Postoperative pain management in planned lumbar spine surgery

Implementing structural changes in a complex health care setting

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”Det finns inget så praktiskt som en god teori”

”There is nothing so practical as a good theory”

Kurt Lewin

To my family

ABSTRACT

BACKGROUND

Poorly managed postoperative pain (POP) continues to cause suffering and prolong hospital care, affecting patients, individual health care professionals, and team strategies and attitudes. The impact on these strategies and attitudes needs greater understanding. Health care is currently shifting toward more person-centred care (PCC). One way of approaching changes in health care is by co-creation of interventions in order to more closely adapt these to specific contexts. Further, organizations in which change is to be implemented should be explored since resistance to change (RTC) and organizational culture (OC) are essential factors to consider in change management in health care settings. There is a lack of studies providing information on the impact of implementation of interventions in the challenging field of postoperative pain management (POPM) in a complex health care setting.

AIM

The overall aim of this thesis was to design and evaluate a change management intervention for postoperative pain and pain management for lumbar spine surgery patients.

METHODS

The overall research design was a multi-method design, drawing on several data sources and using various data collection and analytical methods. Studies I and II were interview studies of patients and health care practitioners (HCP)s to understand their underlying attitudes and strategies with regard to POPM in order to enhance knowledge of the persons in the patient-HCP relationship and to inform the intervention. Data analysis took the form of latent content analysis and thematic analysis. Studies III and IV were based on an intervention whereby PCC structures were implemented in the unit. The intervention was guided by the integrated Promoting Action on Research Implementation in Health Services (i-PARIHS) framework (Harvey & Kitson, 2015). Both studies used data from questionnaires; in addition, multiple data (i.e. interviews, observations, and medical journal review) were analysed, using descriptive and inferential statistics.

RESULTS

The findings from Studies I and II demonstrate that the know-how, capability and vulnerability of both patients and HCPs comprise the basis for the patient-HCP relationship in a complex setting with the many-sided subject of POP. The goal was also to inform the change managment intervention in the setting. Data from Studies III and IV affirm the intricacies of healthcare organizations. The meticulous bottom-up design of the intervention resulted in a essentially neutral result regarding patient-reported outcome measures (PROM), aside from patient participation in pain management which abated during the intervention. Moreover, while the organization initially presented agreeable prerequisite characteristics for change, during the actual change process the organization came under pressure due to the unrelated complete relocation of the units.

CONCLUSION

POPM was associated with both the complexity of pain management and the health care context. A multi-method design was chosen to broaden the possibility of explaining the phenomena. Qualitative interviews gave insight to patients' and HCPs' experiences, behaviours, attitudes and strategies. Experience and expertise were acquired by HCPs and patients and these competencies should be combined to achieve PCC. The impact of organizational strain, the partial implementation of PCC and lack of fidelity during the intervention are the most likely factors to explain the findings of decreased patient participation. This suggests that PCC needs to be implemented completely to achieve its potential.

Key words: lumbar spine surgery, postoperative pain management, health care organization, organizational culture, resistance to change, person-centred care, implementation science

SAMMANFATTNING PÅ SVENSKA

BAKGRUND

Postoperativ smärta fortsätter att orsaka lidande och är en utmaning främst för patienten men också för hälso- och sjukvårdens personal och organisation. Patienter, vårdpersonal och vårdteamen utvecklar strategier och har attityder till smärta och smärthantering, effekterna av dessa behöver vidare undersökas för att öka förståelsen. Dagens hälso- och sjukvård genomgår en förändring till mer personcentrerad vård. Ett sätt att närma sig denna förändring är genom en anpassning av personcentrerad vård till den specifika vårdkontexten. Vidare bör organisationer närmare studeras då motstånd till förändring och organisations kultur är viktiga faktorer att beakta i förändringar i hälso- och sjukvård. Studier gällande effekterna av interventioner för postoperativ smärtlindring i komplexa vårdmiljö saknas.

SYFTE

Det övergripande syftet med denna avhandling var att undersöka och utvärdera en förändringsintervention för postoperativ smärta och smärtlindring för patienter som genomgått ländryggskirurgi.

METODER

Avhandlingen har en multimetod design där olika datakällor, datainsamlings- och analysmetoder används. Studie I och II var intervjuundersökningar med patienter och sjukvårdspersonal med syfte att öka kunskapen kring underliggande attityder och strategier med avseende på postoperativ smärtlindring, men också för att öka kunskapen om vårdrelationen. Dataanalyser bestod av latent innehållsanalys och tematisk analys. Studie III och IV undersökte en samskapad intervention med strukturer för personcentrerad vård med en kvasi-experimentell före-och-efter design. Interventionen använde i-PARIHS ramverk. Studierna använde data från frågeformulär samt analys av intervjuer, observationer och journalgranskning. Beskrivande och inferentiell statistik användes.

RESULTAT

Resultaten från studie I och II visar att expertkunskap, förmåga och sårbarhet finns hos både patienter och personal och utgör en del av vårdrelationen. Resultatet från studier III och IV bekräftar komplexiteten i vårdorganisationer. Den kliniknära designen av interventionen resulterade i ett huvudsakligen neutralt resultat beträffande patientrapporterade resultatmått (PROM), med undantag av patientdelaktighet i smärthantering som minskade under interventionen. Initialt observerades organisationen ha goda förutsättningar för interventionen, dock kom organisationen att under implementeringen av interventionen få en organisatorisk påverkan pga. en temporär flytt av verksamheten.

KONKLUSION

Postoperativ smärtlindring påverkas av smärthantering och hälso- och sjukvårdsorganisationens komplexitet. En multimetod design valdes för att bredda möjligheten att förklara fenomenen. Kvalitativa intervjuer gav inblick i patienternas och vårdpersonalens erfarenheter, beteenden, attityder och strategier. Erfarenhet och expertis förvärvades av både patienter och vårdpersonal. Dessa kompetenser bör kombineras för att uppnå personcentrerad vård. Effekterna av organisatorisk belastning, partiell implementering av personcentrerad vård och bristande upptag av interventionen är de mest sannolika faktorerna för att förklarar resultat av minskad patientdelaktighet. Vilket antyder att personcentrerad vård bör implementeras helt för att uppnå sin potential.

Nyckelord: ländryggskirurgi, postoperativ smärta, postoperativ smärthantering, hälso- och sjukvårdsorganisation, förändringsbenägenhet, organisationskultur, personcentrerad vård, förändringsforskning

LIST OF PAPERS

This thesis is based on the following studies, referred to in the text by their Roman numerals.

I. Angelini, E., Wijk, H., Brisby, H., Baranto, A. (2018). Patients' experiences of pain have an impact on their pain management attitudes and strategies. Pain Management Nursing, 19(5), 464-473.

II. Angelini, E., Baranto, A., Brisby, H., Wijk, H. (2020). Healthcare practitioners' experiences of postoperative pain management in lumbar spine surgery care—A qualitative study. Journal of Clinical Nursing, 29(9-10), 1662-1672.

III. Angelini, E., Wolf, A., Wijk, H., Brisby, H., Baranto, A. The impact of a person-centred pain management intervention on resistance to change and organizational culture: A quantitative study in an orthopaedic surgery ward. [submitted]

IV. Angelini, E., Wolf, A., Wijk, H., Brisby, H., Baranto, A. The impact of a person-centred postoperative pain management intervention on pain intensity, patient participation and satisfaction: A multi-method study in an orthopaedic surgery ward. [manuscript]

CONTENT

ABBREVIATIONS

AN	Assistant nurse
ASA	American Society of Anesthesiologists
CVF	Competing Values Framework
FGI	Focus group interviews
HCO	Health care organization
HCP	Health care practitioner
IQR	Interquartile range
MD	Medical doctor
NRS	Numerical rating scale
OC	Organizational culture
OCAI	Organizational Culture Assessment Instrument
iPARIHS	The integrated Promoting Action on Research Implementation in Health Services
PCC	Person-centred care
POP(M)	Postoperative pain (management)
PT	Physiotherapist
RN	Registered nurse
RTC	Resistance to change
RTCS	Resistance to change scale
SD	Standard deviation

PREFACE

As a registered nurse (RN), I have been part of different care teams, both in Sweden and abroad, in hospital care and in home care. A great part of my encounters with patients has concerned pain in its different aspects. My observations throughout the years are that quality in health care is dependent on organizational structure and teamwork; these are vital if the patient is to be involved in his or her care. When the quality of organizational structure and teamwork increases, not only the patient is considered as a person, but staff are energized and motivated, both individually and as a group. This thesis project originates from and is inspired by clinical care.

Most dissertations deal with one aspect of a research field: this is not the case here. Paradoxically, it does not deal with a difficult subject. The difficulty stems rather from the fact that the various aspects of the subject each carry an inherent complexity, and that the overall context generally presents an additional complexity. Implementing change in health care is a vexing problem.

INTRODUCTION

> *"It felt like if someone was putting screws in my pelvis*
> *and in my back the whole time" [35-year-old, female patient]*

The focus for this thesis is an ambition to improve postoperative pain management for patients undergoing planned lumbar spine surgery.

POSTOPERATIVE PAIN

Postoperative pain (POP) is complex and challenging primarily for the patient but also for the health care organization (HCO) in which the patient is treated (Sharma, Balireddy, Vorenkamp, & Durieux, 2012; White & Kehlet, 2010). Pain is defined as "An unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage" (Raja et al., 2020). Parameters that have been shown to predict severe POP are female gender, severe preoperative pain, pain lasting longer than six months, age under 60 years, and the patient's expectations of severe POP (Kalkman et al., 2003; Mannion et al., 2009; Thomas, Robinson, Champion, McKell, & Pell, 1998).

Since the early 1990s, a multimodal pain treatment i.e. a combination of analgesics to obtain additive or synergistic effects to reduce adverse events of postoperative main treatment has been used (Kehlet & Dahl, 2003). Today, the most common analgesics used in POPM after spine surgery are paracetamol, nonsteroidal anti-inflammatory drugs (NSAID), Gabapentin and opioids (Sharma et al., 2012). The risks of overtreatment can be life-threatening and are frequently disregarded (S. Taylor, Voytovich, & Kozol, 2003).

POP continues to be mostly undermanaged with multiple possible consequences such as: cardiac modifications with an augmented risk of myocardial ischaemia or infarction, thromboembolic and pulmonary complications, immune alterations, amplified risk of persistent POP, weakened rehabilitation, augmented length of stay and/or hospital readmission, reduced quality of life, and adverse events related to disproportionate analgesic use (Apfelbaum, Chen, Mehta, & Gan, 2003; Cullen, Hall, & Golosinskiy, 2009; DeFrances, Golosinskiy, Hall, Schwartzman, & Williams, 2010).

More knowledge about what constitutes adequate POPM is needed to promote patient safety and high-quality care. Factors such as pain intensity, anxiety and fear, and patient experiences of and satisfaction with pain management are known to influence the pain experience (Lattig et al., 2013; Mannion et al., 2009; Pereira, Figueiredo-Braga, & Carvalho, 2016). The HCO's ability to take on the complexity of pain management has likewise been emphasized as important (Gordon & Dahl, 2004). Nevertheless, to explore a combination of these factors to improve pain management requires further investigation and will be approached in this thesis.

LUMBAR SPINE SURGERY

The orthopaedic diseases are degenerative in nature and not often life threatening, permitting surgeries to be planned. The primary aim of orthopaedic procedures is to alleviate patients' pain and improve their quality of life (Ethgen, Bruyere, Richy, Dardennes, & Reginster, 2004; K.-Å. Jansson, Nemeth, Granath, Jönsson, & Blomqvist, 2009). However, in Sweden, as in other countries, the length of waiting time for surgery is an issue with current health care systems. The wait for surgery have a negative effect on patient outcomes such as decrease in physical function, delayed return to work and physical activities, and increased severity of pain (Braybrooke et al., 2007; Okoro & Sell, 2009; Quon et al., 2013).

Lumbar spine surgery is commonly divided into fusion and non-fusion surgeries. Non-fusion surgery includes disc herniation surgery and laminectomy or decompressive surgeries for spinal stenosis. Fusion surgery includes fixation of one or several segments with pedicel screws and rods or anterior cage and screw fixation of the affected level in patients with spondylolisthesis/spondylolysis, degenerative disc diseases or chronic low back pain and scoliosis. Major complications such as deformities, neurological complications and deep venous thromboses are more often seen in complex surgical treatments, in addition to minor complications such as wound infections, durotomies, urinary infections, or misplaced instruments (Gordon & Dahl, 2004). Length of hospital stay varies between 1-3 days for non-fusion (Swespine, 2020), and 2-7 days for fusion surgery depending on the extent of the surgery (Gruskay, Fu, Bohl, Webb, & Grauer, 2015).

POP is a frequent complication, with moderate to severe pain being common after these surgical procedures (Swespine, 2020), and patients' pain often persists for a year or more, in many cases necessitating regular analgesics (Kaptain, Bregnballe, & Dreyer, 2016; Swespine, 2020). Therefore, it would be of interest to explore organizational measures aiming to decrease the patients' intake of analgesics in an intervention of organizational structural change.

CHALLENGES FOR HEALTH CARE ORGANIZATIONS

"You need to show the patient that you really see that he/she is in pain.
I think that matters a lot to their pain experience" [MD, male, 30 years]

The aim of delivering high-quality care demands constant attention and needs to be based on best available evidence. Although change processes tend to be slow, new research findings are implemented in treatment programs and guidelines, and the results of these are continuously evaluated (Berwick, 1989; Shojania & Grimshaw, 2005). Challenges to quality improvement in pain management include both inconsistency in approach to sustainable change programmes (caused by a lack of engaged physicians and leaders), and a basic failure to define what is meant by good quality pain management (Gordon & Dahl, 2004) .

Current health care is facing many challenges, such as lack of nurses, fewer hospital beds, increased numbers of procedures, implementation of new surgical techniques, increased costs, tight budgets, and an ageing population (Buerhaus et al., 2007; Kroneman & Siegers, 2004; Salmond & Echevarria, 2017). In Sweden, recent legislative changes have accorded more influence and power to the patients (Sveriges riksdag, 2010, 2014). The HCPs might anticipate that care will be more time consuming and, since time is often already lacking, this may encourage negative views. The comprehension of systems, processes, and health care data are unresolved and change processes in health care are impacted by factors, including unexpected events, disjointed activities, and fluctuating goals (Plsek & Greenhalgh, 2001). Further, the systemic thinking behind improvement theories in health care hinders improvement and makes it more problematic as this often uses static models for change with linear processes approaches (Batalden & Stoltz, 1993).

IMPLEMENTATION SCIENCE

The word "implement" comes from the Latin word implere, meaning to bring about, to put into practice, to carry out (Etymonline, 2020). In health care, implementation science is a rapidly growing field in quality research with the goal of closing the gap between research and clinical practice. Neighboring fields include improvement science, less focused on theories and more on local implementation (Health Foundation, 2011), and complexity science, focusing on apparent complexity and its impact in health care research (Braithwaite et al., 2017). The boundaries between these fields are not always clear and tend to overlap.

In the wake of the development of evidence-based practice, a need for knowledge on implementation strategies arose, hence the debut of implementation science. A commonly used definition of the field is: “the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and, hence, to improve the quality and effectiveness of health services and care” (Eccles & Mittman, 2006). In other words, implementation science intends to recognize and develop strategies to meet the challenging tasks of implementation.

Since the inception of implementation science, theories, models and frameworks have evolved to meet the challenge of change in the complex milieu of health care. Nilsen (2015) has, in a narrative review, assembled the field’s multiple theories, models and frameworks to aid in the selection in implementation studies. On the other hand, the field has been criticized for being too theoretically driven, with more pragmatism being needed, including rigorous assessments and direct measurement of relevant outcomes for care (Oxman, Fretheim, & Flottorp, 2005).

This thesis has included a framework with a pragmatic aspect to enable an understanding of the influences affecting implementation outcomes. When choosing a framework, several well-established ones were considered. These included the Exploration, Preparation, Implementation, Sustainment (EPIS) framework, focusing on the fit between the innovation and the setting for an implementation (Aarons, Hurlburt, & Horwitz, 2011), and the Consolidated Framework for Implementation Research (CFIR), likewise giving attention to the context, with an additional focus on barriers and facilitators outside the setting hindering or aiding the implementation success (Damschroder et al., 2009). One of the most commonly used frameworks in health care sciences is the Promoting Action on Research Implementation in Health Services (PARIHS) (Kitson, Harvey, & McCormack, 1998), with the revised version namely,

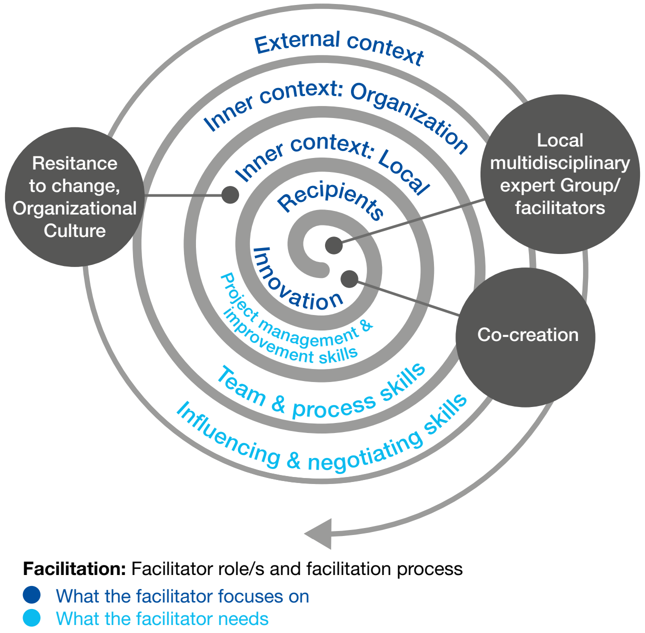

FIGURE 1. The i-PARIHS framework (Harvey & Kitson, 2015), in addition of Resistance to change, Organizational culture and Co-creation.

the integrated Promoting Action on Research Implementation in Health Services (i-PARIHS) framework (Harvey & Kitson, 2015), being chosen. The i-PARIHS links theoretical concepts and methods to enable the operationalization of transferring knowledge into practice in a pragmatic manner. Its key constructs, innovation, recipients, context, and facilitation, address the core of the areas of interest of the intervention reported in this thesis and will be explored below (Figure 1).

THE FRAMEWORK

The framework chosen for translating research into practice, i-PARIHS, parts from the view that integrating research in health care is complex, unpredictable and non-linear (Harvey & Kitson, 2015). iPARIHS has informed research in diverse areas such as postoperative nutrition (Byrnes et al., 2018), and maternal and newborn care (Baker et al., 2018). The i-PARIHS is a determinant framework applying a systems approach. Where system is an entity composed of different parts and must therefore be looked on as a sum of these parts, as well as considering the relationships between them (B. Riley et al., 2017). Determinants are factors that have been found to influence implementation outcomes, thus useful to consider when designing implementation strategies.

INNOVATION, WHAT IS BEING IMPLEMENTED?

Innovation in health service delivery and organization has been defined as behaviours and routines along with any administrative technologies and systems which are used to provide or support this. Moreover, innovations are planned implementations that discontinue with previous practice; they are perceived as new by a proportion of key stakeholders and directed at improving behaviours and routines along with any administrative technologies and systems which are used to provide or support this (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004).

The i-PARIHS approach to innovation aligns with the definition above, as evidence needs to be understood in a context or situation, and explicit knowledge is combined with tacit practice-based knowledge (so-called "tinkering") (Hargreaves, 1998). To increase the uptake of a change, an alignment of evidence with local priorities and practices is needed (Greenhalgh et al., 2004; Rogers, 2010). One way of realizing this is through co-creation to sustain a bottom–up approach, a means to reach fit and applicability of an innovation to the specific context (W. J. Riley, Parsons, Duffy, Moran, & Henry, 2010). Further, co-creating change permits different stakeholders and professions to mutually create change to ensure that measures for change are tailored to the specific context (Bason, 2018). Therefore, the goal in the current research is to ensure clinical relevance by co-creation and adaptation to the orthopaedic unit (Figure 1).

RECIPIENTS, WHO IS BEING TARGETED?

The recipients are seen as individuals and as a group, i.e. the team, and as those affected by the innovation and consequently influencing the implementation. Thus, the framework takes into consideration individual and team influences supporting or resisting an innovation. In this thesis, the HCPs are recipients of the intervention but patients are the beneficiaries. The group's uptake of an innovation is crucial to its successful implementation as change management can be hindered by HCPs' RTC (Oreg, 2003) (Figure 1).

According to Peiperl (2005, p. 348), RTC is "active or passive responses on the part of a person or group that militate against a particular change, a program of changes, or change in general." RTC is most often described as individual resistance; however, Curt Lewin (who first introduced the term in 1930, followed by Coch and French) suggested that RTC arises from the context in which the change happens and not from the unique individual (Coch & French Jr, 1948). Lewin states that the individual's behaviour is a product of a complex system, an organization, forming a force field around her or him (Lewin, 1947). This more accentuated definition of RTC is of importance in a study like the current one since it consists partly of a survey completed by individuals in an HCO and subsequently compiled and analyzed as one entity.

THE CONTEXT

A scoping review by Nilsen and Bernhardsson (2019) on contextual factors showed that context is defined in various ways, and different dimensions of context exist. There is therefore a need for transparency and common terminology when assembling findings in the field of implementation science. The i-PARIHS framework adopts a wide focus on the different layers of context in health care, as the external context could also have an impact on implementation processes and outcomes. The framework explicitly differentiates between inner and outer contexts. The inner context comprises the immediate local setting and its organization. The outer context encompasses the extensive health care system in which the local unit is based, including policies and regulations, and the political structures in the immediate locality (Harvey & Kitson, 2015). The setting in this thesis, an orthopaedic spine surgery unit, is part of a complexed healthcare organization as described above.

One way of evaluating readiness for change is by making an assessment of the OC described as the underlying values that exist within an organization (Cameron, 2011). Interest in understanding and changing OC in health care has increased, but more studies of high quality are needed in the field (De Bono, Heling, & Borg, 2014; Parmelli et al., 2011). Alverbratt, Berlin, Åström, Kauffeldt, and Carlström (2017) suggest that OC may have an impact on implementation processes. OCs are hard to describe since they are ever-changing and are not observable and tangible. In its complexity, an OC reflects the underlying values and shared assumptions in an organization (Schein, 2010), and is a concept that has been used for years in health care (Davies, Nutley, & Mannion, 2000; Schein, 2010). OCs are possible contributing factors in poor change implementation. Each workplace creates its own unique organization, and the idea that each organization can be seen as a miniature society, thus justifying a cultural approach, arose in the social sciences. Michie and Williams (2003) established that hospital wards develop their own local OCs. In this study, we observe a specific ward's underlying OC while undergoing structural change (Figure 1). As a rule, there are two approaches to OC: 'Has' and 'Is'. 'Has' alludes to an organizational property, i.e. something the organization has that is observable in the shared beliefs and values of its members. This approach allows OC to be treated as any other variable to be handled and used to fit the organization's purpose. The 'Is' approach, on the other hand, encompasses a deeper idea of the construct such as underlying attitudes. According to Carlstrom & Olsson (2014) RTC and OC may disrupt organizational improvement and change in health care.

FACILITATION, THE ACTIVE INGREDIENT

There is a tradition of using facilitators in health care to support implementation of changes to practice (Harvey et al., 2002). Facilitation in the i-PARIHS framework is a core construct and, in addition, the active ingredient that stimulates the implementation by adapting to context and individuals and teams. Facilitators have an important role in stimulating and encouraging the recipients in their context. An example from primary care in a systematic review showed that implementations supported by a facilitator were nearly three times more likely to adhere to evidence-based guidelines, than those that did not have a facilitator (Baskerville, Liddy, & Hogg, 2012). Facilitation in this thesis, as in i-PARIHS, was an overarching and pragmatic way to sustain implementation of the intervention.

PERSON-CENTRED CARE

"There exists an ontological relationship between life and narration. A patient doesn't become a person no matter how many whats you line up and add to the list of organs, substances, and symptoms – it's only first when the story is told, we see a person"
(Kristensson Uggla, 2020, p. 74).

One way of approaching the complex phenomena of interest in this thesis could be through increased attention to the person. Adopting the holistic approach in PCC can lead to the possibility of seeing the whole person despite

the impersonal nature of the health care setting where surgery is performed and POPM is given and received. Kristensson Uggla (2020) reflect on the difference in approaches to mankind - a key point in person-centredness: What is a person?, a reductionist perspective, and: Who is this person?, a life-world (Lebenswelt) perspective.

Always considering the person can be difficult in a large and complex health care setting. Interest in PCC has increased in recent decades and is associated with other terms such as patient-centred care, patient-focused care, individual care and personalized medicine (Leplege et al., 2007). Despite this diversity of terms, the focus stays the same: to acknowledge the patient and his or her requirements as a capable person, despite pain, suffering and illness. PCC allows the patient to be seen as more than his or her symptoms or disease. It enables a more holistic care approach where the complete wellbeing of a person can be seen including individual expressions, preferences and beliefs (Ekman et al., 2011). PCC is largely recognized today as an essential constituent of health care and the effects of PCC on patients have been identified in numerous studies in terms of improved self-efficacy, enhanced experience of health, higher satisfaction with care, better symptom control, improved physical function and capacity, improved activities of daily living, lower incidence of chronic heart failure/ or chronic obstructive pulmonary disease-related deteriorations. With reference to the organization, PCC is associated with improved discharge planning, shorter length of hospital stay, and cost savings (Britten et al., 2020).

The patient-HCP relationship is between persons with different roles. The person affected by illness is momentarily assigned the role of patient when in contact with an HCO, while the person who has chosen a profession in health care actively assumes the role of HCP. These are very different approaches to the patient-HCP partnership. Schuster (2006) describes what can happen within the professional (person) during the encounter with the patient (person). As the professional role withdraws, vulnerability and fragility emerge in the professional (person) as she or he sees the "other" person (the patient). This puts the two (persons) on common ground as humans (beyond roles of patient and professional). Schuster calls this a "border situation" (Schuster, 2006 chapter 1).

The PCC framework has three steps for establishing routines: first, initiate the partnership through patients' narratives; second, involve the patient by working on the partnership and sharing decision-making; and lastly, safeguard the partnership by documenting the narrative (Britten et al., 2017).

In order to operationalize PCC, each organization needs to adapt it to its specific context (Moore et al., 2017). One way of doing this is to create structures that favour and sustain PCC by permitting the transition of the person's narrative throughout their care. In this thesis, PCC structures are seen as organizational routines allowing the patient's narrative regarding pain and its associated aspects being brought to a collective level through documentation in a care plan. Documenting is a way of maintaining and developing the partnership, but also a pragmatic way of transferring information, here regarding pain, pain management and postoperative recovery, to the team. Jansson, Pilhamar, and Forsberg (2011) identified the importance of a clear definition of roles of those involved, as well as the worth of local facilitators when approaching PCC through documentation of individualized care plans. Documenting is highlighted in the consensus paper on PCC by Ekman et al. (2011), safeguarding the partnership: documenting the narrative. *"Documenting patient preferences, beliefs, and values, as well as involvement in care and treatment decision-making in patient records gives legitimacy to patient perspectives, makes the patient–provider interplay transparent, and facilitates continuity in care. The registration of such information must be considered equally mandatory as clinical and lab findings."* (Ekman et al., 2011, p. 250).

RATIONALE

This thesis takes as its starting point the challenges relating to the multi-faceted issue of POPM in a complex health care setting (an orthopaedic unit in a university hospital).

Both organizational and personal aspects need to be adopted when approaching this complex phenomenon. Likewise, a multi-method approach is needed to enable different types of knowledge to emerge. The challenges of improving POPM in a complex health care setting have been studied (Gordon & Dahl, 2004; A. Taylor & Stanbury, 2009) but, to our knowledge, not with regard to lumbar spine surgery. PCC, a promising approach to explore and understand the patient's role and change in health care, may help us improve our understanding of how change can occur within a complex health care context such as this.

In addition, an examination of how HCPs view their organization with regards to culture (Cameron, 2011) and attitudes to change measured as RTC (Oreg, 2003) allows a study of the effect of the implementation process on the organization. This may provide us with knowledge that can inform other organizations facing the challenge of implementation.

By exploring these gaps in the current knowledge regarding POPM, the intention of this research is to provide insight into how persons, patients and HCPs, within an HCO may each have a part to contribute to health care improvement.

METHODS

OVERALL AIM

The main purpose of this thesis is to evaluate a change management intervention for postoperative pain and pain management in lumbar spine surgery patients.

SPECIFIC AIMS

- to explore and describe patients' experiences of pain and pain management and the impact of these on daily life and activities before and after planned lumbar spine surgery.

- to explore and describe health care practitioners' experiences of postoperative pain management to patients undergoing planned lumbar spine surgery by identifying the health care practitioners' behaviours, attitudes and strategies.

- to explore the impact of a systematic change process concerning postoperative person-centred pain management on resistance to change and organizational culture in an orthopaedic spine surgery unit.

- to evaluate the impact on postoperative pain, participation in pain management and satisfaction with postoperative pain management, following the implementation of a postoperative pain management intervention.

TABLE 1. Overview of the research design

Study	**I**	**II**	**III**	**IV**
Design	Qualitative Interpretative	Qualitative Interpretative	Quantitative	Quasi-experimental design (quant/qualitative)
Data collection	Focus group interviews (n = 2)	Semi-structured individual interviews (n = 9)	Questionnaires RTCS, OCAI	Questionnaires The PAIN-OUT questionnaire Group interview (n = 1), individual interviews (n = 2)
Participants	Patients (n = 12)	Health care practitioners (n = 9)	Health care practitioners (n = 81)	Patients (n = 123 (conventional care) + 98 (interventional care)
Data analysis	Qualitative content analysis	Inductive thematic analysis	Descriptive statistics	Descriptive and inferential statistics

RTCS = Resistance To Change Scale (Oreg, 2003); OCAI = Organizational Culture Assessment Instrument (Cameron, 2011); PAIN-OUT questionnaire (Zaslansky et al., 2015).

STUDY DESIGN

In this project, a multi-method approach was adopted, including a quasi-experimental before-and-after design that was designed and evaluated using focus group interviews (FGI), individual interviews, and instruments evaluating patient-reported and HCP-reported outcomes. Two studies were qualitative (Studies I & II), one was quantitative (Study III) and one had a mixed-method design (Study IV) (Table 1).

PARTICIPANTS AND SETTING

STUDY SETTING

Study I-IV are conducted in the same study setting.

The studies were undertaken in an orthopaedic surgical unit in a Swedish university hospital in the country's second largest health care region. The care unit includes an out-patient clinic, where patients have preoperative consultations, and a surgery ward. In addition to patients undergoing elective spine surgery, trauma and orthopaedic oncology patients are also treated. The patient groups include both children and adults. During the study period, the number of beds in the ward varied between 16 and 28. The ward has 1300-1400 care episodes/ patient cases per year. The staff include physicians, registered nurses (RN), assistant nurses (AN), physiotherapists (PT), assistant physiotherapists and administrative personnel.

STUDY POPULATION

Study I was an interview study with patients, exploring the impact of pain on their daily life and activities before and after elective lumbar spine surgery. FGIs were held in May 2016. The participants had undergone lumbar spine surgery four days to five weeks prior to the interviews. The mean age was 60 years (range: 30-77). The FGIs comprised six patients, one with four men and two women, and the other with three men and three women.

Study II was an interview study exploring HCPs' experiences of POPM with patients undergoing planned lumbar spine surgery. Interviews were conducted from January to March 2016 with nine health care practitioners; three physicians, three RNs, and three PTs (three male and six females, aged 29 to 61 years). Their professional experience ranged from 1.5 months to 25 years.

TABLE 2 Demographic data for paper III

	Frequency (n = 81)	Percent (%)
Gender		
Men, women	36, 45	44, 56
Age, mean (SD)	40 (12.7)	
Age groups		
20-29	19	23
30-39	24	30
40-49	16	20
50-59	16	20
60-69	6	7
Professionals		
AN	25	31
RN	23	28
Assistant PT	1	1
PT	3	4
Assistant doctor	6	7
Resident doctor	9	11
Orthopaedic surgeon	14	17
Experience		
Professional experience, median (IQR) year	9 (4-22)	
Tenure, median (IQR) year	1.2 (0.2-8.5)	

Study III was a quantitative study; its participants comprising physicians, care staff and administrative personnel. HCPs (not including managers) working in patient care were asked to participate. In total, 81(68%) HCP participated (see Table 2).

Paper IV was a mixed-method study including patients admitted for planned lumbar spine surgery between March 2017 and March 2020. Recruitment to the study took place in two stages between March 2017 and February 2018, and between April 2019 and March 2020. Excluded from the study were patients with the following preoperative characteristics: idiopathic scoliosis; hospital stay planned to be less than 24 hours; low Swedish proficiency; malignancy; rheumatic disorder; or stroke. Postoperative exclusion criteria were any complications leading to re-operation, including deep wound infections. The same inclusion and exclusion criteria were applied in to both groups. In all, 27 patients were excluded from the conventional care group and 27 from the intervention group, leaving 123 patients in the former and 98 in the latter group.

The qualitative part of paper IV is based on one group interview and two individual interview, conducted in September 2020. The participants were staff in the expert group (Studies III and IV). Their ages were 22– 62 years (mean 42); there were two males and five females. Their professions were medical doctor (MD) (1), RN (three), PT (2), and AN (1), and their professional experience varied from 1.3 to 35 years (median 14.5).

DATA COLLECTION AND PROCEDURE

STUDIES I AND II

In the first study, two FGIs with patients explored their experiences of pain and pain management and the impact of these on daily life and activities before and after the planned lumbar spine surgery. Potential participants were identified in surgery software records or by the ward nurse coordinator. A convenience selection method was employed to establish variation among the participants and to ensure that each FGI was as representative as possible of the spine surgery patient group. Patients were contacted by phone by the first author (who had no previous relationship with the respondents), and information was given about the study procedure. Consenting patients signed consent forms at the hospital before the interview. The interviews followed a guide developed by the researchers. Questions were open-ended, inviting participants to share positive and negative experiences of care, as well as suggestions for improved and optimal care. FGIs enable the dynamics in a group to stimulate the participants to express and share experiences and thus allowing access to their attitudes and experiences (Dahlin & Ivanhoff 2017; Kitzinger 2017). Two researchers conducted the interviews, one acting as moderator to guide the interview and to facilitate participation, and one observing and taking notes (Krueger, 2014).

In the second study, nine in-depth interviews were conducted, the participants being encouraged to share their experiences and attitudes concerning care given to patients undergoing planned lumbar spine surgery. Participants were licensed staff recruited with purposive sampling: potential respondents were identified by the research team and invited to participate by the first author who had no previous relationship with the respondents. Participating staff signed informed consent forms before the interviews. An interview guide with open-ended questions was drawn up by the researchers. Participants were asked to describe situations they had experienced as satisfactory or not; this was followed by questions with a focus on patient participation, inviting suggestions as to how patients could become more involved in POPM. Follow-up questions were asked to enrich descriptions and to stimulate the participants to share their experiences thoroughly.

Studies III and IV are both based on the same intervention. A description of the intervention will initially be given, followed by procedures and data collection for the studies.

THE POSTOPERATIVE PAIN MANAGEMENT INTERVENTION

The rationale for the intervention was the lack of a defined structure to deal with pain and pain management for patients undergoing planned lumbar spine surgery (Studies I and II). Therefore, the aim of the intervention was to create structures supporting a PCC approach with an overall focus on patients' POPM after elective lumbar spine surgery.

The iPARIHS framework (Harvey & Kitson, 2015) was adopted to guide the intervention. An expert facilitation team was established, using purposive sampling, the team comprising representation from: first-line management, orthopaedic surgeon, assistant doctors, RNs, PTs, and ANs. A total of nine experienced professionals were active in the group at the same time. The expert group commenced by mapping usual care and subsequently co-created the change intervention. The group met intensively during the co-creation phase, 10 meetings between April and November 2018. In 2019, the group met regularly to maintain and evaluate the intervention. In addition to the expert group, a group of physicians developed routines for patients' written discharge notes. It established templates specific to the diverse surgeries as starting points, to be personalized at discharge. Further, the hospital IT department was involved in developing a documentation template for a care plan with a focus on POPM (Table 3).

TABLE 3 A summary of implementation interventions (novel routines)
[**MODIFIED** from the original publication, paper III].

Structural change	**Explanation of change process**
Admission interview with the patient/RN concerning pain	Three workshops with RNs in the outpatient clinic (two in autumn 2018, one in February 2019). Workshops hosted by RN expert in PCC. RNs received information and training in PCC and documentation of patients' narratives. Novel routine: RN obtained patient's narrative during pre-admission visit, including information regarding everyday life and the impact of pain prior to planned surgery. Patient's narrative summarized in care plan, along with other clinical information. Tentative PCC plan, including patient's recovery goals and expected length of stay, written by RN. PCC plan finalized/updated when patient admitted to the ward.
Care plan with focus on pain and pain management	Guideline developed by RNs in the expert group. All RNs in the unit, outpatient clinic and ward, informed of the use of the care plan, starting in February 2019. Novel routine: All documentation of pain and pain management to be gathered in care plan, following guideline. All staff able to use plan.
Ward round routine with explicit roles	As all professions were represented in the expert group, relevant professional issues regarding ward round emerged in discussions. Professional differences of opinion mostly concerned timing and importance of rounds. Routine was established by consensus, starting in October 2018. Novel routine: Checklist and precise timings for rounds. All professions to be present during rounds. MD to lead rounds, according to checklist; RN to document summary in care plan.
Written patient discharge summaries	The group of physicians established the routines. Started in November 2018. Novel routine: Ward secretaries assigned to add template to patients' journals; physician responsible at discharge to complete as appropriate for patient.

USUAL CARE

The mapping of the unit revealed: 1) Fragmented and incoherent documentation of pain issues in the medical record; 2) Daily ward rounds perceived as stressful and inefficient by the care staff with unpredictable timing and slow decision-making (leading to patients not receiving optimal pain management) (study II); 3) At discharge, patients did not receive written information about care given nor about after care.

Each member of the expert group acted as a change agent and facilitator in his or her professional group to sustain colleagues' efforts. They likewise observed the implementation process, reporting back to the expert group to alert it to the current situation in the unit.

STUDY III

The study population comprised all HCPs in the unit working in clinical care. The first-line managers were informed about the study and participants (RNs, ANs, PTs and physicians) received verbal and written information explaining the aim and procedure of the study. Participation was voluntary. HCPs could respond between one and six times to the survey. The first time a participant responded, written consent and demographic data were collected. Paper surveys in pre-labelled envelopes were distributed by contact persons, i.e. the ward coordinator and the secretary in the doctors' office. Two reminders were sent by e-mail two and four weeks after the due date. The survey included six time points stretching over two years and nine months. The findings were to be presented as three time series: the pre-intervention (investigating the organization over four time points - March, June, September 2017, and March 2018); the running period, when the change programme was developed (September 2018); and lastly the post-intervention (October to November 2019).

STUDY IV

The study population comprised all adult patients on the surgery waiting list for planned lumbar spine surgery. Consecutive sampling was used: eligible patients were asked by an RN or a researcher (EA) to participate in the pre-surgery visit one to two weeks before the planned surgery. For the usual care group, this could also be done by an RN on admission to the ward. The participants were informed that they were either part of the pre-intervention group (March 2017 to February 2018) and treated according to the current routines at the unit, or part of the intervention group (April 2019 - March 2020) and treated according to the novel routines at the unit. Patients were informed about the study and provided written informed consent if they agreed to participate. The patients were to complete questionnaires once a day, based on their experiences during the previous 24 hours. The questionnaire was used the days after surgery during hospitalization, and at the one-month follow-up. It was then sent to the patients' home and if not returned one phone call and/or one reminder letter was sent to the patient. The demographic data collected included a pre-operative risk assessment carried out according to the American Society of Anesthesiologists (ASA) classification system, this serving as a proxy for the patients' pre-operative condition (Doyle & Garmon, 2019). A subsequent change in ASA class might indicate a change in patient status during the study. The participants in the post–intervention group and individual interviews were staff, being part of the expert group; purposive sampling was used, and the first author (EA) invited team members to participate.

QUESTIONNAIRES AND FRAMEWORK

THE DISPOSITIONAL RESISTANCE TO CHANGE SCALE (RTCS)

The dispositional RTCS assesses staff's reactions to imposed change. In 2003, the RTCS was developed and validated to establish the existence of a disposition to resist change in order to predict reactions to specific change. The scale covers four factors reflecting behavioural, affective, and cognitive aspects of RTC, it measures an individual's inclination to resist change. The instrument comprises 17 items, using 6-point ratings (1 = strongly disagree to 6 = strongly agree). The behavioural dimension involves an individual's inclination to adopt routines, routine seeking (RS). The affective dimension contains two factors: reaction to imposed change (ER); and short-term focus (STF). ER mirrors the extent of perceived stress and uneasiness the individual experiences when faced with change; STF reflects an individual's disposition to accept the immediate inconvenience of change in order to obtain a long-term benefit. The cognitive dimension comprises the factor of cognitive rigidity (CR) which relates to dogmatism: change is resisted due to rigidity and a fixed mind-set (Oreg, 2003).

THE COMPETING VALUES FRAMEWORK (CVF)

Initially, the CVF was developed in research studying key factors in effective organizations. This was followed by Quinn and Rohrbaugh's further analysing and identifying key factors of effectiveness (Cameron, 2011). The framework consists of two major dimensions of organizational approach: internal focus and integration versus external focus and differentiation: and flexibility and discretion versus stability and control. These form a square divided into four quadrants where each quadrant represents a prominent archetypal organizational characteristic, i.e. culture type. Each quadrant represents basic assumptions, orientations and values characterizing an OC. As the name of the framework indicates, the quadrants compete with each other. The competition is diagonal: thus, the upper left quadrant, clan, is in competition with the lower right quadrant, market, while the upper right, adhocracy, competes with the lower left, hierarchy. Below follows a brief explanation of the four culture types:

The clan culture (CC)

In this organization, people have a lot in common. Friendships are strong and the unit feels like a big family. The organization promotes teamwork, participation, and consensus.

The adhocracy culture (AC)

The organization is dynamic, entrepreneurial, and creative. The organization values individual initiative and freedom.

The market culture (MC)

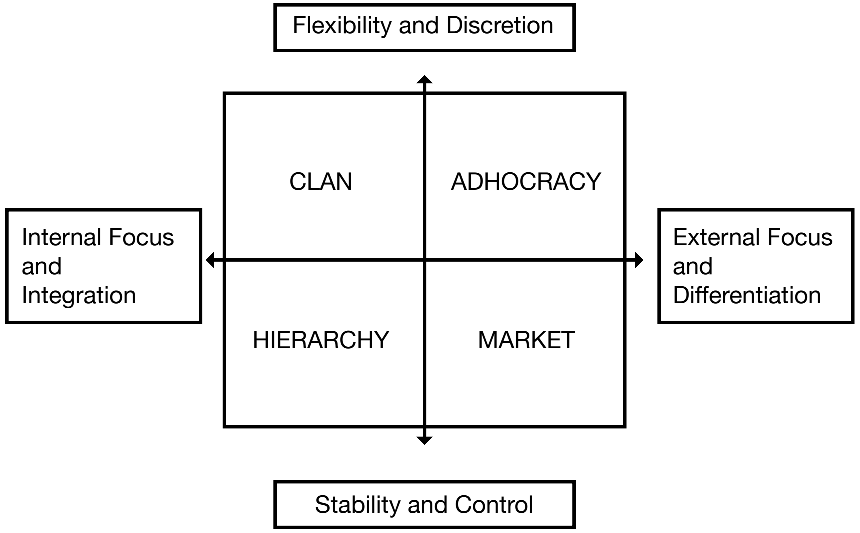

FIGURE 2. The Competing Values Framework (Cameron, 2011)

The organization is results-oriented. Reaching goals and gaining a reputation for success are important.

The hierarchy culture (HC)

The organization is a formalized and structured workplace. Procedures direct what people do. Work should be efficient and smooth. Stability and results are key.

No cultural type is valued as superior to another; nevertheless, it has been seen that a balanced mixture of OC types is favourable in change processes in HCOs and drives sustainability i.e. the organization's capacity to sustain change over time (Cameron, 2011) (Figure 2).

THE ORGANIZATIONAL CULTURE ASSESSMENT INSTRUMENT (OCAI)

The OCAI is based on the CVF developed by Cameron and Quinn (Cameron, 2011). The instrument has psychometric validity, although weaker for preferred culture (Heritage, Pollock, & Roberts, 2014). In the absence of a Swedish version of the OCAI, a translation was made, using the COSMIN checklist for cross-cultural validity (Mokkink et al., 2012) (with permission from the developers of the instrument). Two independent translators, one with no previous knowledge of the topic, translated the OCAI: two professional editors subsequently translated the Swedish version independently back to English, neither one being privy to the original version. The next step was to create an interdisciplinary expert group made up of a surgeon, a nurse, a professor, and one of the authors of the instrument. Two nurses, one male and one female, representing the target population, examined the translation for coherence in a health care setting. The original and back-translated versions showed slight differences that were resolved by the expert group. A final Swedish version was agreed, and the pilot study commenced.

The OCAI is broadly used, including in health care settings (Bellot, 2011). It measures the current and preferred cultures in an organization, and the discrepancy between these. The OCAI has an ipsative scale where the respondent shares 100 points between four alternatives in each domain, giving the highest points to the alternative most similar to their organization and decreasing the points as alternatives increasingly differ.

THE PAIN-OUT QUESTIONNAIRE

The PAIN-OUT questionnaire developed in a European commission-funded project sustained by the International Association for the Study of Pain (Zaslansky et al., 2015). The instrument was developed to depict the frequent barriers that impede accurate POPM on 13 items. Permission to use the questionnaire was received from the PAIN-OUT registry, a Swedish version of the PAIN-OUT was available. The validation of The PAIN-OUT questionnaire showed a psychometric quality regarded as satisfactory (Rothaug et al., 2013).

In the current study the patients rated their POP situation for the preceding 24 hours when filling out the questionnaire.

- Please indicate the worst pain you have had since your surgery (no pain = 0, worst pain possible = 10)
- Was the patient allowed to participate in decisions about the pain treatment as much as wished (not at all = 0, very much so = 10)
- Satisfaction with the result of the pain treatment (extremely dissatisfied = 0, extremely satisfied = 10)
- Had the patient experienced a persistent painful condition for > 3 months before surgery? If so, how severe was the pain most of the time? (no pain = 0, worst pain possible = 10)

DATA ANALYSIS

TEXT ANALYSIS

STUDY I

Qualitative content analysis is often used in nursing research to make replicable and valid inferences from texts (Elo & Kyngäs, 2008). The researchers participated actively in reflections, discussions, and agreements at each stage of the analysis. The verbatim transcripts were read through numerous times by the first author to obtain an overall comprehension of the material. The codes in each category should be internally homogenous and externally heterogeneous (Kitzinger, 1995) and, as such, represent the manifest level of the data. The interpretation of the texts commenced with an analysis on a manifest level; identifying meaning units, condensed into smaller units, labelled with codes, and subsequently grouped into categories and lastly into subcategories. To reach an accurate interpretation, the analysis moved back and forth between the parts and the whole of the material (Graneheim & Lundman, 2004). To reach a latent level, the interpretation continued by exploring the narratives in more depth, reaching an underlying meaning to find themes intertwined in the text. An interrater assessment ensures trustworthiness to qualitative studies (Polit, 2021) here, one researcher (HW) performed the duties of interrater by discussing/talking through and reworking the result with the first author (EA). This process was performed in a way to ensure objectivity, accuracy, relevance, and comprehension of the data.

STUDY II

Inductive thematic analysis, according to (Braun & Clarke, 2006), involves: familiarization with data; generation of initial codes; searching for themes; reviewing themes; defining and naming themes; and producing a report. All interviews were read and analysed by the first author (EA); the fourth author (HW) read and analysed a subset. Coding was initially carried out by the first author. Conformability of codes and themes was established through discussion, ensuring group validation of the evolving themes. Confirmability was attained by providing data extracts, quotes, of participants' responses. Although the data in the study may not be representative of all orthopaedic surgical departments, the POPM and potential vulnerabilities identified may be relevant to similar settings. Transferability was considered by giving rich descriptions of findings (Houghton, Casey, Shaw, & Murphy, 2013), permitting others to decide on possible transferability into their specific contexts.

STUDY IV

The interviews were recorded to enable the extraction of the essence of the data in order to discern or establish principal categories and subgroups. The pragmatic analysis was conducted by two reviewers (EA, AW), summarizing study findings with the aim of exploring participants' perceptions of pain and POPM and the relationship between fidelity and intervention outcomes. The compilation of interviews was reviewed with members of the expert team.

STATISTICAL METHODS

In Study III RTC and OC were measured or assessed with the RTCS (Oreg, 2003) and the OCAI (Cameron, 2011). Descriptive statistics were presented as mean and standard deviation (SD), or median and interquartile range (IQR), as appropriate. Normality of data was inspected visually with histograms and with the Shapiro-Wilk test.

In Study IV, patient variables analysed were POP, measured with the numeric rating scale (NRS), patient participation, and patient satisfaction in pain management, all measured using the PAIN-OUT questionnaire (Zaslansky et al., 2015). Data were expressed in terms of mean (SD) for continuous variables, and frequencies and percentages for categorical variables. For comparison of continuous variables, the Student's independent t-test was used. Pearson's Chi-squared test was performed to evaluate associations between categorical variables. The statistical significance for all tests was set as $p < 0.05$.

ETHICAL CONSIDERATIONS

The Swedish Ethical Review Authority through The Regional Ethical Review Board in Gothenburg approved the study (ID number 124-16) which conforms to the principles of the Declaration of Helsinki. Participation was voluntary and could be halted at any time without question. Eligible participants received written and verbal information about the study and informed consent was signed by all participants. A possible result of participation in interviews could be a feeling of exposure leading to discomfort, e.g. when patients revealed dissatisfaction with pain management, or when HCPs disclosed dissatisfaction with work conditions. If discomfort arose as a result of participation in the interviews, participants were informed that help could be provided. Answering the questionnaires in the current study could have been delicate as some questions involved a judgement on the organization where patients are treated and where they are dependent on the care which they may judge in the questionnaire (Study IV). Similarly, the staff may feel uneasy scoring their workplace in which they are in a dependent position to their employer (Study III). All questionnaires were anonymized, and participants were informed and reassured about their anonymity.

RESULTS

The present thesis reports on the use of different perspectives, those of patients and of HCPs, to investigate the phenomena of POPM in planned lumbar spine surgery. The patient perspective is examined based on patients' experiences and HCPs' narratives. HCPs' perspectives are examined from individual and organizational angles, in particularly in the context of a co-created intervention in the specific setting of an orthopaedic spine surgery unit. The results will be presented in two parts: first, the qualitative pre-intervention studies (Studies I and II) and, second, the quantitative interventional effect studies presented with patient and staff outcomes (Studies III and IV).

PRE-INTERVENTION STUDIES: EXPERIENCES OF PAIN AND PAIN MANAGEMENT (STUDIES I AND II)

The pre-surgery period was challenging, greatly affecting the patients. The patients' attitudes and the support received from HCPs were important in POPM, where the need for morphine treatment made care complicated (Study I and II). The extended wait for surgery imposed on patients the need to adapt to their pain and neurological deficits, with various levels of activity being deployed to help them cope. Their pain often led to social isolation, negatively affecting everyday life, especially family life. Neurological deficits impaired patients' physical control and could be misjudged by others as resulting from intoxication. Patients wanted staff to warn them that such situations could occur. Patients' expectations of POP varied from persistence to complete alleviation, in the former case leading patients to mentally prepare themselves. Anxiety and fear about the surgery were common though patients with previous experience of spine surgery had lower degrees of these. Patients saw it as important to establish an individualized care plan for POPM.

The type of surgery and patients' attitudes towards pain determined patients' perceptions of POP. Influencing the pain treatment was key to pain control, here exemplified with the following quote:

"For me, being a control freak, it is important to get answers to my questions. Their answers give me confidence even when they say "I haven't got the faintest idea, but I will find out" [female, 35 years].

Analgesia was addressed in numerous ways. Nearly all patients considered morphine immediately after surgery, with the sole intent of easing the pain. Some patients were worried about being discharged since they would no longer have the immediate support of the staff in managing their pain and were afraid of running short of analgesics. Patients were calmed when they were able to ask staff questions as this prevented fear and anxiety. This also helped increase their confidence in HCPs. By the same token, patients felt seen and responded to when the HCP asked about their pain. It became clear that information shared with the patients should be worded in an objective and realistic way. Discharge was often too hurried when it came to advice on how to reduce morphine intake. Some patients asked for an analgesic prescription as a precautionary measure, but the majority wanted an alternative to morphine for fear of addiction. Despite many experiencing withdrawal symptoms, patients found it worthwhile taking morphine during peaks of pain.

ORGANIZATIONAL STRUCTURES INFLUENCE PAIN EXPERIENCES

STUDY I AND II

Hospital experiences affected patients: for example, sharing a room with other patients and being faced with another person's care needs was challenging. Continuity of staff, i.e. seeing the same people, and staff being there around the clock, had a positive and comforting effect and increased patients' confidence. The majority of patients felt included in their care and that pain was acted upon when communicated. Further, the majority saw motivated and engaged HCPs which motivated patients in their progress to recovery. However, when there were negative encounters with staff and uncoordinated care, this led to feelings of neglect. Pain should not be ignored: in building the patient-HCP relationship, staff should really listen to the patient's narrative of pain with trust and confidence. This would help alleviate pain, allow a connection with the patient, and give a holistic view of the patient's situation, acknowledging the patient's specific personal situation in order to adapt and achieve personalized care. Some patients had high expectations and unrealistic hopes of surgery outcomes and did not expect POP. HCPs needed to be straightforward about such expectations and it was seen as honest, respectful and professional to not promise a total absence of POP.

Professional experience can be both an asset and an obstacle to optimal pain management. Experienced HCPs may have preconceived ideas about the expected level of pain, given a diagnosis. Less experienced professionals may lack such generalized preconceptions and respond more specifically to individual patients.

Some patients may choose a low level of involvement in their care, leading to possible undertreatment. But it should not be solely the patient's responsibility to report the intensity of their pain. HCPs should actively inquire and involve patients in care. Physicians prescribe analgesics, placing patients and colleagues in a dependent position. This limits the extent to which patients participate in their pain management. Physicians needed to respect this and adjust their approach to each patient when setting limits to analgesic dosages. This required a straightforward dialogue where patients did not need to exaggerate to obtain optimal analgesia. Some physicians saw patients as equals, while others spoke with patients but then decided on their own. One surgeon saw the surgery itself as paramount, with analgesia being a less important consideration. Sometimes, team members had different goals and there was a lack of communication regarding pain relief. Staff occasionally acted as the patient's advocate and disagreed with other team members about the patient's current status.

HCPs need to be one step ahead in pain management as pain issues require extensive planning. All types of expertise should be used to optimize care. When pain management became complicated and challenging, interdisciplinary collaboration was intensified as different competencies were required to find causes of apparently inexplicable pain. When pain persisted, it was stressful and hard to accept. At times, collaboration with the pain unit was initiated by RNs, despite the surgeon questioning the necessity of this. This discrepancy in approaches had a negative effect on the team. Decision-making in care is governed by hierarchies, traditions and perceived power, and inadequate team collaboration can lead to poorer care.

The suspicion of opioid addiction made care complicated and had a negative impact on the patient-HCP relationship, on individual HCPs, and on the quality of pain management. HCPs' ambivalence between wanting to alleviate pain but not wanting to fuel an addiction was frustrating. The RNs are the HCPs meeting the patient who is in pain: they sought support from colleagues but might feel exposed and isolated even when the team generally worked together well.

EFFECT OF THE INTERVENTION STUDIES III AND IV

STUDY III

In total, 119 HCPs were asked to participate and 81 (68%) agreed to participate. The mean age of the participating staff was 40 years (range 21-66): 44% were male and 56% female. Median professional experience was 9 years (IQR: 4-22), and median tenure at the clinic was 1.2 years (IQR 0.2-8.5). A total of 353 questionnaires was distributed and 198 were returned (56%). These were checked for consistency: the RTCS sections were all (198; 56%) correctly completed, but the OCAI sections contained miscalculations, leading to some being excluded. The final number of OCAI sections correctly completed was 143 (40.5%). The events and important parameters assembled by the expert group to elucidate and exemplify the strains and complex influences on the HCO during the study period are presented on the timeline (Figure 3).

RTC was relatively low and decreased over time. The cognitive rigidity factor scored the highest, indicating an organization resistant to change due to rigidity and a closed mind-set (baseline mean 3.32 (SD 0.68); post-intervention 3.18 (SD 0.70). The short-term focus factor scored the lowest, thus indicating an organization with a low readiness to accept the immediate inconvenience of change in order to acquire a long-term benefit (baseline mean 2.11 (SD 0.78); post-intervention mean 1.89 (SD 0.70).

The current OC had a balanced mixture of organizational characteristics over the timeline of the study. At baseline (pre-intervention), market culture dominated, closely followed by clan and hierarchy, adhocracy scoring the lowest. Post-intervention, hierarchy culture dominated, followed by market, clan and adhocracy. The current OC thus had a small predominance of results and profitability. For preferred OC at baseline, clan culture dominated, followed by adhocracy, hierarchy and market culture. Post-intervention, clan remained the dominant culture, followed by hierarchy, adhocracy and the market culture. The preferred OC thus remained stable, even as the ward was under organizational strain. The discrepancy between the current and preferred cultures persisted throughout the study period. At baseline, the gap was between the dominant current culture being market, and the dominant preferred culture being clan. Post-intervention, the gap was between the dominant current culture being hierarchy, and the dominant preferred culture being clan. Additionally, the market culture showed the largest discrepancy between the current and preferred measures (Figure 3).

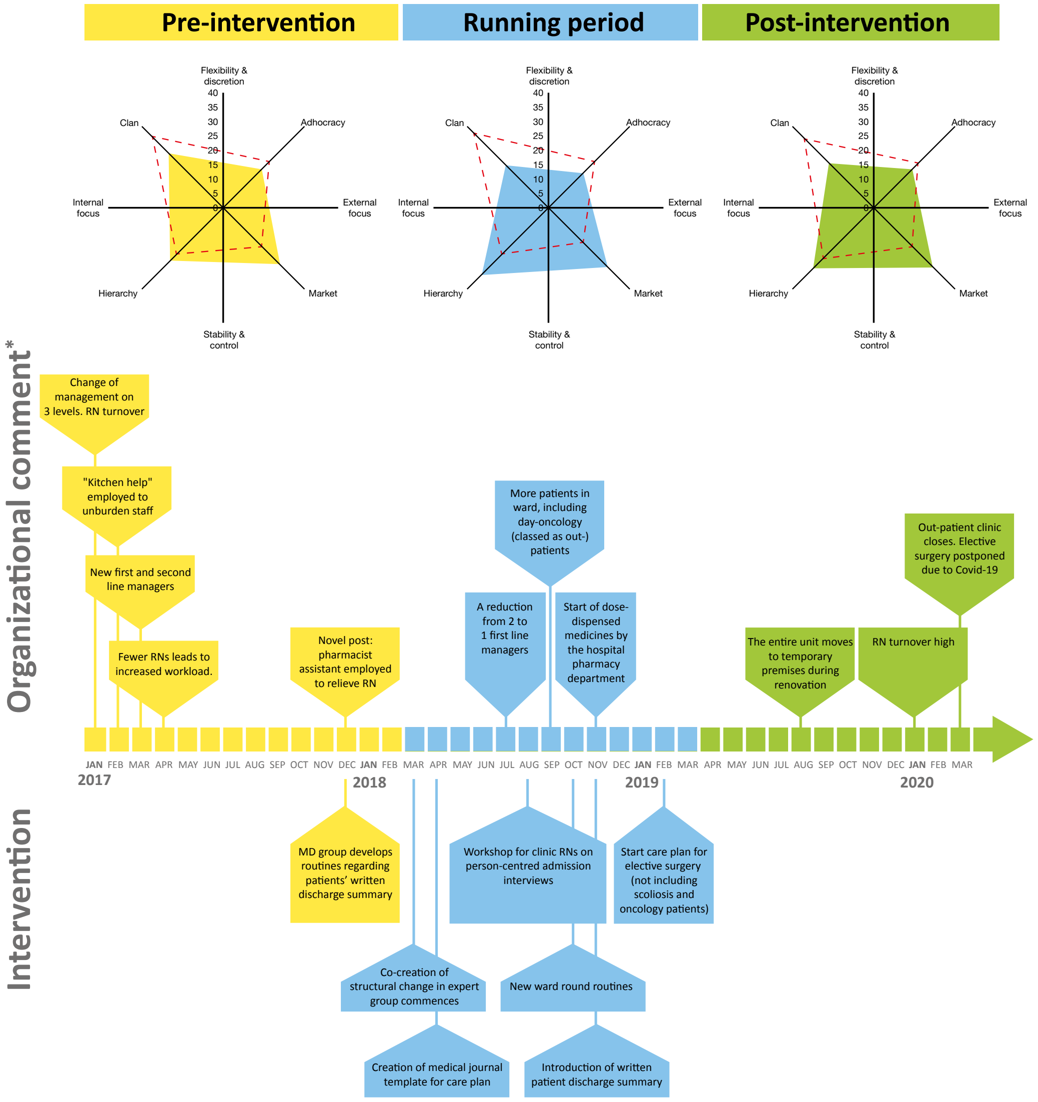

FIGURE 3. Timeline and changes in organizational culture (Cameron, 2011)

*Organizational comments indicate events occurring in the organization independently of the intervention. 'Pre-intervention' represents the Usual Care group, 'Running period' the period of co-creation, and 'Post-intervention' the organization following the intervention.

EFFECT OF THE PCC INTERVENTION PROCESS

STUDY IV

The usual care group (n = 123) and the intervention group (n = 98) had similar distributions in gender and age: usual care group 50.4 % female, mean (SD) years 60 (15.8); intervention group 55.1 % female, mean (SD) years 65 (12.4). However, the intervention group was significantly older (p = 0.007). There was no difference regarding pain at baseline (Table 4), though a significantly higher number of patients were classified as ASA 3 in the non-fusion surgery part of the intervention group (p = 0.013).

Primary outcome: Retrospective pain intensity (NRS for 24h) at Day 1 and at the 1-month follow-up showed no statistically significant difference between any of the groups at either time point (Table 4).

TABLE 4 Primary outcome, pain intensity (NRS)

Pain intensity	**Group**	**Cross Section**	**n**	**Mean NRS**	**SD**	**p-value Usual care vs Intervention**
Day 1	Full Group	Usual care	99	6.09	2.611	0.313
		Intervention	66	6.52	2.679	
Month 1		Usual care	101	5.23	2.796	0.705
		Intervention	77	5.39	2.852	
Day 1	Fusion surgery	Usual care	26	7.54	2.005	0.605
		Intervention	32	7.22	2.562	
Month 1		Usual care	30	5.87	2.700	0.475
		Intervention	36	5.36	2.958	
Day 1	Non-fusion surgery	Usual care	73	5.58	2.619	0.662
		Intervention	33	5.82	2.686	
Month 1		Usual care	71	4.96	2.810	0.455
		Intervention	40	5.38	2.817	

SECONDARY OUTCOMES

The secondary outcomes were; patient participation, patient satisfaction and fidelity to the intervention. A statistically significant difference in patient participation in favour of usual care (n = 98) over the intervention (n = 75) (p = 0.024) was found. The fusion surgery group showed significantly less participation with the intervention (n = 36) than with usual care (n = 30) (p = 0.05); the non-fusion group showed no statistically significant difference. Regarding satisfaction with pain management, there was no statistically significant difference between the full groups at the 1-month follow-up (p = 0.015). Fidelity to the intervention was high for the preoperative admission interviews (100 %), but low for postoperative use of care plans and completion of discharge summaries.

- Care plan approved according to criteria: Fusion surgery 71% (29% not approved); non-fusion: 74% (26% not approved);
- Written patient discharge summary approved according to criteria: Fusion surgery 53% (47% not approved); non-fusion: 33% (67% not approved).

TABLE 5 Categories and subcategories

Category	**Subcategory**
The move	Fidelity before vs after the move
The timing vs unforeseen events	The move to temporary premises Nurse turnover A lower productivity
Reflections	Didn’t reach all the way with the care plan Too much focus on pain? It could have been worse

ORGANIZATIONAL OUTCOME

Post-intervention interviews with members of the expert group (n=7) were conducted to evaluate fidelity to the intervention, and to encourage reflections on the results of the current study. The analysis of the interviews is presented by category and subcategory (Table 5).

The main cause of reduced fidelity to the intervention was the unit's move to temporary premises during the intervention in August 2019. Prior to the move, fidelity to the intervention was high and seen as a positive improvement of care. After the move, everything altered, with most aspects of care being affected. The impact of the move, especially its negative effect, had been impossible to predict. The expert group was clear that changes in large health care settings are common and may have consequences on care, as observed in this setting. Moreover, high nurse turnover had a large negative impact on pain management. The RNs working during the intervention were less experienced, resulting in a distinct decline in the ward's collective knowledge. In addition, the overall number of surgeries performed during the intervention was lower, due to factors outside the control of the study protocol. Stricter preoperative priorities of the patients in the intervention may have led to patient care being more challenging in this group. Another reflection made was whether too much emphasis was given to pain during the intervention, leading patients to focus excessively on their pain. The expert group agreed that the documentation and use of care plans had room for improvement.

DISCUSSION

This thesis primarily derived from an interest in the life-world (Lebenswelt) of patients and health care professionals in POPM following planned lumbar spine surgery and the organizational prerequisites for high quality pain management care. The findings from Studies I and II show that the expertise, capability and vulnerability of both patients and HCPs constitute the basis for the patient-HCP relationship in a complex setting with the multifaceted subject of POP. The goal was also to evaluate a change management intervention in that setting targeted at improving pain management for patients. Findings from Studies III and IV affirm the complexity of health care organisations. The rigorous bottom-up design of the intervention resulted mainly in a neutral result regarding patient-reported outcome measures PROM, apart from patient participation in pain management, which decreased during the intervention. Further, while the organization initially presented favourable prerequisite characteristics for change, during the actual change process the organisation came under strain due to the unrelated complete relocation of the wards.

THE PARTNERSHIP: PREREQUISITES AND HINDRANCES

The persons in the patient /HCP partnership are challenged on many levels and the personal experience, expertise and vulnerability are important constituents to consider when co-creating a partnership in the health care context.

While awaiting surgery, the patients became experts on their pain and developed different pain management strategies depending on their personal experiences: more or less active strategies were employed (Study I).

“I have never really had any pain while resting. I have been able to sit and lie down without any pain. But I had pain when I walked or stood up…so I have adapted very much to it and therefore in many ways been quite pain-free for long periods. The less I moved, the less pain I had” (male, 73 years (b)).

“What you said about the walker... I was going to say that it was very good to push a stroller, because I was out with my grandson a lot since, when you lean on it, you can go almost as far as you like. I could, at least; the stroller was kind of like a walker” (male, 73 years (b)).

HCPs' experience varies and is depicted as both positive when adding to the quality of care, and negative when leading to preconceptions about expected pain levels which lead to poor pain management and a lack of partnership (Study II). One of the cornerstones in patient-centred care is the establishment of the patient-HCP relationship where patients' expertise comes from their life experience, while HCPs acquire professional expertise over their careers in clinical practice. These experts meet in the care-giving encounter (Ekman et al., 2011). In the Novice to Expert model (Benner 1984), developed in the field of nursing, individuals pass through five stages of proficiency. Benner argues that expert behaviour is driven by reflective processes but to a great extent also by intuition based on previous experience (Benner, 1984). Experience is fundamental in providing high quality health care, but HCPs will be at different stages of proficiency depending on their experience, hence the importance of collective experience which is accessed through teamwork. Perhaps Benner's theory can be applied to patients as well, as their experience of their disease and of being in the role of patient evolves. In Study I, patients who had undergone previous surgery knew what to expect and prepared themselves both mentally and practically. PCC reciprocally includes the expertise of the partners (patient and HCP) to attain person-centredness (Ekman et al., 2011). Expert patients exist and may participate in health care to encourage other patients in their situations and inform stakeholders (Tattersall, 2002).

Teams with role clarity, mutual trust, and good quality information exchange lead patients to experience lower levels of POP, better postoperative functioning, and decreased lengths of hospital stay (Gittell et al., 2000; Rosen et al., 2018). Study II showed that less experienced HCPs had fewer expectations about levels of pain, while experienced ones could have preconceptions on specific pain levels linked to specific diagnoses.

"'It's just a disc hernia - it's just to get up and move': I think that's dumb. But unfortunately, some express themselves so - because it is actually not that easy. It [pain] can be very different from person to person" [Participant 5, PT, female, 58].

Preconceived expectations influence and may hamper adequate pain management and PCC particularly when patients have higher pain levels than expected. In response, the intervention introduced a ward round routine with the presence of all professions, with the documentation of pain in the care plan, to enable the experience of the whole team to influence care. Another example of patient participation during rounds in orthopaedic care was studied by Thörne, Andersson-Gäre, Hult, and AbrandtDahlgren (2017), patients participation during rounds enhanced the interplay between patients and HCP, learning became central to all round participants and took place via the patient-HCP relationship.

VULNERABILITY

Vulnerability was observed in both patients' and HCPs' narratives as the patients were broken down or made more fragile by the pain and the wait for surgery (Studies I and II). This vulnerability had consequences as it constituted one of the pre-existing conditions of the patient-HCP relationship. Hence, the circumstances surrounding the relationship or encounter were suboptimal because not only had patients experienced difficulties while waiting for the elective surgery, but the HCP also had different levels of experience of POPM. According to Kristensson Uggla (2020), the patient has a triple disadvantage in health care: an existential disadvantage, needing help and feeling exposed and vulnerable due to deteriorated health; an institutional disadvantage, when the patient is placed low in a hierarchically organized HCO; and a cognitive disadvantage, where the patient has less knowledge than HCPs about highly specialized care. Hence, the patient-HCP relationship is asymmetric. HCPs need to engage actively to reduce the asymmetry and work towards reciprocity in order to engage in PCC (Schuster, 2006). The intervention was a structural effort to reduce this relational asymmetry, both for patients (Study I) expressing a need for more personalized care, and for HCPs requiring more time to connect with patients (Study II). HCOs and HCPs should be aware of and have an obligation to compensate for this asymmetry. One way to reduce this asymmetry could be through implementing PCC since the inherent narratives and relationships in this allow for greater inclusion throughout the care process and decisions. The focus on initiating, working on and documenting a partnership differentiates PCC from more traditional approaches where the patient is merely the recipient of care (Ekman et al. 2011). The PCC approach has been shown in orthopaedic surgery studies to significantly reduce length of hospital stay and to increase patients' daily activity (L.-E. Olsson, Karlsson, Berg, Kärrholm, & Hansson, 2014; L. E. Olsson, Karlsson, & Ekman, 2006).

Another aspect of vulnerability arises when someone is exposed to demanding and challenging care situations. In Study II, HCPs testify to how care becomes complicated when pain management problems occur. HCPs are part of a hierarchical and traditional environment where the RN is reliant on the MD's medical prescription to manage pain. All professionals in this study addressed the issue of their suspicion that patients overconsumed or were addicted to opioids (Study II).

"If the care becomes very difficult, then you need to talk to colleagues. If the patients have very high doses or so… Mostly, I think, I talk to the nurses. They are the ones who know how the patients feel" [MD, female, 46 years].

This complex situation occasionally puts HCPs in an exposed and ambiguous situation, leading to ethical stress as HCPs want to alleviate pain but intoxicate the patient. In essence, the HCP was torn between wanting to trust the patient and preserving professional ethics. Inherently, this kind of situation seems to undermine the patient-HCP relationship but, for the HCP to work for patient safety and avoid adverse events in pain management, acting for rather than with the patient was crucial.

"I try to fulfil the patient's wishes as long as they seem reasonable" [Participant 3, MD, male, 30 years].

Patients on the other hand employ different strategies to be listened to, negotiating more pain relief or having access to an extra dose for breakthrough pain (Study I).

"Another time, I had to argue for the amount of pills I usually took. I called for help to get pain relief, and I said, 'this will not help because I usually take...' like, 'Yes, but we'll see,' 'No, we'll see.' And then I still had to call later to get more" (male, 30 years)

It has been noted that patients with known overconsumption of opioids receive poorer pain relief (Alford, Compton, & Samet, 2006). It seems that a subtle reflexive repositioning, a distancing, occurs when suspicion enters the patient-HCP relationship, as if PCC and professionalism were points at opposite ends of a spectrum along which the HCP moves according to the difficulty or exposure she or he faces in the encounter with the patient.

PATIENT-REPORTED OUTCOMES AND EXPECTATIONS

In the present study, patient participation was significantly lower in the full intervention and fusion groups than in the usual care group. Inviting patients to give their narratives in pre-surgery person-centred admission interviews may have had a negative impact on patient participation as the fidelity towards PCC (Study IV) did not persist throughout the care continuum. To invite a patient's narrative allows a shift from the perspective of patient to one of person: the description by the patient of his or her situation has a therapeutic role (Charon, 2001; I. Ekman et al., 2011). PCC requires continuous progress that builds on the notion of partnership. Patients receiving a coherent PCC approach throughout the care chain had significantly better outcomes than patients receiving only partial elements of PCC, such as for example only the admission interview (as described by Ekman et al. (2012) with chronic heart failure patients. Continuous PCC leads to lower lengths of hospital stay and better preservation of the activities of daily living (Inger Ekman et al., 2012). (Britten et al., 2020) likewise emphasize continuity of care as essential in PCC to allow good quality care. Another indication of the decreased level of patient participation in the present study can be found in the post-intervention HCP group interview, revealing HCP reflections on not having fully documented patients' pain, and therefore not safeguarding the partnership through this documentation nor allowing a continuation of the patient's narrative throughout their hospitalization.

Patient outcome measurements on POP and satisfaction with pain management did not show any significant difference between the pre- and post-intervention groups. And while satisfaction with care does not equal patient experience, it is a component within it. A systematic review has shown the importance of patient experience on patient safety (Doyle, Lennox, & Bell, 2013). According to McGregor et al. (2013), satisfaction tends to remain high regardless of surgery outcome or the degree to which expectations were met. Mannion et al. (2009) underscore the importance of patient satisfaction as a predictor of outcome after spinal surgery. It has been observed that patients' expectations often are overemphasized and higher than those of surgeons (Mannion et al., 2009) (Lattig et al., 2013). Hanna et al. (2012) found patient satisfaction to be correlated more with patients' perception of caregivers' efforts to control pain than with pain being well treated. Thus, appropriate staff performance had more influence on satisfaction than did POP levels. This coincides with the findings of Schwenkglenks et al. (2014) who found that satisfaction was strongly correlated with patients' impressions of appropriateness of care. Even so, the patients expect, and to some extent accept, issues directly connected to the surgery, such as pain and pain management, whereas participation concerns relationships and as such reaches into an emotional level. This is the importance of PCC, comprising the patient-HCP relationship and the sustainability of receiving the patient narrative throughout the care continuum. This was only achieved to some extent in the current study but fully observed in the study by Ekman et al. (2012), and recently underlined by Britten and al. (Britten et al., 2020). Another aspect that is proposed to have a hindering impact on PCC is that participation does not necessarily imply the same thing for the patient as for the HCP. Bolster and Manias (2010) showed RNs' perceptions guiding what they thought important for the patient as hindering opportunities for patient participation during medication activities.

"But then you have to be observant, so you don't skip someone who doesn't demand anything. But I still think that it's pretty clear that it's the nurses who see when the patients are to be mobilized, even the physiotherapists who can report: 'No, she really had a hard time - and it was really hard for her to get up and we must raise [the analgesics dose]'" [MD, female, 46 years].

Yet another possible explanation as to why patient participation decreased in the current study is provided by Eldh, Ekman, & Ehnfors, (2006), who found that just inviting the patient to participate in decision making is not sufficient to achieve patient participation: person-centredness is also needed and is attained by accepting and respecting each patient's uniqueness throughout the entire care continuum.

THE ORGANIZATIONAL PRECONDITIONS

The intervention's bottom-up design and the organizational conditions presented favourable circumstances for implementation; nevertheless, the impact on patient-reported outcomes was modest.

The preconditions for implementing the intervention were essentially favourable:
1) The organization displayed a balance of varying culture characteristics with all being represented in the CVF, something Quinn and Rohrbaugh (1983) who first introduced this concept asserted to be good conditions for implementing and sustaining improvement, leading to a more effective organization. Wolf, Ulin, and Carlström (2017) noticed that PCC gave a more balanced combination of the cultural dimensions.
2) The dominant current culture during the intervention was the hierarchy culture which, according to the findings of Alharbi, Ekman, Olsson, Dudas, and Carlström (2012), can sustain implementation of PCC, since it reduces patient uncertainty by its focus on stability and control.
3) Our findings display the paradox of a stability and control focus (the hierarchy culture) and a low RTC, i.e. an openness to change (Study III), which could be explained by hierarchy and clan cultures both being on the internal focus side of the organization, according to the CVF. The low RTC in the present study (Study III) stands in contrast to what could be expected in a public hospital which would be expected to have a rather high RTC. Hospitals being part of a large publicly funded organization, often considered slow and difficult to maneuver (Axelsson, 2000; Broström & Siverbo, 2004). One explanation could be Sweden's having a non-profit health care system. Non-state hospitals exist but legislation prohibits for-profit health care (Sveriges riksdag, 2008, 2017). Thus, the incentive to win market share is low, leading to a focus on internal processes. Our findings indicate no obvious contradiction between a focus on stability and control and an openness to change (low RTC).
4) Clan culture has been identified as decreasing the RTC (E. Carlström & Ekman, 2012). In the current study (Study III), hierarchy culture was the domination current culture as the overall RTC decreased. The clan and hierarchy cultures are both positioned on the internal focus side of the CVF and so it appears that internally focused culture profiles have the effect of decreasing RTC. However, this stands in contrast to multiple studies indicating that the hierarchy culture (stability and control focus) is combined with a high RTC (Carlström & Olsson, 2014; Chatterjee, Pereira, & Bates, 2018; Saame, Reino, & Vadi, 2011). These contrasts illustrate the complex nature of organizations and organizational cultures.

Points 1-4 above underline the importance of the balance of opposing culture characteristics in promoting effective change, the stability and control focus sustaining implementation of PCC. The findings in the present thesis may suggest that the hierarchy culture and a low RTC coexist, indicating the important interplay of internal processes in HCOs. However, independent of organizational size and context, external contextual factors may be harder to control and can intervene and influence internal processes. In the present study, one influential external factor was the unexpected relocation of the entire ward (as discussed in more detail below).

IMPLEMENTATION OUTCOME-THE IMPORTANCE OF THE CONTEXT

Implementing change in a health care context is difficult to study from a research quality point of view, as many confounding factors can arise and need to be acknowledged: therefore, outcome measures are of importance (Proctor et al., 2011). The present study had an "emergent design" to ensure adaptation to clinical factors in order to compensate for the complexity of the setting. The temporary relocation of the unit is a manifest example of complexity in large HCOs. The study stretched over a substantial time period and the move had not been planned at the time of design of the study: it had to be regarded as an unexpected external factor impacting the intervention. The move was necessary due to renovation, but the temporary premises were not suitable for orthopaedic surgery patients, thus greatly affecting care and leading to suboptimal conditions for implementation.

"It was completely incomparable how it was there in that ward, and it affected everyone as well. It was not good for the patients at all... rooms and toilets and… No, it was not good for our newly operated poor people" [AN female 53 years].

"There was no major chaos in the control group. The staff was relatively experienced. The department was functioning well. We were in the same premises where everything was as it used to be (albeit a bit slow). This changed significantly with the intervention group when we moved and with basically a change of the entire RN group" [MD male 46 years].

In order to explain implementation processes and intervention outcomes, a broad evaluation is needed to assess the impact of the intervention. The post-intervention measure of RTC and OC was collected shortly after the relocation of the unit, indicating a seemingly untouched unit with regard to OC and RTC. It is acknowledged that organizational features (such as OC and RTC) change slowly (Schein, 2010, p. chapter 1). Meanwhile, the timeline (Study III) and the group interview (Study IV) imposed organizational strain, heavily burdening the unit during the intervention. Assessing fidelity to an intervention is likewise a means of evaluation and, in this study, the fairly low fidelity to the new ward round routine in the latter part of the intervention leaves room for interpretations that would not have existed with high fidelity. Fidelity in general was uneven, high for pre-surgery interviews and low for the ward round routine. This resulted in inconsistent person-centredness throughout the care process as the ward round reverted to the former routine involving only the physician and the RN (Study IV), as though the organization by reflex returned to familiar ground. This confirms the need to take the context into account when assessing outcomes of interventions in complex HCOs. Contextual factors to consider when assessing likewise include professional behaviours, provider attitudes and the service system itself (Proctor et al., 2011).

By taking context and facilitation into account when designing and implementing the intervention, the i-PARIHS framework promotes implementation success. However, in the current study, PCC was only partly achieved. The facilitation construct in i-PARIHS might have benefited from an addition of person-centredness, which would then have been extended to the expert group, as well as to all HCPs. Person-centred facilitation needs to have a bearing on both structure and relations within the organization and so the framework could have a more solid impact. Further, the framework has a clear focus on context, making a distinction between the outer and inner contexts (Harvey & Kitson, 2015). The outer context being harder to influence, this study exemplifies the impact of outer context on a bottom-up change implementation in the inner context.

METHODOLOGICAL CONSIDERATIONS

Randomized controlled trials are considered the golden standard research design as they can establish strong causality. A controlled study design was not applicable in the current thesis project as the setting comprised a complex context and the subjective phenomenon of POP was targeted. To conduct research in health care settings is challenging and requires a rigorous approach (Polit, 2021). The design of the thesis project was meticulously selected therefor, and a multi-method approach, including both qualitative and quantitative approaches, was chosen. Triangulation is used to obtain a fuller picture of a phenomenon, this being done using different methods in the separate studies. The findings were then merged in this thesis in order to strengthen them. Another way of assuring a rigorous design was the choice of adhering to an established framework, iPARIHS, when designing and implementing the intervention. The iPARIHS framework (Harvey & Kitson, 2015) was selected as it includes determinants for context and facilitation.

The purpose of conducting the pre-intervention qualitative studies was to capture several perspectives of POPM in a complex health care setting in order to unveil underlying attitudes in the specific study context, prior to the co-creation of the intervention. Ontological considerations were made as well, as these qualitative studies were primarily performed to gain increased insights to patients' and HCPs' experiences. A further contribution to expand the understanding of the phenomena would have been to include ANs as an additional profession in Study II, as the current design is limited to licensed professions. ANs could have made a valuable contribution to a fuller understanding of HCPs' experiences of the phenomena, as they work closely with patients.

The pre-intervention interviews had fairly small numbers of participants, patients (n = 12), HCP (n = 9). In qualitative research, the number of respondents is of less importance, but the selection of participants and obtaining saturation in data are paramount (Morse, 2000). Malterud, Siersma, & Guassora, (2016), emphasize that sample size should be decided by the power and amount of information a sample holds, rather than the raw number of participants: thus, the aim of the study and the quality of the data should guide sample size. Nevertheless, Studies I and II, and the group interview, achieved both saturation and power in data, allowing a rich description of the phenomena.

Exclusive focus on clinical outcomes does not enable a full assessment of an intervention. An additional understanding of the process of implementation and its outcomes is required (Proctor et al., 2009). The quantitative studies (Study III and part of Study IV) had a quasi-experimental time-series design, or a controlled trial without randomization design. A pre-post design has several weaknesses as it cannot control for external factors influencing the results. The results are presented for three time series in order to point to alternative explanations. In addition, triangulation was employed: the expert group mapped the unit, and the findings in the post-intervention interviews provided additional explanations for the results. Further, it would have strengthened Studies III and IV to have an external health care unit as a control for comparative purposes and to increase the understanding of external influences. However, the spine surgery unit was the only such unit at the hospital and this was therefore not possible.

The instruments in the thesis were carefully chosen, with only established and validated instruments in health care being used (Studies III-IV) (Heritage, Pollock, & Roberts, 2014; Oreg, 2003; Rothaug et al., 2013). This ensured reliability and transferability of findings. The instruments chosen has been widely used internationally: the PAIN-OUT questionnaire and the RTC scale already existed in Swedish, but no good quality translation of the OCAI could be found. Accordingly, the instrument underwent a thorough translation, following the COSMIN checklist (Mokkink et al., 2012), to enable the use of this validated instrument.

The OC was assessed with HCPs in the ward. It would have been interesting to further decompose the HCP into professions to compare professional cultures. This approach was not chosen as the sample was already small. The MD and RN professions have previously been identified to have differences with regard to norms and culture (Hall, 2005). Further, Eriksson et al. (2016) show that fidelity to one's profession may be stronger than to one's organization. It would be interesting to investigate this in future studies as it is possible that the professional cultures could have impacted the intervention.

IMPLICATIONS OF RESEARCH

Implementation science aims at understanding processes and systems to improve the quality and effectiveness of health services and care. This thesis shows the innate unpredictability of a complex setting as structural changes were well founded in the local setting but did not reach person-centredness as shown in the decline of patient participation. PCC must be systematic, structured and embedded, covering the entire care process; it should target HCPs as well to infiltrate every aspect of care. Additionally, future research could benefit from more patient involvement to inform the research design, adapting it to the local context, while an extension of the current intervention would enable a study of a more complete PCC.

The findings of the qualitative studies show that the patient and the HCP have different entries to and roles in the patient-HCP partnership. In particular, the relationship suffers from the asymmetry inherent in the hierarchical organization of health care. Further research exploring ways of reducing this asymmetry may inform structural changes leading to an improved team collaboration and enhanced patient participation. The research presented here also illustrates that HCOs can be unpredictable and non-linear. This suggests that both inner and outer contexts need to be considered in empirical explorations, which could include exploration of organizational decision infrastructure in the different layers of large HCOs, and adaptation of evidence into health care units in order to explain outcomes of interventions.

CONCLUSION

This thesis has in several ways elucidated the complex problems relating to post-operative pain and pain management in the setting of lumbar spine surgery patients. These problems are associated with the complexity of pain management and with the health care context in which the studies were conducted. They illustrate the need to use different scientific approaches in order to increase the ability to explain the phenomena.

The qualitative interview studies (Studies I and II) contributed with valuable knowledge as they gave insight to the persons' experiences and allowed an exploration and description of behaviours, attitudes and strategies otherwise hard to get access to. Experience and expertise were acquired by HCPs and patients over time identifying competencies which need to be combined to achieve PCC. Further, the findings from the interviews, valuable as they are, had the additional purpose of informing the intervention.

Establishing and implementing PCC structures was seen as an organizational means of approaching POPM. Further, the i-PARIHS framework, including co-creation of the intervention by the expert group, allowed a close clinical fit. Despite the findings of a neutral result, or even decreased patient participation in the intervention group, the use of different scientific approaches such as interviews and evaluation of fidelity to the intervention made it possible to further understand the results. The strong impact of the context, a unit undergoing massive organizational strain at the time of the implementation of the intervention, is most likely a factor that could to some extent explain the phenomena. OC and RTC measures were not seemingly affected by the observed organizational strain, whereas fidelity to the intervention indicated organizational strain at an earlier stage. PCC was only partly implemented; the findings indicating that structural change was insufficient and might even have had a negative effect as patient participation decreased. This suggests that PCC needs to be implemented more thoroughly to achieve its potential.

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REFERENCES

AARONS, G. A., Hurlburt, M., & Horwitz, S. M. (2011). Advancing a conceptual model of evidence-based practice implementation in public service sectors. Administration and Policy in Mental Health and Mental Health Services Research, 38(1), 4-23.

ALFORD, D. P., Compton, P., & Samet, J. H. (2006). Acute pain management for patients receiving maintenance methadone or buprenorphine therapyAnnals of Internal Medicine, 144(2), 127–134.

ALHARBI, T. S., Ekman, I., Olsson, L.-E., Dudas, K., & Carlström, E. (2012). Organizational culture and the implementation of person centered care: results from a change process in Swedish hospital care. Health Policy, 108(2-3), 294-301. doi:10.1016/j.healthpol.2012.09.003

ALVERBRATT, C., Berlin, J., Åström, S., Kauffeldt, A., & Carlström, E. (2017). A new working method in psychiatric care–the impact of implementation. International Journal of Public Administration, 40(3), 295-304.

APFELBAUM, J. L., Chen, C., Mehta, S. S., & Gan, T. J. (2003). Postoperative pain experience: results from a national survey suggest postoperative pain continues to be undermanaged. Anesthesia and Analgesia, 97(2), 534-540 (table of contents).

AXELSSON, R. (2000). The organizational pendulum: healthcare management in Sweden 1865-1998. Scandinavian Journal of Public Health, 28(1), 47-53. Baker, U., Petro, A., Marchant, T., Peterson, S., Manzi, F., Bergström, A., & Hanson, C. (2018). Health workers' experiences of collaborative quality improvement for maternal and newborn care in rural Tanzanian health facilities: A process evaluation using the integrated'Promoting Action on Research Implementation in Health Services' framework. PloS One, 13(12), e0209092.

BASKERVILLE, N. B., Liddy, C., & Hogg, W. (2012). Systematic review and meta-analysis of practice facilitation within primary care settings. Annals of Family Medicine, 10(1), 63-74.

BASON, C. (2018). Leading Public Sector Innovation 2E: Co-creating for a Better Society: Policy press.

BATALDEN, P. B., & Stoltz, P. K. (1993). A framework for the continual improvement of health care: building and applying professional and improvement knowledge to test changes in daily work. The Joint Commission Journal on Quality Improvement, 19(10), 424-447.

BELLOT, J. (2011). Defining and assessing organizational culture. In Nursing forum (Vol. 46, No. 1, pp. 29-37). Malden, USA: Blackwell Publishing Inc.

BENNER, P. (1984). From novice to expert. Menlo Park CA, Addison-Wesley. Berwick, D. M. (1989). Continuous improvement as an ideal in health care: Mass Medical Soc.

BOLSTER, D., & Manias, E. (2010). Person-centred interactions between nurses and patients during medication activities in an acute hospital setting: Qualitative observation and interview study. International Journal of Nursing Studies, 47(2), 154-165.

BRAITHWAITE, J., Churruca, K., Ellis, L. A., Long, J., Clay-Williams, R., Damen, N., . . . Ludlow, K. (2017). Complexity science in healthcare. Aspirations, approaches, applications and accomplishments. A white paper. Sydney, Aust: Australian Institute of Health Innovation, Macquarie University.

BRAUN, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77-101.

BRAYBROOKE, J., Ahn, H., Gallant, A., Ford, M., Bronstein, Y., Finkelstein, J., & Yee, A. (2007). The impact of surgical wait time on patient-based outcomes in posterior lumbar spinal surgery. European Spine Journal, 16(11), 1832-1839.

BRITTEN, N., Ekman, I., Naldemirci, Ö., Javinger, M., Hedman, H., & Wolf, A. (2020). Learning from Gothenburg model of person centred healthcare. BMJ, 370. https://doi.org/10.1136/bmj.m2738Britten, N., Moore, L., Lydahl, D., Naldemirci, O., Elam, M., & Wolf, A. (2017). Elaboration of the Gothenburg model of person-centred care. Health Expectations, 20(3), 407-418.

BROSTRÖM, B., & Siverbo, S. (2004). Deeply rooted traditions and the will to change—problematic conflicts in three Swedish health care organizations. Journal of Economic Issues, 38(4), 939-952. Buerhaus, P. I., Donelan, K., Ulrich, B. T., Norman, L., DesRoches, C., & Dittus, R. (2007). Impact of the nurse shortage on hospital patient care: Comparative perspectives. Health Affairs, 26(3), 853-862.

BYRNES, A., Young, A., Mudge, A., Banks, M., Clark, D., & Bauer, J. (2018). Prospective application of an implementation framework to improve postoperative nutrition care processes: evaluation of a mixed methods implementation study. Nutrition & Dietetics, 75(4), 353-362.

CAMERON, K. S., & Quinn, R. (2011). Diagnosing and changing organizational culture: Based on the competing values framework (3rd ed). San Francisco, CA, Jossey Bass.

CARLSTRÖM, E., & Ekman, I. (2012). Organisational culture and change: implementing person-centred care. Journal of Health Organization and Management, 26(2), 175-191. doi:10.1108/14777261211230763

CARLSTRÖM, E., & Olsson, L.-E. (2014). The association between subcultures and resistance to change–in a Swedish hospital clinic. Journal of Health Organization and Management, 28(4), 458-76

CHARON, R. (2001). The patient-physician relationship. Narrative medicine: a model for empathy, reflection, profession, and trust. JAMA, 286(15), 1897-1902.

CHATTERJEE, A., Pereira, A., & Bates, R. (2018). Impact of individual perception of organizational culture on the learning transfer environment. International Journal of Training and Development, 22(1), 15-33. Coch, L., & French Jr, J. R. (1948). Overcoming resistance to change. Human Relations, 1(4), 512-532.

CULLEN, K. A., Hall, M. J., & Golosinskiy, A. (2009). Ambulatory surgery in the United States, 2006.

DAMSCHRODER, L. J., Aron, D. C., Keith, R. E., Kirsh, S. R., Alexander, J. A., & Lowery, J. C. (2009). Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. Implementation Science, 4(1), 1-15.

DAVIES, H. T., Nutley, S. M., & Mannion, R. (2000). Organisational culture and quality of health care. BMJ Quality & Safety, 9(2), 111-119.

DE Bono, S., Heling, G., & Borg, M. A. (2014). Organizational culture and its implications for infection prevention and control in healthcare institutions. Journal of Hospital Infection, 86(1), 1-6. doi:10.1016/j.jhin.2013.10.007

DEFRANCES, C. J., Golosinskiy, A., Hall, M. J., Schwartzman, A., & Williams, S. N. (2010). National hospital discharge survey; 2007 summary.

DEYO, R. A., Mirza, S. K., Martin, B. I., Kreuter, W., Goodman, D. C., & Jarvik, J. G. (2010). Trends, major medical complications, and charges associated with surgery for lumbar spinal stenosis in older adults. JAMA, 303(13), 1259-1265. Ekman, I., Swedberg, K., Taft, K., Lindseth, A., Norberg, A., Brink, E., . . . Stibrant Sunnerhagen, K. (2011). Person-centered care: ready for prime time. European Journal of Cardiovascular Nursing, 10. doi:10.1016/j.ejcnurse.2011.06.008

DOYLE, C., Lennox, L., & Bell, D. (2013). A systematic review of evidence on the links between patient experience and clinical safety and effectiveness. BMJ Open, 3(1), e001570.

DOYLE, D. J., & Garmon, E. H. (2019). American Society of Anesthesiologists classification (ASA class) StatPearls [Internet]: StatPearls Publishing.

ECCLES, M. P., & Mittman, B. S. (2006). Welcome to implementation science: Springer.

EKMAN, I., Swedberg, K., Taft, K., Lindseth, A., Norberg, A., Brink, E., . . . Stibrant Sunnerhagen, K. (2011). Person-centered care: ready for prime time. European Journal of Cardiovascular Nursing, 10(4), 248-251. doi:10.1016/j.ejcnurse.2011.06.008

EKMAN, I., Wolf, A., Olsson, L.-E., Taft, C., Dudas, K., Schaufelberger, M., & Swedberg, K. (2012). Effects of person-centred care in patients with chronic heart failure: the PCC-HF study. European Heart Journal, 33(9), 1112-1119. doi:10.1093/eurheartj/ehr306

ELDH, A. C., Ekman, I., & Ehnfors, M. (2006). Conditions for patient participation and non-participation in health care. Nursing Ethics, 13(5), 503-514. doi:10.1191/0969733006nej898oa

ELO, S., & Kyngäs, H. (2008). The qualitative content analysis process. Journal of Advanced Nursing, 62(1), 107-115.

ERIKSSON, N., Müllern, T., Andersson, T., Gadolin, C., Tengblad, S., & Ujvari, S. (2016). Involvement drivers: a study of nurses and physicians in improvement work. Quality Management in Health Care, 25(2), 85-91. Erwin, D. G., & Garman, A. N. (2010). Resistance to organizational change: linking research and practice. Leadership & Organization Development Journal.

ETHGEN, O., Bruyere, O., Richy, F., Dardennes, C., & Reginster, J.-Y. (2004). Health-related quality of life in total hip and total knee arthroplasty: a qualitative and systematic review of the literature. Journal of Bone and Joint Surgery, 86(5), 963-974.

ETYMONLINE. (2020). Retrieved from https://www.etymonline.com/word/implement

GITTELL, J. H., Fairfield, K. M., Bierbaum, B., Head, W., Jackson, R., Kelly, M., . . . Thornhill, T. (2000). Impact of relational coordination on quality of care, postoperative pain and functioning, and length of stay: a nine-hospital study of surgical patients. Medical Care, 38(8), 807-819. Gordon, D. B., & Dahl, J. L. (2004). Quality improvement challenges in pain management: LWW.

GRANEHEIM, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. Nurse Education Today, 24(2), 105-112. doi:http://dx.doi.org/10.1016/j.nedt.2003.10.001

GREENHALGH, T., Robert, G., Macfarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: systematic review and recommendations. Millbank Quarterly, 82(4), 581-629.

GRONDAHL, V. A., Wilde-Larsson, B., Karlsson, I., & Hall-Lord, M. L. (2013). Patients' experiences of care quality and satisfaction during hospital stay: a qualitative study. European Journal for Person Centered Healthcare, 1(1), 185-192.

GRUSKAY, J. A., Fu, M., Bohl, D. D., Webb, M. L., & Grauer, J. N. (2015). Factors affecting length of stay after elective posterior lumbar spine surgery: a multivariate analysis. The Spine Journal, 15(6), 1188-1195.

HALL, P. (2005). Interprofessional teamwork: Professional cultures as barriers. Journal of Interprofessional Care, 19(sup1), 188-196.

HANNA, M. N., Gonzalez-Fernandez, M., Barrett, A. D., Williams, K. A., & Pronovost, P. (2012). Does patient perception of pain control affect patient satisfaction across surgical units in a tertiary teaching hospital? American Journal of Medical Quality, 27(5), 411-416. doi:10.1177/1062860611427769Hargreaves, D. H. (1998). Creative professionalism: the role of teachers in the knowledge society (Vol. 22): Demos.

HARVEY, G., & Kitson, A. (2015). PARIHS revisited: from heuristic to integrated framework for the successful implementation of knowledge into practice. Implementation Science, 11(1), 33.

HARVEY, G., Loftus-Hills, A., Rycroft-Malone, J., Titchen, A., Kitson, A., McCormack, B., & Seers, K. (2002). Getting evidence into practice: the role and function of facilitation. Journal of Advanced Nursing, 37(6), 577-588.

HEALTH Foundation. (2011). Evidence scan: improvement science. Retrieved from https://www.yumpu.com/en/document/view/51353883/evidence-scan-improvement-science-health-foundation

HERITAGE, B., Pollock, C., & Roberts, L. (2014). Validation of the Organizational Culture Assessment Instrument. PloS One, 9(3), e92879. doi:10.1371/journal.pone.0092879

HOUGHTON, C., Casey, D., Shaw, D., & Murphy, K. (2013). Rigour in qualitative case-study research. Nurse Researcher, 20(4).

JANSSON, I., Pilhamar, E., & Forsberg, A. (2011). Factors and conditions that have an impact in relation to the successful implementation and maintenance of individual care plans. Worldviews on Evidence-Based Nursing, 8(2), 66-75.

JANSSON, K.-Å., Nemeth, G., Granath, F., Jönsson, B., & Blomqvist, P. (2009). Health-related quality of life (EQ-5D) before and one year after surgery for lumbar spinal stenosis. Journal of Bone and Joint Surgery. British volume, 91(2), 210-216.

KALKMAN, C. J., Visser, K., Moen, J., Bonsel, G. J., Grobbee, D. E., & Moons, K. G. M. (2003). Preoperative prediction of severe postoperative pain. Pain, 105(3), 415-423. doi:http://dx.doi.org/10.1016/S0304-3959(03)00252-5

KAPTAIN, K., Bregnballe, V., & Dreyer, P. (2016). Patient participation in postoperative pain assessment after spine surgery in a recovery unit. J Clin Nurs. doi:10.1111/jocn.13640

KEHLET, H., & Dahl, J. B. (1993). The value of "multimodal" or "balanced analgesia" in postoperative pain treatment. Anesthesia & Analgesia, 77(5), 1048-1056. Kitson, A., Harvey, G., & McCormack, B. (1998). Enabling the implementation of evidence based practice: a conceptual framework. BMJ Quality & Safety, 7(3), 149-158.

KITZINGER, J. (1995). Qualitative research. Introducing focus groups. BMJ, 311(7000), 299.

KRISTENSSON Uggla, B. (2020). Personfilosofi-filosofiska utgångspunkter för personcentrering inom hälso-och sjukvård. In E. I (Ed.), Personcentrering inom hälso-och sjukvård. Från filosofi till praktik.[Person-centeredness in health care. From philosophy to practice.] (Andra upplagan ed., pp. 58-105): Stockholm: Liber.

KRONEMAN, M., & Siegers, J. J. (2004). The effect of hospital bed reduction on the use of beds: a comparative study of 10 European countries. Social Science & Medicine, 59(8), 1731-1740.

KRUEGER, R. A. (2014). Focus groups: A practical guide for applied research: Sage publications.

LATTIG, F., Fekete, T. F., O'Riordan, D., Kleinstuck, F. S., Jeszenszky, D., Porchet, F., . . . Mannion, A. F. (2013). A comparison of patient and surgeon preoperative expectations of spinal surgery. Spine, 38(12), 1040-1048. doi:10.1097/BRS.0b013e318269c100Leplege, A., Gzil, F., Cammelli, M., Lefeve, C., Pachoud, B., & Ville, I. (2007). Person-centredness: conceptual and historical perspectives. Disability and Rehabilitation, 29(20-21), 1555-1565.

LEWIN, K. (1947). Group decision and social change. Readings in Social Psychology, 3(1), 197-211.

MALTERUD, K., Siersma, V. D., & Guassora, A. D. (2016). Sample size in qualitative interview studies: guided by information power. Qualitative Health Research, 26(13), 1753-1760.

MANNION, A. F., Junge, A., Elfering, A., Dvorak, J., Porchet, F., & Grob, D. (2009). Great expectations: really the novel predictor of outcome after spinal surgery? Spine, 34(15), 1590-1599.

MCGREGOR, A. H., Doré, C. J., & Morris, T. P. (2013). An exploration of patients' expectation of and satisfaction with surgical outcome. European Spine Journal, 22(12), 2836-2844.

MICHIE, S., & Williams, S. (2003). Reducing work related psychological ill health and sickness absence: a systematic literature review. Occupational and Environmental Medicine, 60(1), 3-9.

MOKKINK, L. B., Terwee, C. B., Patrick, D. L., Alonso, J., Stratford, P. W., Knol, D. L., . . . de Vet, H. C. (2012). COSMIN checklist manual. Amsterdam: University Medical Center.

MOORE, L., Britten, N., Lydahl, D., Naldemirci, Ö., Elam, M., & Wolf, A. (2017). Barriers and facilitators to the implementation of person-centred care in different healthcare contexts. Scandinavian Journal of Caring Sciences, 31(4), 662-673.

MORSE, J. M. (2000). Determining sample size: Sage Publications Sage CA: Thousand Oaks, CA.

NILSEN, P. (2015). Making sense of implementation theories, models and frameworks. Implementation Science, 10(1), 53. doi:10.1186/s13012-015-0242-0

NILSEN, P., & Bernhardsson, S. (2019). Context matters in implementation science: a scoping review of determinant frameworks that describe contextual determinants for implementation outcomes. BMC Health Services Research, 19(1), 189.

OKORO, T., & Sell, P. (2009). The prediction of outcome in somatised patients undergoing elective lumbar surgery. Bone & Joint Journal, 91(4), 517-521.

OLSSON, L.-E., Karlsson, J., Berg, U., Kärrholm, J., & Hansson, E. (2014). Person-centred care compared with standardized care for patients undergoing total hip arthroplasty—a quasi-experimental study. Journal of Orthopaedic Surgery and Research, 9(1), 95.

OLSSON, L. E., Karlsson, J., & Ekman, I. (2006). The integrated care pathway reduced the number of hospital days by half: a prospective comparative study of patients with acute hip fracture. Journal of Orthopaedic Surgery and Research, 1, 3. doi:10.1186/1749-799x-1-3

OREG, S. (2003). Resistance to change: developing an individual differences measure. Journal of Applied Psychology, 88(4), 680-693.

OXMAN, A. D., Fretheim, A., & Flottorp, S. (2005). The OFF theory of research utilization. Journal of Clinical Epidemiology, 58(2), 113.

PARMELLI, E., Flodgren, G., Schaafsma, M. E., Baillie, N., Beyer, F. R., & Eccles, M. P. (2011). The effectiveness of strategies to change organisational culture to improve healthcare performance. Cochrane Database of Systematic Reviews, (1), Cd008315. doi:10.1002/14651858.CD008315.pub2

PEIPERL, M. (2005). Resistance to change. In N. Nicholson, P. G. Audia, & M. M. Pillutula (Eds.), The Blackwell encyclopedia of management (2nd ed., pp. 348–349) – Organizational behavior. Oxford: Blackwell.

PEREIRA, L., Figueiredo-Braga, M., & Carvalho, I. P. (2016). Preoperative anxiety in ambulatory surgery: The impact of an empathic patient-centered approach on psychological and clinical outcomes. Patient Education and Counseling, 99(5), 733-738.

PLSEK, P. E., & Greenhalgh, T. (2001). The challenge of complexity in health care. BMJ, 323(7313), 625-628.

POLIT, D. F. (2021). Nursing Research : generating and assessing evidence for nursing practice (Eleventh edition. International edition ed.): Philadelphia : Wolters Kluwer.

PROCTOR, E., Silmere, H., Raghavan, R., Hovmand, P., Aarons, G., Bunger, A., . . . Hensley, M. (2011). Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda. Administration and Policy in Mental Health and Mental Health Services Research, 38(2), 65-76.

PROCTOR, E. K., Landsverk, J., Aarons, G., Chambers, D., Glisson, C., & Mittman, B. (2009). Implementation research in mental health services: an emerging science with conceptual, methodological, and training challenges. Administration and Policy in Mental Health and Mental Health Services Research, 36(1), 24-34.

RAJA, S. N., Carr, D. B., Cohen, M., Finnerup, N. B., Flor, H., Gibson, S., . . . Sluka, K. A. (2020). The revised International Association for the Study of Pain definition of pain: concepts, challenges, and compromises. Pain, 161(9), 1976-1982.Rothaug, J., Zaslansky, R., Schwenkglenks, M., Komann, M., Allvin, R., Backström, R., . . . Fletcher, D. (2013). Patients' perception of postoperative pain management: validation of the International Pain Outcomes (IPO) questionnaire. Journal of Pain, 14(11), 1361-1370.

QUINN, R. E., & Rohrbaugh, J. (1983). A spatial model of effectiveness criteria: Towards a competing values approach to organizational analysis. Management Science, 29(3), 363-377.

QUON, J. A., Sobolev, B. G., Levy, A. R., Fisher, C. G., Bishop, P. B., Kopec, J. A., . . . Schechter, M. T. (2013). The effect of waiting time on pain intensity after elective surgical lumbar discectomy. Spine Journal, 13(12), 1736-1748. doi:10.1016/j.spinee.2013.05.038

RILEY, B., Willis, C., Holmes, B., Finegood, D., Best, A., & McIsaac, J. (2017). Systems thinking and dissemination and implementation research. Dissemination and implementation research in health: Translating science to practice, 143.

RILEY, W. J., Parsons, H. M., Duffy, G. L., Moran, J. W., & Henry, B. (2010). Realizing transformational change through quality improvement in public health. Journal of Public Health Management and Practice, 16(1), 72-78.

ROGERS, E. M. (2010). Diffusion of innovations: Simon and Schuster.

ROSEN, M. A., DiazGranados, D., Dietz, A. S., Benishek, L. E., Thompson, D., Pronovost, P. J., & Weaver, S. J. (2018). Teamwork in healthcare: Key discoveries enabling safer, high-quality care. American Psychologist, 73(4), 433.

ROTHAUG, J., Zaslansky, R., Schwenkglenks, M., Komann, M., Allvin, R., Backström, R., . . . Fletcher, D. (2013). Patients' perception of postoperative pain management: validation of the International Pain Outcomes (IPO) questionnaire. Journal of Pain, 14(11), 1361-1370.

SAAME, I., Reino, A., & Vadi, M. (2011). Organizational culture based on the example of an Estonian hospital. Journal of Health Organization and Management,25(5):526-48.

SALMOND, S. W., & Echevarria, M. (2017). Healthcare Transformation and Changing Roles for Nursing. Orthopedic Nursing, 36(1), 12-25. doi:10.1097/NOR.0000000000000308

SCHEIN, E. H. (2010). Organizational culture and leadership (Vol. 2): John Wiley & Sons.

SCHUSTER, M. (2006). Profession och existens: en hermeneutisk studie av asymmetri och ömsesidighet i sjuksköterskors möten med svårt sjuka patienter. Institutionen för samhälle, kultur och lärande (LHS).

SCHWENKGLENKS, M., Gerbershagen, H. J., Taylor, R. S., Pogatzki-Zahn, E., Komann, M., Rothaug, J., . . . Brill, S. (2014). Correlates of satisfaction with pain treatment in the acute postoperative period: Results from the international PAIN OUT registry. Pain, 155(7), 1401-1411. Sharma, S., Balireddy, R. K., Vorenkamp, K. E., & Durieux, M. E. (2012). Beyond opioid patient-controlled analgesia: a systematic review of analgesia after major spine surgery. Regional Anesthesia and Pain Medicine, 37(1), 79-98.

SHOJANIA, K. G., & Grimshaw, J. M. (2005). Evidence-based quality improvement: the state of the science. Health Affairs, 24(1), 138-150.

SVERIGES riksdag. (2008). SFS 2008:962 Lag om valfrihetssystem. Retrieved from https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-2008962-om-valfrihetssystem_sfs-2008-962

SVERIGES riksdag. (2010). SFS 2010:659 Patientsäkerhetslag. Retrieved from https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/patientsakerhetslag-2010659_sfs-2010-659

SVERIGES riksdag. (2014). 2014:821 Patientlag. Retrieved from https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/patientlag-2014821_sfs-2014-821

SVERIGES riksdag. (2017). SFS 2017:30 Hälso- och sjukvårdslag Retrieved from https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/halso--och-sjukvardslag-201730_sfs-2017-30

SWESPINE. (2020). Annual Report Follow up of Spine Surgery Performed in Sweden In 2019. Retrieved from http://www.4s.nu/4s-förening/årsrapporter-swespine-42017503

TATTERSALL, R. (2002). The expert patient: a new approach to chronic disease management for the twenty-first century. Clinical Medicine, 2(3), 227.

TAYLOR, A., & Stanbury, L. (2009). A review of postoperative pain management and the challenges. Current Anaesthesia & Critical Care, 20(4), 188-194.

TAYLOR, S., Voytovich, A. E., & Kozol, R. A. (2003). Has the pendulum swung too far in postoperative pain control? American Journal of Surgery, 186(5), 472-475.

THOMAS, T., Robinson, C., Champion, D., McKell, M., & Pell, M. (1998). Prediction and assessment of the severity of post-operative pain and of satisfaction with management. Pain, 75(2–3), 177-185. doi:http://dx.doi.org/10.1016/S0304-3959(97)00218-2

THÖRNE, K., Andersson-Gäre, B., Hult, H., & Abrandt-Dahlgren, M. (2017). Co-producing interprofessional round work: Designing spaces for patient partnership. Quality Management in Health Care, 26(2), 70.

WHITE, P. F., & Kehlet, H. (2010). Improving Postoperative Pain ManagementWhat Are the Unresolved Issues? Journal of the American Society of Anesthesiologists, 112(1), 220-225. Wolf, A., Ulin, K., & Carlström, E. (2017). Changing the ward culture in a clinic during the implementation of person-centred care. Journal of Hospital Administration, 6(5), 31. Zaslansky, R., Rothaug, J., Chapman, C., Bäckström, R., Brill, S., Fletcher, D., . . . Konrad, C. (2015). PAIN OUT: the making of an international acute pain registry. European Journal of Pain, 19(4), 490-502.

WOLF, A., Ulin, K., & Carlström, E. (2017). Changing the ward culture in a clinic during the implementation of person-centred care. Journal of Hospital Administration, 6(5), 31.

ZASLANSKY, R., Rothaug, J., Chapman, C., Bäckström, R., Brill, S., Fletcher, D., . . . Konrad, C. (2015). PAIN OUT: the making of an international acute pain registry. European Journal of Pain, 19(4), 490-502.