes generally addressed her experience and perception of the SDD TKA process. She added that she felt she would add more regarding the preparation for the SDD process. She in hindsight recognises the value of all the "little

things” that were done in preparation for the surgery. She mentioned for example the prescription of medication to prevent bladder infections before surgery and related a case of a close friend where this was not done. The friend ended up with severe complications because of a bladder infection postoperatively.

Despite this additional information, there was nothing more that would change the current themes that have been presented.

Appendix J Baseline preoperative scores for EQ-VAS, NRS of Pain and SF-MPQ-2 and EQ-5D-5L

T-tests to compare baseline scores between the THA and TKA groups

Group Statistics					
	group	N	Mean	Std. Deviation	p-value
EQ-VAS	THA	55	73.25	22.817	0.043
	TKA	54	80.61	13.583	
NRS Pain	THA	54	6.85	2.318	0.884
	TKA	54	6.91	1.545	
Continuous Pain	THA	55	3.0212	1.91970	0.507
	TKA	50	3.2567	1.67860	
Intermittent Pain	THA	55	3.4182	2.39252	0.592
	TKA	50	3.1900	1.89791	
Neuropathic Pain	THA	55	1.5133	1.37268	0.322
	TKA	50	1.2633	1.18048	
Affective Descriptors	THA	55	1.9273	2.20147	0.604
	TKA	50	2.1300	1.73664	
Total Score	THA	55	2.5192	1.54265	0.458
	TKA	50	2.4911	1.15593	

Group Statistics EQ-5D-5L					
			Group		
			THA	TKA	Total
EQ1_binary	No problems	Count	3	3	6
		% within group	5.5%	5.6%	5.5%
	Problems	Count	52	51	103
		% within group	94.5%	94.4%	94.5%
Total		Count	55	54	109
		% within group	100.0%	100.0%	100.0%
EQ2_binary	No problems	Count	25	45	70
		% within group	45.5%	83.3%	64.2%
	Problems	Count	30	9	39
		% within group	54.5%	16.7%	35.8%
Total		Count	55	54	109
		% within group	100.0%	100.0%	100.0%
EQ3_binary	No problems	Count	5	5	10

		% within group	9.1%	9.3%	9.2%
	Problems	Count	50	49	99
		% within group	90.9%	90.7%	90.8%
Total		Count	55	54	109
		% within group	100.0%	100.0%	100.0%
EQ4_binary	No problems	Count	2	0	2
		% within group	3.6%	0.0%	1.8%
	Problems	Count	53	54	107
		% within group	96.4%	100.0%	98.2%
Total		Count	55	54	109
		% within group	100.0%	100.0%	100.0%
EQ5_binary	No problems	Count	38	35	73
		% within group	69.1%	64.8%	67.0%
	Problems	Count	17	19	36
		% within group	30.9%	35.2%	33.0%
Total		Count	55	54	109
		% within group	100.0%	100.0%	100.0%

Chi-Square Tests EQ-5D-5L

EQ1 Mobility

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	0.001[a]	1	0.982		
Continuity Correction[b]	0.000	1	1.000		
Likelihood Ratio	0.001	1	0.982		
Fisher's Exact Test				1.000	0.652
Linear-by-Linear Association	0.001	1	0.982		
N of Valid Cases	109				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.97.

b. Computed only for a 2x2 table

EQ2 Self-care

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	17.014[a]	1	<0.001		
Continuity Correction[b]	15.406	1	<0.001		
Likelihood Ratio	17.715	1	<0.001		
Fisher's Exact Test				<0.001	<0.001
Linear-by-Linear Association	16.858	1	<0.001		
N of Valid Cases	109				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 19.32.

b. Computed only for a 2x2 table

EQ3 Usual Activities

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	0.001[a]	1	0.976		
Continuity Correction[b]	0.000	1	1.000		
Likelihood Ratio	0.001	1	0.976		
Fisher's Exact Test				1.000	0.617
Linear-by-Linear Association	0.001	1	0.976		
N of Valid Cases	109				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.95.

b. Computed only for a 2x2 table

EQ4 Pain/Discomfort

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.000[a]	1	0.157		
Continuity Correction[b]	0.491	1	0.484		
Likelihood Ratio	2.773	1	0.096		
Fisher's Exact Test				0.495	0.252
Linear-by-Linear Association	1.982	1	0.159		
N of Valid Cases	109				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 0.99.

b. Computed only for a 2x2 table

EQ5 Anxiety/Depression

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	0.225[a]	1	0.635		
Continuity Correction[b]	0.073	1	0.786		
Likelihood Ratio	0.225	1	0.635		
Fisher's Exact Test				0.687	0.393
Linear-by-Linear Association	0.223	1	0.637		
N of Valid Cases	109				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 17.83.

b. Computed only for a 2x2 table

Appendix K Interview Transcript H38

H38 - Completed

1	Physiotherapist 0:00
2	So, tell me about your experience of going home after your surgery, thinking particularly about the first few weeks.
3	H38 0:20
4	The first few weeks… we were, we were coached before the time what's going to happen, and I was able to walk to the car and walk into the house up the stairs, into the bedroom, so without too many problems, so I was quite comfortable. My wife is at home as well because she is on pension so didn't have anything that we thought in advance was going to bother us, so I didn't have any difficulties.
5	Physiotherapist 1:37
6	Okay, good.
7	H38 1:41
8	Because you were quite occupied with exercises and ice every two to three hours and the medication, walk about a little bit and then rest. So every day it got better and better…because I didn't have any… really discomfort, the pain block and pain killers worked. I only took them which was prescribed so it was for two weeks I think and then afterwards I didn't take any painkillers after that up till now.
9	Physiotherapist 2:17
10	Ok! Were there any things that went very well for you in those first few weeks?
11	H38 2:26
12	Yes, I, I think I…the exercises was…one and two days and you can feel the muscles coming back and you can do the exercises every day. I bought all the equipment the assistance equipment for the seat for the shower, seat for the toilet, the toilet seat for me was uncomfortable so I only used it once and then I said no I'm strong enough to get up from the seat as I used to and that was it and the shower chair I think I used for four days you can stand and balance and my balance is still fairly good. So, you didn't feel that you're gonna fall over in the shower and it's more uncomfortable to stand up and sit and stand up and sit. So, I took the chair out after four days and so that went well as well.
13	Physiotherapist 3:34
14	Was there anything specifically that didn't go well in the first few weeks?
15	H38 3:39

16	I can’t say that, uh… I was progressing very well and what I anticipated should happen, talking to Stephen (physiotherapist) doing the exercises I think I was doing a little bit better than, than the normal patient… I assume that from talking to him afterwards and so on.
17	Physiotherapist 4:14
18	Okay, and if we think about when you were preparing to go home on the day of your surgery, did you feel that you had all the information you needed to manage your hip and other things when you got home?
19	H38 4:32
20	Yes, yes, I was fully confident that I got all the information before the operation. Being talked through all the exercises and once you, they said you going to stand up and walk and if you can, if your bladder is going then you can go home and everything went according to that so I didn’t have any…my mind wasn’t in a bad place because everything went well from the start, all the explanation and phone calls afterwards from from the what’s that lady (clinical coordinator) from the doctor, every day for four days and all that was was just making me at ease and you know if there is anything that that you worried about, you can just call and ask her or Stephen as well and so on. So that's the only thing I was fairly prepared everything was explained nicely it was a… it was very good.
21	Physiotherapist 5:51
22	Okay, great. From that information that you did get, was there any information that you think was essential to have?
23	H38 5:58
24	I think that, I’m a technical guy, so if i think technically about the whole thing, for me it was really nice to know exactly what's going to happen and exactly how your medication works and you got your prescriptions you've got all the medication was checked through it and I know exactly what what I should do so I don’t think, I can’t think of anything that you should’ve add to that, but I don’t think you can leave anything out if you… it’s just a peace of mind to know in advance all the details.
25	Physiotherapist 6:48
26	Okay, so that is the next question. Was there any information that you would have liked to have known that you didn't have? But I think you just answered that saying you had all the information you needed, am I correct?
27	H38 7:01
28	Yes yes, I can’t think of anything that a… maybe if somebody's battling with something afterwards they might think otherwise but I was fairly sorted.
29	Physiotherapist 7:17

30	Okay, so basically for you everything ran smoothly. And you were quite happy with that?
31	H38 7:25
32	Yes.
33	Physiotherapist 7:22
34	Okay, did you have any anxiety about going home on the same day?
35	H38 7:34
36	I'm a positive person and I don't really stress about things that you can't… I always…you can't stress about anything you can't do about anything. If you can't do anything about it, you didn't have to stress about it. You can only stress about the thing that you do, and I always think of a plan not to worry in advance. That's that's the that's how I go about in life. So, I think that's that's helping a lot too. So, I didn't have any anxiety. I'm still fairly fit and strong and so on so I didn't find the… I didn't find the…I didn't think I will battle at home without medical help or anything.
37	Physiotherapist 8:38
38	Ok so you were fairly confident?
39	H38 8:41
40	Yes
41	Physiotherapist 8:42
42	Okay. Were there any issues that you faced after you're discharge from hospital that you were unable to manage to your satisfaction?
43	H38 8:51
44	No, I was…everything, all the things went like clockwork, the things that they worked out. Just drink all the prescriptions and do things accordingly and everything was running smoothly.
45	Physiotherapist 9:17
46	Good. Did you encounter any issues related to pain?
47	H38 9:24
48	No, I can't say. I've got a fairly good, from experiences in the past, I don't have really… Before the pain killers for the operation, I can't think of pain killers that I took for the past 10 years. So, I've got a strong pain resistance, I don't know what's the right word for it.
49	Physiotherapist 9:45
50	Pain threshold?
51	H38 9:47

52	Yes so, I didn’t even had any pain killers after two weeks that the pain killers stopped. It wasn’t so… I didn’t, I hardly had any discomfort uh, there was a small discomfort when you progress in exercising and you do a new exercise where you pull the muscles in the area of the wound and can... you can, you can feel the muscles is working there but it's not, you're not in such a pain that you can't do it and as you progress you, you just progress day by day and it’s just getting…it’s like two or three days after Stephen (physio) gave me new exercises then it was quite comfortable to do.
53	Physiotherapist 10:33
54	Okay, and did you have any issues regarding the healing of your wound?
55	H38 10:39
56	No that healed very, very nicely.
57	Physiotherapist 10:43
58	Okay, good. And did you have any concerns regarding your safety going home on the same day?
59	H38 10:50
60	No, actually I didn’t, we stay in a security estate, which is fairly fairly safe, so I didn’t have any safety concerns.
61	Physiotherapist 11:06
62	Okay, good. And and specifically about your safety of moving around and safety - not being in hospital?
63	H38 11:15
64	No, no, no. I was confident that I will be able to move around.
65	Physiotherapist 11:24
66	Okay, good.
67	H38 11:26
68	I was confident that I could move around with the crutches quite confidently, got a fairly big house, which is not, which is also nice and convenient to move about. Large wide steps and things like that and wide passages and walking areas so there wasn't any… I wasn't worried that I will be…have any problems when moving about at home.
69	Physiotherapist
70	Okay, good. Once you had returned home, can you describe what sort of assistance you required to complete activities around the house like toileting or showering or bathing or getting around?
71	H38

72	I managed going to the toilet…I did on my own, showering my wife just uh…for the first couple of days hang around to make sure that I didn't slip and fall but I didn't have any issues to sort that out going in with the crutches. I just gave it to her and then try it myself. I think for the first week she assisted in drying my feet. But after that the flexibility was coming back and I could have done it all on my own.
73	Physiotherapist 13:15
74	Okay, good. Do you feel you could have had more help or was that sufficient?
75	H38 13:20
76	No, it was sufficient. I'm of the thought that if somebody wants to do something themselves. It's better to let them try rather than to assist with anything. So that's that's why, that's how I go about. If I can help myself, it's really positive input for me to do that and to to progress and to see how you can sort things out.
77	Physiotherapist 13:52
78	So just to clarify, your wife was basically just there for, kind of supervision and was only for about a week?
79	H38 14:02
80	Yes, yes.
81	Physiotherapist 14:03
82	Okay. And if you consider your progress since the surgery over that past six weeks, it's a little bit over six weeks now. What aspects of the health care you received from the team worked well for you?
83	H38 14:23
84	What aspect of health?
85	Physiotherapist 14:23
86	Of the health care that you received from the whole team? What aspects of that healthcare worked well for you?
87	H38 14:30
88	I just want to get … (laughs)
89	Physiotherapist 14:39
90	Clarity, sorry, let me let me just say that so if you think of how you've done, you know, especially in the first six weeks and when you saw Doctor after the six weeks, if you think of all the health care that you received from the whole team, from the physio from the from Noelle (clinical coordination) , from the Doctor, what aspects of that healthcare worked well for you?
91	H38 15:04

92	The aspects of the healthcare…
93	Physiotherapist 15:07
94	yeah, the question is basically, about we as a healthcare team provided you with a service and what… you know, was there something specific that worked very well for you from that service or were there things that stood out for you?
95	H38 15:23
96	The most influence, from from all the healthcare was uh… from how I see it as the most important part as well is the, you know the physio afterwards to get you back in operating conditions as soon as possible. So having having a program that, it's like, I mean, you trust in advance, what what's been given to you, and you do it to the best of your ability to the program, the intervals it says. And then now after, I think it's after two weeks now, you can you can see that you can you can do most of the things again, starting to play golf within almost a week or so I'll be back with my total golf swing,
97	Physiotherapist 16:39
98	Fantastic!
99	H38 16:39
100	I was playing two rounds already but with the minor, minor clubs and…uh
101	Physiotherapist 16:47
102	Playing the shorter game.
103	H38 16:49
104	Ja the shorter game I was playing that and there's no discomfort that shows me that the program I had to get back into normal life enjoying my sport and so on, that was quite outstanding as well, but that's also the most... I mean every two weeks I saw Stephen (Physio) and you contacted me as well in between to make sure that everything was sorted out so. I don't say any other health wasn't standing out, but it was, it is part of the operation, a bit on the back burner, but also important.
105	Physiotherapist 17:37
106	Okay, I get you. That's good. Thanks. Was there anything if you think from start to finish in the whole process? Was there any aspects of that health care that didn't work for you?
107	H38 17:48
108	No, I can't uh…I can't have anything that didn't work well. All the… all the medication. I read a bit, I mean, how can I explain to people afterwards the whole process and they can't believe I went in and came out the same the day and the progress. I've been doing up to now nobody, either family or friends and said… it's uh… it's unheard

	of. I have been back for the last three weeks at the Pilates at the gym, and they don't believe it! (Laughs)
109	Physiotherapist 18:36
110	They don't believe that you had a hip replacement?
111	H38 18:39
112	Ja they said they…have never seen something like this. Getting all the flexibility back and so that's…
113	Physiotherapist 18:53
114	That's brilliant. You've kind of answered this a bit but, did you find the physiotherapy service valuable or helpful?
115	H38 19:03
116	Yes, yes it was helpful and a …I mean I got the exercises and things with all the…from Stephen (Physio) and it was nicely... You could you could also refer always refer back to the, to your paperwork that he gave you regarding the process and the exercises.
117	Physiotherapist 19:03
118	Okay. And then just the final question, kind of in summary, is there anything I have not asked about the care you received or anything else that you'd like to talk about or tell us about the whole going home on the same day?
119	H38 19:57
120	The whole process?
121	Physiotherapist 19:58
122	Yeah, and your experience of it.
123	H38 20:03
124	Yes, actually I'm kind of telling all over people, how it was done and how professionally it was done because of all the… I'm not sure if I'm different but as I said I'm technically minded so because everything was put in boxes for me before the time looking after aspects that I am not or didn't know about prior to the operation, you know, the whole...the type of medication you get to assist with things afterwards. It's been thought through well thought through the whole process... when that's what, that's what gave me, what put me very much at ease before the time and just worked like a clock afterwards.
125	Physiotherapist
126	Okay, brilliant. Well, that's all I have to ask, really, and I really appreciate your time. And I thank you very much for participating in the study. It really gives us some valuable insight.
127	Physiotherapist 21:25

128	All right. If you ever have any problems, you let us know, please.
129	H38 21:28
130	I'll do and if I have anything else to add I will also do so.
131	Physiotherapist 21:34
132	Okay, thanks. Take care. Have a nice afternoon
133	H38 21:37
134	And you too. good bye.
135	Transcribed by https://otter.ai

Appendix L Turnitin Report

Patients' perspectives, pain, and health-related quality of life in same-day discharge hip and knee arthroplasty

ORIGINALITY REPORT

4%	3%	3%	1%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

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9	Andrew Bodrogi, Geoffrey F. Dervin, Paul E. Beaulé. "Management of patients undergoing	<1%

Appendix M Quantitative Data Analysis

Objective	Variables	Type of data	Statistical Tests
To evaluate the reported pain and health-related quality of life in the acute and subacute postoperative phases following SDD within the THA and TKA groups.	**<u>NRS of Pain SF-MPQ-2</u> Dependent: Pain Independent: Time**	**Ordinal**	**<u>Descriptive statistics</u> (Mean, standard deviation, median, interquartile ranges)**
	<u>EQ-5D-5L</u> Dependent: HRQOL Independent: Time	**Ordinal**	
To compare the reported pain and health-related quality of life between SDD THA and TKA from day of discharge to 6 weeks post op at scheduled intervals after completion of the care pathway.	**<u>NRS of Pain SF-MPQ-2</u> Dependent: Pain Independent: THA group; TKA Group**	**Ordinal**	**<u>Inferential statistics</u> Two-way ANOVA Independent T-test**
	<u>EQ-5D-5L</u> Dependent: HRQOL Independent: THA group; TKA group	**Ordinal**	