
# WHAT ARE STAKEHOLDERS' PERSPECTIVES ON THE ROLE OF BARRIERS AND ENABLERS TO IMPLEMENTING ERAS PROTOCOLS IN COLORECTAL SURGERY?

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# ABSTRACT

Enhanced Recovery After Surgery (ERAS) has emerged as a multidisciplinary approach to optimise patient outcomes and reduce healthcare costs in colorectal surgery. This study explores the diverse perspectives of stakeholders involved in colorectal surgery to uncover the barriers and enablers affecting the successful implementation of ERAS protocols. Using a qualitative research design, data were collected through interviews involving key stakeholders, including healthcare providers, nurses, and anaesthetists. Thematic analysis revealed a complex interplay of factors influencing ERAS adoption. Barriers identified include resistance to change, scepticism regarding the evidence base, safety concerns, and the need for additional training and resources. Conversely, enablers encompassed the recognition of ERAS benefits, including faster recovery, reduced pain, shorter hospital stays, and improved long-term outcomes. This study illuminates' stakeholders' complex range of viewpoints about ERAS in colorectal surgery. It emphasises the significance of overcoming obstacles and utilising facilitators to improve the acceptance and effective execution of ERAS protocols in clinical settings.

# CERTIFICATION OF THESIS

I, Julliana T Warure, declare that the thesis entitled, *What are stakeholders' perspectives on the role of barriers and enablers to implementing ERAS protocols in colorectal surgery?* is not more than 40,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references, and footnotes. The thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

Date: 17/07/2024

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Student and supervisors' signatures of endorsement are held at the University.

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# ABBREVIATIONS

| | |
|---|---|
| ERAS | Enhanced recovery after surgery programme |
| TDF | Theoretical domain framework |
| PACU | Post anaesthesia care unit |
| NPO | Nil per oral |
| PONV | Patient operative nausea and vomiting |
| ER | Emergency room |

# DEFINITIONS

**Colorectal Cancer**

Colorectal cancer is a type of cancer that affects the colon or rectum.

**Colorectal Surgery**

Colorectal surgery is surgery of the colon that is performed to rectify conditions in the rectum, anus, and colon.

**Stoma Bag**

A stoma bag is a bag affixed to a surgically produced aperture (stoma) created after procedures such as colostomy or ileostomy. The stoma bag is placed on the abdomen to expel biological waste from the body.

**Barriers**

A barrier refers to an obstacle or structure that prevents access or progress.

**Enablers**

An enabler is something that makes things easier. In this case, anything that facilitates implementing ERAS.

**ERAS Stakeholders**

Stakeholders are clinicians who participate in or implement ERAS protocols.

**ERAS champion**

An ERAS champion is crucial in implementing and succeeding Enhanced Recovery After Surgery (ERAS) programs. This person is typically a healthcare professional who leads, motivates, and ensures adherence to ERAS protocols within a surgical team or healthcare institution. They are responsible for promoting the principles of ERAS, educating staff, monitoring outcomes, and driving continuous improvement in postoperative care practices.

# CHAPTER 1: INTRODUCTION

## 1.1 Introduction

Colorectal cancer poses a significant challenge to healthcare systems worldwide, given its widespread occurrence and profound impact. Australia experiences a particularly noticeable burden in this regard, which has substantial consequences for public health and the economy. Colorectal cancer is a significant cause of cancer-related deaths in the country. It requires attention not just for its clinical treatment but also for its socioeconomic consequences. The following background provides a foundation for a thorough examination of the various aspects related to colorectal cancer, including its epidemiological impact and the possible benefits of ERAS protocols. Using a critical perspective, the background examines the barriers and enablers that influence the effective implementation of ERAS protocols. However, it is important to firstly describe the ERAS protocols. Describing the protocols will lay a foundation for a more comprehensive explanation of their application and benefits in the surgical procedures.

## 1.2 Enhanced Recovery After Surgery Protocols

The ERAS protocols encompass the preadmission stage, preoperative stage, intraoperative stage, and post-operative stage (Toh et al., 2022). ERAS Protocols are specific, step-by-step procedures that are recommended to be followed to achieve the best surgical outcomes in a patient (Gustafsson et al., 2019). Although ERAS protocols have been shown to significantly reduce postoperative complications and hospital stays, their implementation in real-world practice is inconsistent (Clet et al., 2024). The following sections will describe the four stages of ERAS protocols.

### *1.2.1 Preadmission stage*

The preadmission stage is the initial stage in ERAS protocols. As demonstrated in Figure 1 (Page 4) the preadmission stage involves nutritional support, smoking cessation and controlled alcohol intake (Ljungqvist, Scott, & Fearon, 2017). Interventions for reducing or ceasing smoking, alcohol and drug use are implemented in the preadmission stage. Nutritional strategies involve tailored diet plans to address specific needs, such as weight management or improving malnutrition, supplemented by essential nutrients to enhance immune function

(Ljungqvist et al., 2017). During the preadmission stage patients are given preoperative information by nursing staff (Ljungqvist et al., 2017). Doctors and pharmacist are involved in medical optimisation in this stage as they cease certain medications such as anticoagulants as well as advising patients on the basic principles on how to optimise on their health. Educational aspects in the preadmission stage focus on providing patients with comprehensive guidance on post operative care and recovery expectations (Ljungqvist et al., 2017).

### *1.2.2 Preoperative stage*

Preoperative stage involves preoperative counselling, preoperative education, prehabilitation exercise, carbohydrate loading, addressing anaemia, nutritional and psychological support, and avoiding bowel preparation (Ljungqvist, Scott, & Fearon, 2017). Counselling patients prepares them for surgical outcomes such as stoma bags and other complications that may occur post-surgery (Toh et al., 2022). Counselling reduces stress in preparation for surgery and its outcomes (Toh et al., 2022). Prehabilitation physical activity recommendations include targeted exercises to strengthen the body particularly areas that are affected by surgery (Ljungqvist et al., 2017). These are measure put into place for patients to be in their best possible physical and mental health prior to surgery.

### *1.2.3 Intraoperative stage*

ERAS in the intraoperative phase revolves around attenuating surgical stress and facilitating a seamless transition to the postoperative period, aiming to enhance patient recovery in general surgery. ERAS replaces overnight fasting with the consumption of carbohydrate drinks two-hours before surgery (Ljungqvist et al., 2017). Mithany et al. (2023) confirms that ERAS avoids overnight fasting and encourages early reintroduction of a regular diet to reduces the stress response to surgery and facilitates recovery. Strategies for enhancing patient recovery in ERAS include nausea and vomiting prophylaxis, maintaining normothermia, judicious fluid management, and optimised pain management (Mithany et al., 2023). Ljungqvist et al. (2017) further states that managing fluids aims to achieve balance rather than administering large volumes of intravenous fluids which in turn delays removing drains and tubes early. ERAS aims to maintain net-zero fluid balance and avoid excessive intravenous fluids contributing to superior postoperative outcomes (Mithany et al., 2023). Mithany et al. (2023) highlights that in ERAS techniques such

as epidural anaesthesia, regional nerve blocks, or intravenous lidocaine infusions are employed to reduce the reliance on opioids and facilitate a faster recovery process. Veličković, Veličković, and Budic (2019) states that sedation and analgesia are an integral part of surgery however benzodiazepines in sedation of patients should be avoided and non-sedative drugs such as dexmedetomidine should be encourage because sedatives increase chances of delirium, persistent cognitive decline, and reintubation post-surgery. Therefore, ERAS protocols are adopted to reduce the negative outcomes that are associated with traditional methods.

### *1.2.4 Post operative stage*

In the postoperative care pathways in ERAS focus on elements such as early mobilisation, vigilant pain management using non-opioid analgesics, and the prompt resumption of oral nutrition (Mithany et al., 2023). ERAS protocols aid in the recovery process after surgery by promoting the restoration of gut function and preventing abdominal distention and postoperative nausea and vomiting (Ljungqvist & de Boer, 2023). Nausea and vomiting highly undesirable symptoms and often prolong the hospital stay of patients (Ljungqvist & de Boer, 2023). To reduce the occurrence of postoperative nausea and vomiting ERAS has strategies such as narcotic avoidance, hydration management, administration of gut-stimulating drugs, and early initiation of feeding further states (Ljungqvist & de Boer, 2023).

ERAS has led to decreased complications such as infections and wound-related issues, significantly reducing healthcare expenditures and allowing for shorter hospital stays (Ljungqvist et al., 2017). Optimised recuperation implementation of postoperative protocols has led to a significant decrease in the duration of hospitalisation by 30% to 50%, as well as a corresponding decrease in problems (Ljungqvist et al., 2017). The outcomes and benefits of ERAS include a reduction in postoperative complications, shorter hospital stays, expedited recovery, reduced healthcare expenditures, enhanced patient satisfaction, and improved quality of life.

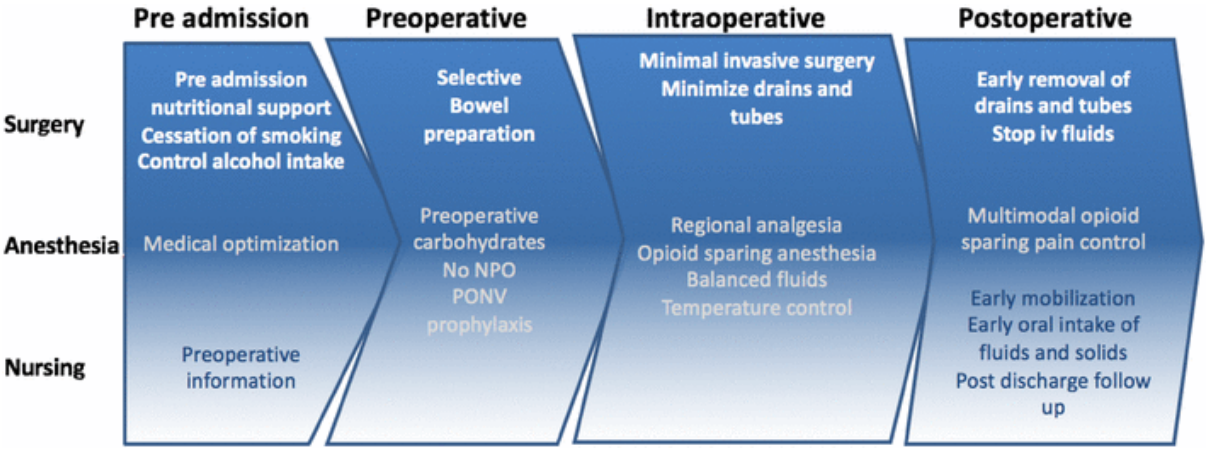


***Figure 1*: ERAS flow chart**

*Source:* (Ljungqvist et al., 2017). No NPO indicates nil per oral which is fasting guidelines of clear fluid intake until hours before surgery, and PONV indicates post operative nausea and vomiting.

### 1.3 Background of study

Colorectal cancer poses a significant health burden on a global scale (Nors, Iversen, Erichsen, Gotschalck, & Andersen, 2024)**.** There are approximately 32 million colorectal cancer survivors globally (Ó Céilleachair et al., 2017; Rawla, Sunkara, & Barsouk, 2019). Australia recorded 16,240 new instances of colon cancer in 2020, according to GLOBACON (2021). Australia ranks fifth globally in terms of the prevalence of colorectal cancer, according to GLOBACON (2021). The year 2020 witnessed 8,690 newly diagnosed cases of colorectal cancer in males and 7,550 cases in women (GLOBACON, 2021). Further, colorectal cancer ranks as the second most common cause of cancer-related mortality in Australia, even though early-stage diagnosis often allows for efficient treatment (Tham, Skandarajah, & Hayes, 2022).

Colorectal cancer significantly impacts Australia's economy by imposing a considerable financial burden on the healthcare system. According to Jideh and Bourke (2018), the expense of treating one case of advanced colorectal cancer in Australia was projected to exceed $100,000. The allocated budget for the national bowel screening programme in the fiscal year 2021-2022 amounted to $18.7 million, as stated by Federal Financial Relations (2021). This is evidence that colorectal cancer poses a huge financial burden on the Australian economy. The personal expenses associated with therapy are substantial. Colon cancer survivors have

indicated that the costs of treatment impose a severe financial strain (Ambroggi, Biasini, Del Giovane, Fornari, and Cavanna, 2015).

Flynn et al. (2020) asserts that surgical removal of colorectal cancer is the fundamental aspect of treatment, yet the process of colorectal surgery is intricate. Colorectal surgery is frequently linked to extended hospital stays from eight days for open surgery and five days for laparoscopic surgery, significant expenses, and surgical site infection rates nearing 20% (Carmichael et al., 2017). Post colorectal surgery, the rates of readmission have been shown to reach as high as 35.4% (Carmichael et al., 2017). According to Ramírez et al. (2011), colorectal surgery typically necessitates a hospitalisation period exceeding twelve days. Readmission into the hospital causes a significant financial burden to the healthcare system.

ERAS protocols represent a significant evolution in the field of surgery, particularly impacting the approach to colorectal procedures. ERAS protocols have gained significant attention in the field of colorectal surgery as they aim to improve patient outcomes, reduce complications, and expedite recovery. Duff(2020) conducted a study which conclusively showed that the use of ERAS protocols leads to a reduction in hospital stays by two to three days, as well as a decrease in colorectal cancer case expenses by $639 per patient. Gustafsson et al. (2019) emphasise that the goal of ERAS is to reduce the need for invasive surgery in colonic and rectal resection procedures and that leads to faster recovery for patients, as they are not needed to remain in the hospital with a larger surgical wound that is typically associated with open surgery. The average duration of hospital stay post open surgery is five days (Sauro et al., 2024). ERAS protocols include suggestions for perioperative care, intraoperative care post operative care (Sauro et al., 2024). Under intraoperative care, ERAS guideline states that surgical access should be open and minimally invasive surgery including laparoscopic, robotic and trans anal approaches (U. O. Gustafsson et al., 2019). Therefore when patients have less invasive surgical sites their wound sites have lower risks of complications and they are discharged (Sauro et al., 2024).

ERAS protocols are evidence-based perioperative care pathways designed to optimise patient outcomes and accelerate postoperative recovery (Nelson et al., 2021). The desired outcomes for patients and clinicians encompass the absence of nausea, absence of discomfort while at rest, prompt restoration of bowel function,

enhanced wound healing, and early release from the hospital (Carmichael et al., 2017). Mounting data has shown that implementing ERAS are successful in improving patient outcomes and producing cost savings in colorectal surgery (Nelson et al., 2021). ERAS has become the standard in elective colorectal surgery, and it represents a considerable change in practice for many surgical care providers (Gotlib Conn et al., 2015).

The ERAS protocols emerged in the late 1990s, fundamentally transforming perioperative care. Initially pioneered by Henrik Kehlet, a Danish surgeon, these protocols aimed to reduce surgical stress and enhance recovery, particularly in colorectal surgery (Ljungqvist, Hubner, & Demartines, 2020). ERAS was initially developed for colorectal surgery and has subsequently been implemented in various other subspecialties (Arrick et al., 2019). There is increasing evidence within the global surgical community supports the use of ERAS in reducing post-operative complications and improving recovery outcomes (Arrick et al., 2019).

The traditional approach to colorectal surgery often involved lengthy preoperative fasting, extensive bowel preparation, and prolonged postoperative bed rest, contributing to higher morbidity and extended hospital stays (Charleux-Muller et al., 2023). ERAS protocols introduced a multimodal, evidence-based approach, focusing on optimizing patient outcomes through various components like minimising fasting, promoting early mobilisation, and employing modern pain management strategies (Gustafsson et al., 2019). The evolution of these protocols in colorectal surgery has been marked by a continuous refinement based on emerging research. ERAS protocols have been periodically updated to incorporate new evidence, reflecting a commitment to improving patient care through an evidence-based approach (Gustafsson et al., 2019). Ljungqvist and Hubner (2018) stated that a conventional approach to managing hypotension during anaesthesia involves administering fluids, however this could result in significant fluid overload of water and salt, this issue manifest itself several hours after administration of the medicine. ERAS is a solution to avoid such problems because there is a multidisciplinary team that is constantly meeting to discuss a patients care from preadmission to post surgery applying protocols to each stage, there is constant observation and feedback about the patient (Ljungqvist & Hubner, 2018)

The successful implementation of ERAS protocols in colorectal surgery hinges on the engagement and collaboration of multiple stakeholders, each playing a vital role in the process. Implementing ERAS protocols in colorectal surgery can be influenced by various barriers and enablers, which are perceived differently by different stakeholders involved in the surgical process. Their successful implementation requires the identification and understanding of the barriers and enablers from the perspectives of various stakeholders involved. The success of the ERAS protocols relies on adhering strictly to data-driven protocols, leaving no space for improvisation (Ljungqvist et al., 2021). The significance of implementing ERAS correctly should not be underestimated as it determines the success or failure of the protocol (Ljungqvist et al., 2021). Therefore, it is necessary to perform a literature review that gathers current literature which stipulates the barriers and enablers of ERAS implementation. The degree of adherence to the ERAS protocols is directly associated with outcomes (Pilkington et al., 2023).

### 1.4 Rational of Study

The ERAS protocols encompass a number of different stages, as previously outlined, within this context they are specific, step-by-step procedures that are recommended to be followed to achieve the best surgical outcomes in a patient (Gustafsson et al., 2019). In order to address the aims of the research an examination of the literature will allow the familiarisation with the existing research regarding stakeholders' perspectives on ERAS protocols. This understanding will enable the identifying of any gaps in the literature and opportunities for further investigation. A literature review will enable the identification common themes, trends, and patterns in stakeholders' perspectives on ERAS and assist in shaping the research focus. This review enhances the comprehension of stakeholders' viewpoints about ERAS protocols. Researchers can find gaps in the literature and opportunities for additional enquiry by analysing prevailing themes, trends, and patterns (Gustafsson et al., 2019; Greco et al., 2019)

The literature review seeks to identify researchers’ perspectives, conflicting perspectives, or gaps in the existing literature on stakeholders' perspectives on ERAS. This enables researchers to address these discrepancies and contribute new insights to the field. The success of these programs is intricately linked to the identification and understanding of the various factors that influence their adoption

and sustained practice. Stakeholders, including healthcare professionals, patients, and administrative staff, play crucial roles in the implementation and efficacy of ERAS protocols. Their experiences, attitudes, and perceptions can significantly influence the adoption and optimisation of ERAS practices. Understanding these perspectives is critical for identifying practical barriers and enablers that can affect the successful implementation of ERAS in colorectal surgeries. While there is substantial literature on the clinical outcomes and general benefits of ERAS protocols, there is a lack of comprehensive research focusing on the perspectives of various stakeholders involved in the ERAS implementation process, particularly in the Australian context. Different healthcare settings, cultural norms, resource availabilities, and policy frameworks can uniquely shape these perspectives, making localised research imperative.

Nelson et al. (2021)The economic assessment of ERAS has evidenced its cost effectiveness. Understanding stakeholders' perspective will enable to get an understanding of stakeholders whether they are adhering to ERAS protocols or not. It is important for ERAS protocols to be adhered to for healthcare facilities to reap the benefits of the ERAS programmes which includes hospital cost reductions.

Research on ERAS in Canada and Europe where ERAS has been implemented showed advantages that include reduced hospital length of stay and diminished complications, with no notable rise in readmission or mortality rates (Nelson et al., 2021) Undertaking this research aims to understand stakeholders perspective on the benefits of ERAS and disadvantages of ERAS in Australia. Stakeholders will give insight on the overall picture of ERAS effectiveness. This research is important as it creates groundwork for further studies in ERAS in colorectal surgery in Australia. The academic literature has paucity of insights regarding ERAS in colorectal cancer in Australia, therefore the outcome of this study will provide insight into what is transpiring with ERAS protocols and their implementation.

The Australian healthcare system, with its distinct structure, funding mechanisms, and patient demographics, provides a unique context for the study of ERAS implementation. Variations in policy, healthcare delivery, and resources across states and territories may influence the adoption and effectiveness of ERAS programs. By examining stakeholders' perspectives within this specific context, the

research aims to uncover insights that are directly applicable and beneficial to Australian healthcare settings.

### 1.5 Significance of the study

The significance of the study on stakeholders' perspectives on the barriers and enablers of ERAS protocols in colorectal surgery in Australia is multifaceted. First, it provides critical insights into the current state of ERAS implementation from various viewpoints within the healthcare system, including surgeons, nurses, anaesthetists, and other professionals directly involved in patient care. Understanding these perspectives helps in identifying specific challenges and opportunities unique to the Australian healthcare context, which may differ from those in other regions due to variations in healthcare policies, practices, and resources. Second, by exploring the barriers to ERAS implementation, the study aims to uncover systemic issues, such as lack of resources, insufficient training, or resistance to change, that prevent the successful adoption of ERAS protocols. Identifying these obstacles is the first step in developing targeted interventions to overcome them, leading to improved surgical outcomes, reduced recovery times, and lower healthcare costs.

On the other hand, identifying enablers of ERAS protocols can highlight best practices and success factors that can be replicated or adapted across different healthcare settings. This can facilitate a more widespread and effective implementation of ERAS principles, ultimately leading to enhanced patient care and recovery processes. Furthermore, the study contributes to the growing body of literature on ERAS, providing evidence-based recommendations that can inform policy changes, educational programs, and clinical practices. By addressing the specific needs and challenges identified through the study, healthcare providers and administrators can better support the implementation and sustainability of ERAS protocols.

Overall, this research has significant implications for patient care, healthcare efficiency, and policy formulation. It can help to bridge the gap between current practices and optimal ERAS implementation, contributing to the ongoing improvement of colorectal surgery outcomes for consumers in Australia.

## 1.6 Structure of thesis

This thesis contains five chapters, and each chapter makes a significant contribution to a thorough investigation of ERAS protocols. The chapters progressively and methodically build upon one another to comprehensively grasp the study's scope and results. Chapter 1 has introduced the study, explains the importance of the research, defines the research challenges, and outlines the conceptual framework related to this subject. The defined framework will guide the methodological approach and clarify the findings obtained in this thesis.

Chapter 2 is the literature review that explores stakeholders' perspectives on ERAS programs. It examines the current literature on the viewpoints of various stakeholders. This comprehensive literature analysis provides insights into the perceived benefits, challenges, and areas for improvement within ERAS protocols initiatives from diverse stakeholder perspectives. Nurses' perspectives will be different from the anaesthetist's perspectives; therefore, it is imperative to analyse the different perspectives of the different stakeholders.

Chapter 3 is the methodology chapter describing the methods carried out to acquire information that was used to answer the research question: recorded telephone interviews. It aims to justify the methods used to gain information from the stakeholders. The chosen method involved conducting qualitative interviews. The interviews were conducted via phone calls due to the need for flexible scheduling, geographic locations of participants and coronavirus considerations.

Chapter 4 presents the findings related to the research questions formulated based on the data analysis. The research revealed a nuanced understanding of barriers and enablers to implementing ERAS. Common barriers included resource limitations, financial and staffing, and inadequate institutional support. Cultural resistance within an organisation is another significant barrier. Key enablers for the successful implementation of ERAS are training programmes for all healthcare staff involved and robust institutional support that extends beyond verbal endorsement to include financial and policy backing by healthcare facilities.

Chapter 5 presents the discussion and conclusion of the findings from the research interviews carried out. The discussion interprets how organisational structures and individual behaviours influence the adoption of ERAS protocols,

underscoring the intricate interplay between systematic support and individual advocacy. Ultimately, the discussion chapter outlines recommendations to bridge the gap between current practices and optimal ERAS implementation. The recommendations aim to foster clinical environments where ERAS protocols are a norm rather than an expectation.

### *1.6.1 Aim of the study*

The aim of this study is to investigate and comprehend the viewpoints of stakeholders regarding the barriers and facilitators to the implementation of ERAS protocols in colorectal surgery in Australia.

### *1.6.2 Research objectives*

a) Identify the precise factors that either support or impede the successful implementation of ERAS protocols. These factors include institutional policies, resource availability, staff education and training, patient engagement, and multidisciplinary collaboration among healthcare professionals. This objective seeks to offer a thorough comprehension of the present status of ERAS protocol application in Australian colorectal surgery settings.

b) The study focuses on investigating the perceived efficacy of ERAS protocol in improving patient recovery, shortening hospital stays, and minimising postoperative complications.

c) Examine the extent to which different stakeholder groups are aware of, knowledgeable about, and accepting ERAS protocols. Additionally, analyse how these factors impact the process of implementing these protocols. This involves analysing stakeholders' level of involvement and perspective about ERAS protocols.

d) Evaluate the communication and collaboration among healthcare professionals in relation to ERAS protocols. This entails investigating the dissemination of knowledge regarding ERAS within the multidisciplinary team, examining the uniformity of ERAS implementation among various healthcare providers, and reviewing the incorporation of ERAS principles into regular clinical practice.

e) The study seeks to inform evidence-based recommendations for enhancing the implementation and effectiveness of ERAS protocols in colorectal surgery across Australian healthcare settings. By providing a detailed analysis of the barriers and enablers identified by various stakeholders, the research seeks to inform policymakers, healthcare administrators, and clinical teams on how to better integrate and optimise ERAS protocols for the benefit of patients and the healthcare system.

In achieving these objectives, the research will contribute significantly to the body of knowledge on ERAS protocols, particularly in the context of Australian healthcare. It will offer practical insights and strategies for overcoming challenges and leveraging facilitators to enhance the quality and efficiency of colorectal surgery care. By identifying these factors, the study seeks to contribute to developing tailored strategies and recommendations that can enhance the adoption, optimisation, and sustainability of ERAS protocols in Australian colorectal surgery practices.

This research is expected to provide valuable insights into the factors influencing ERAS implementation in the Australian context, leading to improved strategies for overcoming barriers and leveraging enablers. Ultimately, this could enhance patient outcomes, reduce healthcare costs, and promote the more widespread and effective use of ERAS protocols in colorectal surgery across Australia.

### *1.6.3 Research question*

What are stakeholders' perspectives on the role of barriers and enablers to implementing ERAS protocols in colorectal cancer surgery?

## 1.7 Conclusion

This chapter has critically assessed the impact of colorectal cancer on the Australian healthcare system and the potential of ERAS protocols to mitigate these challenges. Highlighting colorectal cancer as a major health concern, the chapter emphasises the need for advanced clinical responses and systemic strategies to reduce the associated economic burdens. ERAS protocols have significantly advanced colorectal surgery, reducing hospital stays, lowering complication rates, improving patient outcomes, enhancing clinical results and healthcare delivery efficiency. Originating in the late 1990s by Henrik Kehlet, ERAS has become

standard in elective colorectal surgeries, focusing on reducing surgical stress and speeding recovery to align with current healthcare goals of improved care and cost management. The chapter also explores barriers and enablers to ERAS implementation from the perspectives of various stakeholders, stressing the importance of multidisciplinary collaboration and uniform application across healthcare settings. These dynamics influence the ERAS protocol's adoption and effectiveness, underscoring the need for strategies that address challenges and leverage facilitators. The thesis will further explore stakeholder perspectives and the practical application of ERAS, aiming to enhance patient outcomes and healthcare efficiency across Australia. The next chapter will explore the literature on the barriers and enablers of ERAS implementation in Australia.

# CHAPTER 2: LITERATURE REVIEW

## 2.1 Introduction

The following chapter is a literature review aimed to assess the implementation and perception of ERAS phases by different stakeholders in the healthcare system. It will examine the effectiveness of these protocols based on recent academic contributions, which are literature that is available in databases. Additionally, it will identify barriers and enablers to the implementation of ERAS, evaluating the interdisciplinary approach necessary for the successful integration of ERAS in clinical practice. The purpose of this literature review is to justify the research's relevance as it creates grounds for research and direction for future inquiries. Furthermore, the literature review analyses the complete stages of ERAS protocols, specifically emphasising their implementation in colorectal surgery throughout the preoperative, intraoperative, and postoperative phases.

## 2.2 Method

The literature review aims to synthesise current knowledge and identify gaps in the literature related to barriers and enablers to implementing ERAS, particularly in colorectal surgery. The approach used to conduct the literature review on ERAS protocols focuses on recent advancements, stakeholder perspectives, and clinical outcomes. The literature search for the review was on ERAS protocols, specifically focusing on studies published in the last ten years to ensure the most up-to date knowledge and advancements in the field. The search was performed on various academic databases, namely PubMed, JAMA, CINAHL and Medline. These databases are selected for their comprehensive coverage of medical and healthcare literature.

The search terms used were "ERAS," "enhanced recovery," "surgery," and "postoperative care." The inclusion criteria were stringent, limiting the selection to articles written in English in order to ensure uniformity in data analysis and interpretation. In addition, the search was narrowed down to only include peer-reviewed journal papers, avoiding grey literature to improve the scientific validity of the review. The selection process entailed scrutinising abstracts and complete texts to ascertain their pertinence and contribution to the subject matter. Emphasis was placed on studies that presented empirical data and reviews that synthesised prior

research, thereby providing a comprehensive assessment of the implementation, effectiveness, and obstacles of ERAS.

### *2.2.1 Keywords search strategies*

The search strategy involved a combination of keywords and medical subject headings (MeSH) terms. Key terms included "Enhanced Recovery After Surgery," "ERAS," "colorectal surgery," "perioperative care," and "postoperative recovery." These terms were used in various combinations to ensure a comprehensive search. Boolean operators (AND, OR) were used to refine the search. For example, "Enhanced Recovery After Surgery" AND "colorectal surgery" was used to find literature specific to ERAS in colorectal procedures. Filters such as published in the last 10 years, "human subjects," and "English language" were applied to refine search results.

## 2.3 Inclusion and exclusion criteria

The review focused on peer-reviewed articles, including randomised controlled trials, cohort studies, case studies, systematic reviews, and meta-analyses. Opinion pieces, editorials, and conference abstracts will be excluded to maintain the scientific rigour of the review. Articles that were published between 2014 to 2024 were exclusively selected to guarantee that the literature review was up to date. The advanced search exclusively encompassed items written in English and exclusively concentrated on Enhanced recovery after surgery.

### *2.3.1 Approach to synthesising data*

Findings are summarised and reported in a structured manner. The review presents an overview of current knowledge, discuss variations and similarities in findings, and highlight significant gaps or areas for future research. Efforts will be made to minimise bias in literature selection, data extraction, and analysis. This includes using a systematic approach to literature search and review, as well as a transparent reporting of the methodology and findings. This methodology provides a comprehensive and structured approach to reviewing current literature on ERAS protocols, ensuring that the review is thorough, unbiased, and reflective of the current state of knowledge in the field.

## 2.4 Findings

A total of twenty (n=20) articles were reviewed in the following literature review. The inclusion criteria consisted of publications written in English within the past

decade, whereas papers published prior to that are excluded. The screening approach entailed examining titles and abstracts to identify publications that particularly addressed the obstacles and facilitators of ERAS adoption. Only full-text reviews were chosen to guarantee their pertinence. This methodical approach guaranteed a thorough examination of the existing literature regarding the obstacles and factors that aid in implementing ERAS protocols (Table 1).

**Table 1: Selected literature summary**

| Author/Year | Country | Methodology | Sample size & Population | Data Collection | Key Findings |
|---|---|---|---|---|---|
| (Smith, T. W., Jr., Wang, X., Singer, M. A., Godellas, C. V., & Vaince, F. T. 2020 | USA | Qualitative | Multiple surgical subspecialties, no specific sample size given | Review of existing literature and clinical data | • ERAS protocols effectively reduced recovery times and complications across various surgical subspecialties.<br>• Resistance to change among healthcare workers due to insufficient awareness and education |
| (Mithany, R. H., Daniel, N., Shahid, M. H., Aslam, S., Abdelmaseeh, M., Gerges, F., . . . Mohamed, M. S. 2023) | Not specified | Qualitative | Diverse surgical fields | | • Reduction in recovery times, Improved patient outcomes, reduced postoperative pain, lower complication rates, and faster return to normal activities.<br>• Enhanced patient satisfaction<br>• The findings of the reviews highlight on the importance of evidence-based practice |
| (Gustafsson, U. O., Scott, M. J., Hubner, M., Nygren, J., Demartines, N., Francis, N., ... & Ljungqvist, O. 2020) | International collaboration | Database search and review of English literature, focusing on meta-analyses, randomized controlled trials, and large prospective cohorts. | Not specified; literature review | Literature search and review graded according to the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) system | • The article discusses the impact of enhanced recovery after surgery (ERAS) protocols on perioperative care for colorectal surgery.<br>It highlights the importance of early mobilisation in improving postoperative outcomes and reducing complications.<br>The article emphasises the need for structured patient education and encouragement to promote early mobilisation. |

| Author/Year | Country | Methodology | Sample size & Population | Data Collection | Key Findings |
|---|---|---|---|---|---|
| | | | | | • [Cont.] It mentions the role of audit in providing insights into practice and outcomes and the ERAS Society's efforts to promote the use of audit systems. The article also addresses the challenges and implications of implementing ERAS protocols for nursing practice, emphasising the need for education and regular multidisciplinary communication |
| (Forsmo,H.M.,et al. (2019) | Not specified | No | Implementation study | Health system wide implementation, Unspecified number of patients and providers | • Successful system-wide implementation of ERAS has led to improved surgical outcomes and patient care. |
| (Duff, J. 2020) | Australia | Qualitative | Opinion Commentary | Not applicable, Conceptual discussion | • The significant gap between ERAS research evidence and its practical implementation in Australia.<br>• Evidence practice gap<br>• Barriers to implementing ERAS Suggestions to bridging the gap with suggestions that include increasing education and awareness of ERAS. Integrating ERAS into the policy framework promotes collaborative practices involving stakeholders' surgical care. |

| Author/Year | Country | Methodology | Sample size & Population | Data Collection | Key Findings |
|---|---|---|---|---|---|
| Toh, J. W. T., et al. (2022) | Australia and New Zealand | Qualitative | Colorectal surgeons from New Zealand and Australia | Survey | • Surgeons showed positive attitudes towards ERAS,<br>• Barriers to implementing ERAS exist, and those include resource allocations and a lack of cultural acceptance in hospitals or surgical centres.<br>• Findings highlight the variability in the adoption of ERAS protocols among different institutions and regions.<br>• Survey advocates for better support systems, more resources, better funding, increased training programmes. |
| Feldheiser, A., et al. (2021) | USA | Qualitative | Expert panel number not stated. | Expert consensus | • The consensus emphasises the importance of using multimodal analgesia in the perioperative care of gastrointestinal surgery within ERAS protocols. The approach uses combinations of different analgesic medications and techniques to manage pain effectively, which reduces reliance on opioids.<br>• Minimal opioids reduce complications associated with opioids.<br>• Recommends anaesthesia techniques like epidurals and nerve blocks for effective pain relief and to reduce the systematic side effects of general anaesthesia. |

| Author/Year | Country | Methodology | Sample size & Population | Data Collection | Key Findings |
|---|---|---|---|---|---|
| (El Tahan, Pahade, & Gómez-Ríos, 2023) | Egypt, Saudi Arabia, India, Spain | Editorial Review | Not applicable (Editorial article) | Literature review | • ERAS protocols can benefit specific patient cohorts, but further investigation is needed to identify barriers and optimise opioid and fluid utilisation. ERAS implementation requires enhanced educational programs and activities. Future research aims to understand risk stratification tools and close knowledge gaps.<br>• The editorial calls for more high-quality research to fill existing knowledge gaps and enhance the implementation of ERAS protocols across various surgical disciplines. |
| (Greco et al., 2014) | | Meta-analyses | Not specified | Review of existing literature | • ERAS shorted Hospital stay without increasing hospital readmissions. No significant results were found in surgical complications. |
| (Shida et al., 2017) | Tokyo | | 122patients. | Hospital data analysis | • ERAS reduced hospital stay.<br>• Eras protocols are feasible for patients with obstructive colorectal cancer. |
| (Ljungqvist et al., 2021) | Sweden | Expert review | Not stated | Overview of principles of ERAS | • Eras protocols are beneficial for older and fragile patients. ERAS reduces complications and supports recovery.<br>• ERAS data is still sparse, and more research is still needed. |

| Author/Year | Country | Methodology | Sample size & Population | Data Collection | Key Findings |
|---|---|---|---|---|---|
| (Wang et al., 2022) | China | Qualitative | 42 | Interviews | • Shortages of medical resources<br>• Lack of policy support<br>• Poor doctor-patient collaboration<br>• Poor communication among doctors<br>• Lack of individualised management<br>• Low compliance and high medical costs<br>• ERAS is being implemented based on ideas rather than reality. |
| (Nelson et al., 2021) | Canada | Cohort study | 7757 | | • ERAS reduced the length of stay.<br>• There was an increase in ERAS adherence. From 2013 to 2017, compliance was 52%, increasing to 76% from 2014 to 2018. |
| (Seow-En et al., 2021) | Singapore | Interviews | 17 | Questionnaires | • Professional support, understanding healthcare workers' concerns and addressing long-standing practices enable the implementation of ERAS. |
| (Gillis et al., 2021) | Alberta Canada | Interviews | 20 | Interviews | • Engaging with patients before surgery is an enabler for ERAS implementation as it reduces patient anxiety and increases compliance. |
| (Sibbern et al., 2017) | Not specified | A systematic review of qualitative studies | 11 | Systematic review | • Patients require consistency between pre & post-operative information to improve compliance, enabling ERAS implementation. |

| Author/Year | Country | Methodology | Sample size & Population | Data Collection | Key Findings |
|---|---|---|---|---|---|
| (Roldan, Brown, Radey, Hogenbirk, & Allen, 2023) | Canada Ontario | Qualitative study | 47 | Interviews | • ERAS reduced the length of stay by two days.<br>• Patient Education is accelerating the implementation of ERAS protocols. |
| (Pędziwiatr et al., 2018) | Not specified | Systematic Review | | Review of Literature | • New ERAA implementation strategies are required.<br>• Traditional surgical ways are a barrier to ERAS.<br>• Resistance to change is a barrier.<br>• Lack of communication<br>• Compliance is difficult to accomplish.<br>• The multidisciplinary team is an enabler.<br>• Willingness to change is another enabler.<br>• A clear understanding of how to utilise protocol is an ERAS enabler.<br>• Lack of Nursing staff and financial resources is another barrier. |
| (Wood et al., 2018) | Not specified | Data Analysis using descriptive and multivariable analysis | 2876 patients | Research study, Hospital data analysis | • Patients were followed past discharge for 30 days. Patients who returned to the ER returned because of wound infection or wound complications; nil admission was required. |

## 2.5 Stakeholders in ERAS implementation

Enhanced Recovery After Surgery protocols have significantly improved outcomes in colorectal surgery, largely due to the collaborative efforts of various stakeholders (Gustafsson et al., 2019). The identification and understanding of the roles these key stakeholders are crucial for the successful implementation of ERAS protocols. This section will explore the main stakeholders involved in ERAS implementation and discuss their respective roles and influences (Table 2).

**Table 2: ERAS Stakeholders list**

| Stakeholder | Role in ERAS Implementation | Contributions and Impact | References |
|---|---|---|---|
| Surgeons | Pivotal in performing procedures and advocating for ERAS | Lead team, influence peri operative care plans, perform surgery using the minimally invasive techniques | Duff, 2020; Gustafsson et al., 2019 |
| Anaesthetists | Manage perioperative pain and anaesthesia | Manage pain control, reduce opioid use, facilitate faster recovery, use local anaesthesia techniques. | Gustafsson et al., 2019; Feldheiser et al., 2021 |
| Nurses | Forefront of patient care and protocol implementation | Educate patients, monitor compliance, provide post operative care, enhance patience outcomes. | Li et al., 2020 |
| Patients | Central to the success of ERAS. | Participate actively in their care pathway, Patients engagement is vital for the successful implementation of ERAS | Nelson et al., 2020 |
| Hospital Administrators | Oversee resources supply and sustainability of ERAS | Allocate resources, support infrastructure, facilitate interdisciplinary collaboration | Wick, Kehlet, &Andreasen,2021 |
| Dieticians and Physiotherapists | Provide specialised expertise in nutrition and mobilisation | Ensure nutritional support, aid in early mobilisation as key components of ERAS protocols | Greco et al., |
| Pharmacists | Integral to medication management | Optimise pain management strategies, ensure safe and effective use of medications | Müller et al., 2018 |

## 2.6 Barriers to implementation of ERAS

The implementation of ERAS protocols in colorectal surgery, while beneficial, faces several barriers. These obstacles range from cultural and institutional to educational, and their impact varies across different stakeholder groups. This section will explore these barriers and provide evidence from recent studies.

### *2.6.1 Cultural barriers*

A significant cultural barrier is the resistance to change among healthcare professionals. Traditional surgery practices are deeply ingrained, and some practitioners may be sceptical about new protocols, particularly if they perceive a lack of evidence or fear a loss of autonomy (Smith, Wang, Singer, Godellas, & Vaince, 2020). This resistance can be more pronounced in older, more experienced surgeons or staff who have long adhered to conventional methods (Smith et al., 2020). Mithany et al. (2023) Confirms that the main barrier to implementing ERAS protocols is resistance to change among healthcare workers due to insufficient awareness and education about ERAS, non-adherence to preoperative instructions by patients, reluctance to modify behaviours that impact surgery outcomes, and the lack of robust data collecting and monitoring systems. Resistance to standardisation and cultural beliefs may also pose challenges and the need for adaptable ERAS protocols due to the variability in different surgical procedures (Mithany et al., 2023). These barriers need to be addressed to implement ERAS protocols successfully.

### *2.6.2 Patients' scepticism*

Patients may also be hesitant to embrace ERAS protocols, especially those who have preconceived notions about surgical recovery, for example, the necessity of getting out of bed the day after surgery. This scepticism can stem from a lack of understanding or trust in the new processes (Jones et al., 2021). Medical scepticism refers to a patient's uncertainty about the effectiveness of medical care (Claggett, Kitchens, Paino, & Beisecker Levin, 2022). Patient scepticism is a barrier to the implementation of ERAS as patients are sceptical about certain aspects of ERAS which deviate from their expected norms.

## 2.7 Institutional Barriers

### *2.7.2 Resource constraints*

Different resources may limit enhanced Recovery After Surgery protocols in colorectal cancer surgery. Financial resources are a major limitation. ERAS necessitates investments in training healthcare staff, modernising infrastructure, and procuring essential equipment such as specialised monitoring devices or improved surgical instruments. Insufficient financial resources may impede hospitals or healthcare systems from efficiently implementing ERAS (Kotagal et al., 2019).

Staffing resources present an additional limitation. ERAS utilises a multidisciplinary strategy that necessitates cooperation among surgeons, anaesthetists, nurses, dietitians, and physiotherapists. It can be difficult to maintain sufficient staffing and provide appropriate training for all team members, especially in environments lacking specialist healthcare experts (Forsmo et al., 2019).

Challenges are also presented by infrastructure resources. Implementing ERAS may need adjustments in workflow, facilities, and procedures to incorporate preoperative optimization, standardized protocols, and postoperative care pathways. Outdated facilities or limited infrastructure can hinder the smooth incorporation of ERAS principles into colorectal cancer surgery practices (Gustafsson et al., 2020).

Additionally, patient-related resources can impact the implementation of ERAS. For good ERAS outcomes, educating patients, ensuring compliance with preoperative instructions, and providing postoperative support systems are essential. Insufficient patient resources, such as limited comprehension or social support, can impede adherence to ERAS protocols (Shida et al., 2020).

### *2.7.3 Lack of institutional support*

The success of ERAS relies heavily on institutional support. In some settings, hospital leadership may lack commitment, which is crucial for providing the necessary resources and facilitating a culture that supports ERAS implementation (Greco et al., 2021). In Australia, the provision of surgical treatment is highly compartmentalised (Duff, 2020). The care delivered in the perioperative department is clearly differentiated and independent from the care offered in the preadmission clinics or the surgical wards (Duff, 2020). The division of care delivery into separate parts is a hindrance to the acceptance of ERAS and a barrier to the effective management of surgical services that’s according to (Duff,2020).

Toh et al. (2022) state that while there are established ERAS recommendations in America and Europe with notable discrepancies, no specific guidelines are accessible to aid surgeons in Australia and New Zealand performing colorectal surgery. Australian colorectal surgeons implement ERAS using guidelines specific to other countries; therefore, assessing the value of individual components within ERAS protocols is a greater challenge as certain components of ERAS have a stronger body of evidence in the surgical literature that supports their recommendation than in reality (Toh et al., 2022). Measuring Australian ERAS outcomes is difficult as ERAS is being implemented per protocols from America and Europe. The outcomes are important to measure for continuous improvement.

## 2.8 Educational Barriers

### *2.8.1 Knowledge Gaps*

A key barrier is the knowledge gap among healthcare providers. Despite the growing evidence supporting ERAS, not all practitioners know or fully understand these protocols (Feldheiser et al., 2021). Continuous education and training are essential to overcome this barrier. The existing literature on ERAS has primarily focused on adult patients undergoing elective surgery, with less exploration of the potential benefits in geriatric, paediatric and emergency surgery (El Tahan et al., 2023). This knowledge gap highlights the need for further investigation to determine whether the advantages of ERAS can be extended to these specific cohorts (El Tahan et al., 2023). A. Clet et al. (2024) conducted a study that concluded that the knowledge gap among healthcare professionals was a barrier to implementing ERAS. A.Clet et al.(2024) further stated that it is a well-known barrier. However, lack of knowledge can only be addressed by having standardised ERAS protocols that do not change occasionally.

## 2.9 Specific barriers between stakeholder groups

### *2.9.1 Surgeons*

Surgeons may resist ERAS protocols due to scepticism about new methods or concern about patient safety (Ljungqvist et al., 2021). ERAS recommends against mechanical bowel preparation Recent studies indicate that the use of oral antibiotics in conjunction with mechanical bowel preparation may decrease the occurrence of surgical site infection and complications in also states that surgeons' resistance to change is identified as a major challenge in the adoption of ERAS. From the above

discussion surgeons are the stakeholders found to be resistive to the changes that come with ERAS. Most of the research was done in Asia and Europe, and despite being on different continents, surgeons were found to share the same characteristic, fear of the unknown.

Wang et al. (2022) Surgeon's face greater work pressure and professional crisis if they encounter problems in the implementation process. Smith et al. (2020) reported resistance to change among surgeons due to traditional practice norms and fear of trying anything new. Duff (2020) adds that the surgeon, apart from the patient, is the only individual present during the entire surgical procedure. Surgeons are the most suitable candidates to spearhead the implementation of ERAS in hospitals (Duff, 2020). In Australia, they lack motivation or assistance to spearhead such a substantial shift in practice (Duff, 2020). As such, surgeons are not given the required support to implement ERAS in Australia, which is a barrier to implementing ERAS.

Colonic surgery is an example of a protocol that results in surgeons and anaesthetists being sceptical about the new ERAS methods and their safety. The pressure to adhere to traditional surgical norms can also be a significant barrier (Gustafsson et al., 2019). Gramlich et al., (2017) carried out research and found that physicians are concerned about modern fasting guidelines and carbohydrate loading, which are huge barriers to implementing ERAS. Gramlich et al., (2017) further, the health care system's needs and strategies to address physician concerns focused on creating clear education tools and a publicity campaign for patients. Surgeons are reluctant to try new ERAS concepts due to concerns about patient safety (Wang et al., 2022).

### *2.9.2 Nurses*

Nurses may encounter barriers due to workload constraints and a lack of specific training on ERAS protocols. They often play a crucial role in patient education and care, and without proper support, their ability to implement ERAS effectively can be compromised (Nelson et al., 2020). Wang et al. (2022), in China, the shortage of human resources was especially challenging, leading to increased workload for doctors and nurses without corresponding salary and bonus increases. Wang et al. (2022) stated that the discrepancy between increased workload without a salary increase was the main barrier. Wang et al., (2022) are the first authors to

link increased workload with a lack of increased salaries as a huge barrier to implementing ERAS. In turn, the article raises a point for a need for further research, making this article important to this study. Nurses face a challenge when implementing ERAS protocols due to unrealistic patient expectations (Mithany et al., 2023).

Patients are expected to mobilise and be independent with activities of daily living, but due to different comorbidities and age, most patients cannot return to the basis soon after surgery (Mithany et al., 2023). Patients are encouraged to initiate mobility and return to their usual activities to prevent complications such as deep vein thrombosis and muscle atrophy (Mithany et al., 2023). The unrealistic patient expectation is a valuable perspective to the ERAS study because ERAS focuses on accelerating recovery and discharging patients to return home. ERAS lacks the flexibility to accommodate the patients who undergo colorectal surgery because they are of different ages, commodities, and backgrounds, which is a barrier in implanting ERAS.

### *2.9.3 Patients*

Patients' reluctance to participate in ERAS can stem from a lack of understanding of the benefits. Cultural beliefs about surgery and recovery can also play a role in their willingness to adhere to ERAS protocols (Jones et al., 2021). Low compliance of patients and families affects the effectiveness of ERAS and may lead to a waste of medical resources (Wang et al., 2022). Challenges related to patients involve multiple factors, such as failure to follow preoperative instructions and unwillingness to change behaviours that affect surgical outcomes (Mithany et al., 2023). Jones et al. (2021) found that patient scepticism about early postoperative mobilisation was a significant hurdle. Seow-En et al. (2021) conducted a study that concluded that patients received education but did not have enough depth.

The findings of Seow-En et al. (2021) are important to the study on ERAS protocols as most studies found that patient education was a barrier, but they did not clarify what sort of patient education existed, however, it does not provide the depth of education that is beneficial to the patient and outcome of ERAS implementation. Gillis et al. (2017) stated that patient education given to patient’s post-surgery was reported to have been useless after surgery; it would have benefited to receive that information before surgery. Therefore, patient education is currently being

implemented as part of the protocol, but the process needs to be reviewed for patients to get the best outcome from it.

Sibbern et al. (2017) conducted a study that concluded that preoperative written material as part of the education provided was inadequate in assisting patients in managing postoperative problems at home; patients expressed a desire for increased availability of contact individuals after their release from the hospital. This study highlights a unique challenge to implementing ERAS as information is given. Still, patients prefer direct contact with a health professional rather than information from a pamphlet to discuss their concerns.

Gillis et al. (2017) conducted a study on patients as partners in implementing ERAS. Gillis et al. (2017) concluded that patients had concerns about the lack of information, the stress they experienced during the waiting period for surgery, and the challenges they faced during the recovery period at home; these were barriers to the successful implementation of the ERAS program.

Sibbern et al. (2017) optimal symptom management is a cornerstone of ERAS protocols; however, research has found that patients experience postoperative symptoms, including pain, nausea, and fatigue. Post-operative symptoms hindered the patients' ability to engage in their postoperative recovery process actively and effectively (Sibbern et al., 2017). Post-operative symptoms hindering patients from participating in ERAS is vital information to the ERAS study because it creates debate on the effectiveness of ERAS. ERAS's purpose is to eliminate or reduce post-operative symptoms, but the same symptoms exist and hinder the implementation of ERAS.

Chen et al. (2020) conducted a study on factors that affect the successful implementation of ERAS, and age was one of the factors noted. Chen et al. (2020). Older patients with colon cancer have worse outcomes compared to younger patients, with higher in-hospital mortality and morbidity rates. Patients above the age 75 years old patients with colon cancer are more likely to experience ERAS failure as a result (Chen et al., 2020). Chen et al. (2020) Colorectal cancer is common among the elderly, with the average age of colorectal cancer patients being 65 to 80 years old. Therefore, age is a huge barrier to the successful implementation of ERAS; however, it is also controversial as colon cancer is common in the elderly.

Patients who experience a postoperative complication are more likely to stray from the ERAS course (Mithany et al., 2023). This is an important barrier to the implementation of ERAS because it's difficult to prepare for, as complications post-surgery can be unpredictable. Therefore, further research is required to manage ERAS post-surgery complications.

### *2.9.4 Administrators*

Administrators may face barriers in terms of budget constraints and prioritising resource allocation. There may also be a lack of understanding of the long-term benefits of ERAS, leading to hesitation in investing in necessary changes (Wick, Kehlet, & Andreasen, 2021). Administrators frequently face substantial obstacles when implementing ERAS procedures, mostly due to financial constraints and the difficulty of determining resource allocation priorities. One recurrent obstacle is the limited outlook of financial decision-makers who may not fully recognise the long-term advantages of ERAS, such as decreased hospital stays and lower rates of postoperative complications, which can result in significant cost reductions in the long run (Wick, Kehlet, & Andreasen, 2021). In addition, there could be opposition from employees who are accustomed to conventional surgical procedures and may perceive new methods as disruptive. Efficient communication and thorough training are crucial in showcasing the effectiveness and financial benefits of ERAS. These factors are vital in overcoming barriers and obtaining the required funding for successful implementation (Smith & Jones, 2022).

### *2.9.5 Resources*

Many institutions face resource constraints that hinder the implementation of ERAS protocols. These include limitations in staffing, funding, and infrastructure (Wick, Kehlet, & Andreasen, 2021). For instance, the lack of enough nursing staff to provide intensive postoperative care can impede the application of ERAS principles. ERAS does not have a unified implementation process, which leads to great differences in ERAS implementation and difficulties in comparing and analysing the implementation effects in various hospitals (Wang et al., 2022). The various ERAS stakeholders described the shortage of medical resources as the main barrier to their implementation of the ERAS programme (Wang et al., 2022). Greco et al. (2021) discussed the challenges institutions face in allocating resources for ERAS implementation. Mithany et al. (2023) state the lack of robust data collecting and

monitoring systems can impede the measurement of outcomes and restrict the ability to make informed adjustments. When implementing a program like ERAS, it is necessary to measure outcomes to identify subpar results that can be enhanced through educated adjustments. Therefore, the lack of robust data impedes improving ERAS and its outcomes.

## 2.10 Enablers of implementing ERAS

The successful implementation of ERAS protocols in colorectal surgery is facilitated by various enablers that positively impact different stakeholder groups. Implementation of ERAS protocols in colorectal surgery requires addressing various barriers that differ among stakeholders. Overcoming these challenges involves a multifaceted approach, including education and training, institutional support, and cultural change. This exploration will focus on identifying these enablers, including technological advancements, training programs, policy changes, and their impact on stakeholders such as surgeons, nurses, patients, and hospital administrators. Recognising and tackling these obstacles is essential for fully realising the benefits of ERAS protocols in enhancing patient outcomes and improving healthcare efficiency.

## 2.11 Technological advancements

### *2.11.1 Minimally invasive techniques*

The advent of minimally invasive techniques like laparoscopy has significantly supported ERAS by reducing surgical trauma and facilitating quicker patient recovery (Gustafsson et al., 2019). For surgeons, this translates to improved surgical outcomes and enhanced patient safety. For patients, it means reduced postoperative pain and a faster return to normal activities.

### *2.11.2 Digital Health Tools*

Electronic health records (EHRs) and patient monitoring systems ensure real-time tracking of patient progress and adherence to ERAS protocols (Smith et al., 2020). Nurses benefit from streamlined documentation and monitoring, while patients enjoy more personalised and responsive care. Consistent evaluation and feedback systems enable healthcare teams to assess adherence to ERAS protocols and results, pinpoint areas for improvement, and conduct specific interventions to address instances of low adherence (Nelson et al., 2021).

## 2.12 Training programs

### *2.12.1 Interdisciplinary ERAS workshops*

Interdisciplinary workshops foster a collaborative understanding of ERAS protocols across various medical disciplines. Surgeons, nurses, and anaesthesiologists who participate in these programs gain a unified approach to patient care (Feldheiser et al., 2021). Feldheiser et al. (2021) emphasised the need for continuous education and training to bridge knowledge gaps among healthcare professionals. Ensuring continuous training and education for healthcare practitioners regarding the principles and practices of ERAS, to ensure their competence in implementing and maintaining ERAS protocols (Nelson et al., 2021).

### *2.12.2 Patient education initiatives*

Educating patients about ERAS protocols improves their understanding and adherence to postoperative care guidelines. This proactive engagement significantly enhances patient outcomes and satisfaction (Nelson et al., 2020). Bhattad and Pacifico (2022) conducted a study on customised patient education, concluding that actively involving, motivating, and enabling patients to take part in their own healthcare and treatment choices results in improved results, reduced requirements for unnecessary diagnostic tests, and heightened patient contentment. Patient education is part of ERAS protocols; therefore, it is an enabler in implanting ERAS because patients become empowered to participate in their health care.

## 2.13 Policy changes

### *2.13.1 Institutional support for ERAS.*

Hospitals that integrate ERAS protocols into their standard operating procedures demonstrate a commitment to modern, evidence-based care. This institutional support is key for providing necessary resources and training for successful ERAS implementation (Li et al., 2020). Robust endorsement and active involvement from leaders in both clinical and operational domains can effectively facilitate the adoption of ERAS pathways and ensure consistent adherence to guidelines (Nelson et al., 2021). The implementation of ERAS has significantly contributed to the efficiencies and cost reductions for the governments of Canada, the United Kingdom, and New Zealand (Duff, 2020). Despite its flaws, the United States of America system provides incentives for ERAS paths (Duff, 2020).

However, this is not the case in Australia, the government has not taken up the initiative to provide incentives for ERAS protocols in hospitals (Duff, 2020). Lack of government incentives is a barrier to implementing ERAS in Australia.

## 2.14 Discussion

This literature review provides robust evidence on the barriers and Enablers of implementing ERAS protocols in improving outcomes for patients undergoing colorectal surgery in Australia. The main finding in the literature available in databases is that no articles focus on ERAS protocols in Australian hospitals. No studies are focusing on ERAS in Australian healthcare, and it is evident that ERAS is not widely adopted or popular as there are no current studies. Duff (2020) confirms that ERAS movement lacks significant Australian representation. Duff (2020) further states the lack of a nationwide initiative to adopt ERAS in Australia implies that surgical care is not given significant importance in the country. The gap in the literature on ERAS research in the Australian healthcare system is a major find that gives a reason for a platform for research on ERAS in Australia.

Toh et al. (2022) carried out a study on the ERAS protocols in Australia and New Zealand. This study also exposed the gap in ERAS as it concluded that Australia and New Zealand use ERAS protocols that are used in America and Europe; they have not adjusted the protocols to suit their healthcare systems. The lack of protocols altered to suit the Australian healthcare system reflects that ERAS is still in its initial stages; therefore, there's a need for further research in Australia.

ERAS protocols and studies on them mainly originated from Europe and the United States, and only a few have been conducted in Asian countries (Shida, Tagawa et al. 2017). Currently, there is a deficit of literature on how the patient views ERAS. That is a gap in information that can be used to improve implementation. ERAS was mainly invented for the patient; therefore, a patient's perspective on ERAS is of great value.

Literature available in databases does not discuss patient feedback on enhanced recovery after surgery programme. ERAS was developed with the sole purpose of shortening patients' recovery time; however, there is no data that specifically inquiries about how patients feel. Patient feedback would be of great value in refining how to implement ERAS further. The latest study by Roldan, Brown,

Radey, Hogenbirk, and Allen (2023) briefly referenced how patients felt about being a part of ERAS during their treatment. The authors found out that patients were happy to be a part of the programme because they had information on how their surgery was going to take place (Roldan et al., 2023). Patients also reported to be happy because they were discharged earlier than they expected. Research on the patient's perspective would add value to improving ERAS implementation, which in turn improves the outcome.

No studies have followed up on patients past six months of post-enhanced recovery after surgery. Pędziwiatr et al. (2018) state that there is insufficient evidence on whether ERAS improves patients' course in the long term after surgery. Pędziwiatr et al. (2018) most hospitals started to implement the ERAS protocol less than 5 years ago. There is a need for literature that follows up on patients as this will add to the information on the effectiveness of ERAS. Wood et al. (2018) carried out a study that followed ERAS colorectal patients for 30 days post-discharge, and the results showed that 91.8% of the patients who returned to the emergency room returned for reasons of surgical site infections, urinary tract infections and other wound complications. Only 8.2% were readmitted for complex complications (Wood et al., 2018). After undergoing colorectal surgery using ERAS protocols, reduced hospital stay does not lead to an increased return or readmission to the emergency department (Wood et al., 2018). Wood et al. (2018) study explores patients returning to the ER as well as the reasons for return; more studies should be carried out on following up on ERAS patients to understand further how patients cope after the fast-track recovery programme.

Gustafsson et al. (2019) have the most influential study on implementing ERAS protocol in the databases because it lists the guidelines that are required to implement ERAS. The guideline was updated as required, and the last was the fourth to be updated. Gustafsson et al. (2019) published an article that presents graded recommendations for each ERAS item within the ERAS protocol. The protocols listed as a guideline are based on the evidence from available quality trials and meta-analyses of large cohort studies Gustafsson et al. (2019). This study is the most influential because it clearly lists the ERAS protocols and how they can be implemented. The study outlines what must be done from the preoperative, intraoperative, and post-operative stages. Gustafsson et al. (2019) compare the

previous ERAS guidelines to updated guidelines, which makes the study more influential. To exemplify, Gustafsson et al. (2019) state, "Mechanical bowel preparation alone with systemic antibiotic prophylaxis has no clinical advantage and can cause dehydration and discomfort and should not be used routinely in colonic surgery but may be used for rectal surgery". Previous ERAS guidelines encouraged bowel preparation to reduce the increased risk of infection due to the volume of bacteria in the colon.

A limitation of this literature review is that most articles discuss ERAS in surgery but not specific ERAS in colorectal surgery. There have been limited articles within the last five years that discuss ERAS in colorectal surgery. Therefore, whether the ERAS protocols barriers and enablers in other surgeries can be directly translated to the colorectal surgery setting requires future research.

## 2.15 Conclusion

The literature review provides a comprehensive exploration of the current literature regarding barriers and enablers associated with implementing ERAS. The literature review methodically examined academic contributions and stakeholder perspectives to unveil a multifaceted view of the challenges and facilitators of implementing ERAS adoption. The key conclusion drawn from the study is the critical role of institutional and cultural dynamics in facilitating or hindering the implementation of ERAS protocols. Resistance to change among health care professionals, particularly surgeons, emerged as a significant barrier, compounded by traditional practices deeply ingrained in the surgical community. Additionally, the lack of specific training and education about ERAS among all stakeholders, including nurses and patients, further impedes effective implementation. Conversely, the literature review highlighted several enablers: institutional support, resource allocation, technological advancements, and interdisciplinary training. The literature review underscored a significant gap in the local adaptation of ERAS in the Australian healthcare system. Addressing the significant gap in Australia requires a combined effort from all stakeholders. The following chapter focuses on the research that was carried out in Australia to understand the stake holder's perspective on the barriers and enablers of ERAS. The main aim is to understand the stakeholders' perspectives as well as to address the gaps identified in the literature review.

# CHAPTER 3: STUDY DESIGN

## 3.1 Introduction

The following chapter provides a comprehensive overview of the methodological techniques employed in the study. This includes a detailed explanation of the research design and methodologies utilised. Additionally, it covers the selection of participants and the ethical issues considered. Furthermore, it delves into the process of data collection, analysis, and ensuring data integrity. In addition, this chapter will clearly explain and support the study design by explicitly establishing the connections between the philosophical assumptions, theoretical perspective, and the researcher's stance.

## 3.2 Study approach

The study employed a qualitative research approach, as it allowed for an in-depth exploration of stakeholder perspectives on ERAS implementation barriers and enablers. Qualitative research is a valuable approach for exploring and understanding complex phenomena through in-depth exploration and interpretation of data. A qualitative study is a research approach characterised by its emphasis on understanding and interpreting the subjective experiences, perceptions, and meanings of individuals or groups within a particular context (Merriam & Tisdell, 2016). It remains vital to use a qualitative research approach to address the aim and objective of the study, which was to understand stakeholders' perspective on implementing ERAS. The focus was to collect qualitative data that was expressed in words therefore qualitative research was suitable for this research.

However, also within this context, it remained vital to also have an understanding of the ontological and epistemological standpoint of the researcher prior to proceeding. As such ontology of this study aligns with a constructivist perspective, which argues that reality is subjective and socially constructed. The viewpoint acknowledges that the stake holders' perceptions of the barriers and enablers to ERAS implementation are shaped by their individual experiences, roles and contexts within the healthcare system. There is no single objective reality about ERAS implementation, instead, multiple realities exist as interpreted by the various participants in the study. By accepting this ontological stance, the study accepts that the participants experiences and insights are valid representation of their realities. The phenomenon of ERAS implementation is understood through the unique context

dependant interpretations of the stakeholders involved. While the epistemological standpoint of the researcher was one of interpretivism which emphasises the understanding of knowledge through subjective experiences and social interactions. This standpoint is consistent with the qualitative approach used as it seeks to explore how stake holders perceive and make sense of their experiences with ERAS. The researcher acknowledges that they play an active role in interpreting the data, with findings emerging through interaction with participants and context.

As such, the qualitative research methods involve collecting and analysing non-numerical data, such as interviews, observations, or textual materials, to explore complex phenomena and generate in-depth insights (Creswell & Creswell, 2017). Researchers employ various qualitative methodologies, including phenomenology, grounded theory, ethnography, or content analysis, to uncover patterns, themes, and nuanced perspectives that shed light on the intricacies of human behaviour, culture, and social interactions (Creswell & Creswell, 2017). Qualitative studies often aim to capture the richness and depth of human experiences, offering valuable insights that inform theory development, policy formulation, and practice improvement in various disciplines (Creswell & Creswell, 2017).

### 3.3 Advantages of qualitative research

Qualitative research allows researchers to gain a deep understanding of the research topic. It provides insights into participants' meaning, context, and experiences (Creswell & Creswell, 2017). In the interviews carried out, participants were able to give information beyond what was asked because they were given enough time, and some questions were open-ended, which resulted in more information being provided by the participants.

Qualitative research methods are flexible and adaptable, allowing researchers to adjust their approach during the study based on emerging findings or unexpected insights (Creswell & Creswell, 2017). In the study carried out, interviews were adjusted to the participants' preferences. For example, face-to-face interviews were cancelled, and phone interviews were scheduled to replace them. There was flexibility with changes of times to meet as the writer could work around participants.

Qualitative research often explores the social and cultural context in which phenomena occur, providing a holistic view of the subject (Braun & Clarke, 2019). ERAS stakeholders who were interviewed worked in different hospitals. The barriers

and enablers they described were directly influenced by the hospital they worked in. The differences that occur due to different hospital locations were of great value to the study. To exemplify the Darling Downs region, ERAS stakeholders reported that patients could not access hospital resources because they lived in rural towns away from a city. ERAS stakeholders in Melbourne did not have issues with patients lacking access to resources.

Qualitative research emphasises the perspectives and voices of participants, making it useful for uncovering hidden or marginalised voices (Braun & Clarke, 2019). Including participants in qualitative research not only empowers them by recognising the importance of their perspectives but also enhances the study findings by offering a profound level of comprehension that cannot be achieved with quantitative data alone (Johnson, 2021). Moreover, the adaptability of qualitative research enables it to delve into intricate matters such as identity, prejudice, and social exclusion in a manner that considers the participants' experiences and viewpoints. This feature renders it an indispensable instrument for social justice and advocacy initiatives that seek to emphasise and tackle the obstacles marginalised communities encounter (Taylor, 2019). Qualitative research can contribute to theory development by generating new hypotheses and theoretical frameworks based on empirical data (Creswell & Creswell, 2017).

### 3.4 Disadvantages of qualitative research

Qualitative research relies on the interpretation of researchers, which can introduce subjectivity and potential bias into the findings (Braun & Clarke, 2019). Limited generalisability qualitative research often involves small, non-random samples, making it challenging to generalise findings to larger populations (Creswell & Creswell, 2017). The study carried out interviewed nine stakeholders. That is small number in comparison to the number of ERAS stakeholders in Australia. Therefore, it is not ideal to generalise that the result from this research study can apply to the rest of the ERAS protocols. However, the study provides insight of what stakeholders ERAS implementation in Australia. The study provides grounds for further research.

Qualitative data can be complex and challenging to analyse, requiring expertise in qualitative research methods (Creswell & Creswell, 2017). Data was complex to analyse for the researcher; however, with the guidance of Thematic analysis, data analysis was better managed. Thematic analysis that was used was initially

challenging however the analysis was manageable after following the guidelines by (Braun & Clarke, 2022). Qualitative studies may be challenging to replicate due to the unique context and participant characteristics, which can impact the transferability of findings (Braun & Clarke, 2019). In summary, qualitative research offers valuable insights into the depth and complexity of various research topics despite their limitations.

### *3.4.1 The sample*

A purposive sampling technique was utilised to select participants directly involved in or affected by ERAS implementation in colorectal surgery. Purposive sampling is a non-probability sampling technique used in qualitative research. It involves selecting participants or elements for a study based on specific criteria or purposeful judgment rather than random selection (Creswell & Creswell, 2017). In purposive sampling, researchers deliberately choose participants with the characteristics, knowledge, or experiences most relevant to the research question. This method allows researchers to focus on obtaining information-rich data from individuals who can provide valuable insights into the topic of interest (Patton, 2015).

The research sample for this study consisted of two primary stakeholder groups, which include anaesthetists and surgical nurses. These stakeholders have crucial roles in the perioperative care process and contain vital knowledge about the implementation and effectiveness of ERAS protocols. Primarily the focus was to recruit all the stakeholders in ERAS implementation, however, logistical limitations impeded the engagement of surgeons, registrars, and administrators. Within this context the rationale was to conduct interviews among 15 participants to achieve data saturation. Data saturation occurs when no new information, themes, or insights are emerging from additional interviews. Studies suggest that saturation in qualitative research can often be achieved with a sample size of 12 to 20 participants, depending on the complexity of the topic (Braun & Clarke, 2021). Interviewing 15 people strikes a balance between collecting rich, diverse data and avoiding redundancy. Interviews were scheduled from the 1$^{st}$ of January to the 28$^{th}$ of February 2024. Among all participants that responded only nine interviews were undertaken due to unavailability of participants. Surgeons that were recruited could not follow through with interviews due to their busy schedules, research has shown that clinicians regard research projects as inferior to their practice, failing to

recognise the potential advantages of research for patient care in the future (Bonfim et al., 2023). Participants for this research are essential to the surgical environment and frequently face challenging schedules filled with clinical responsibilities, administrative tasks, and educational obligations. Studies carried out have shown that research initiatives can burden healthcare systems, particularly amid specialist shortages or elevated demand. Clinicians maybe unable to participate in research due to patient acuity, hospital staff issues due to call in or reassignment of personnel to other units(Lehman, 2009). Unanticipated emergencies also contribute to clinicians' unavailability (Lehman, 2009).Despite multiple invitations and persistent efforts to accommodate surgeons, nurses , anaesthetists, and physiotherapists their limited availability remained a significant obstacle. Their nonattendance highlights the difficulties involved in including busy healthcare workers in research activities, especially those working in high-stress clinical settings. Although it would have been beneficial to include the viewpoints of surgeons, registrars, and administrators, their unavailability required us to concentrate solely on the perspectives of anaesthetists and surgical nurses. Although there is a constraint, the knowledge obtained from these stakeholders who participated is expected to provide substantial contributions to the comprehension and improvement of ERAS protocols in the field of surgery.

The sample was recruited through advertising that was done by placing flyers in nurses' stations and hospital notice boards. Staff members who were interested responded on the provided telephone number or email address A phone call meeting was arranged; a brief overview of the study was about was given and the participant provided their email address at the end of the phone call. An information sheet and consent form were sent to the participant, and once signed the consent form, a phone call interview date and time was arranged at their convenience.

### *3.4.2 The setting*

Toowoomba Hospital is a central regional healthcare facility in Queensland, Australia. Toowoomba Hospital is a hub for medical care, research, and education in the Darling Downs. The hospital is well equipped to support a wide range of healthcare services, from acute care to specialised treatments. Making it an ideal setting for diverse research. Toowoomba Hospital provides an array of services, including emergency care, mental health support, chronic disease management,

maternity services and surgical specialties. This breadth allows researchers to access a diverse patient population and study various aspects of healthcare delivery and outcomes. The hospital boasts a highly skilled workforce of medical professionals, including doctors, nurses, allied health staff and specialists. This multidisciplinary approach fosters collaboration, making it conducive to research that integrates different perspectives and fields of expertise. Toowoomba Hospital's location, serving both urban and rural communities, provides a unique context for examining the intersection of healthcare policy, practice and outcomes in diverse populations. Its combination of clinical excellence, research engagement and commitment to education makes it a valuable setting for meaningful healthcare research. Toowoomba Hospital was mainly chosen for this research because of its multidisciplinary approach as well as commitment to education. Toowoomba Hospital was also chosen because in can address gaps in the literature regarding ERAS implementation in rural and regional settings as much of existing research is focused on metropolitan. Toowoomba hospital is the main hospital in darling down health therefore the hospital staff is experienced in managing both complex and routine cases, which is valuable when assessing the adaptability of ERAS protocols.

### 3.5 Data collection

Semi-structured interviews were conducted as the primary data collection method. Interviews were conducted individually with each participant to obtain rich and detailed insights. The interview questions were designed to elicit information about barriers and enablers to ERAS implementation. Interviews were audio-recorded with the participant's consent and transcribed verbatim for analysis. Semi-structured interviews are a commonly used qualitative research method that offers flexibility in data collection while providing a framework for probing and exploring research topics.

Data collection for this study was conducted via phone interviews, chosen for their convenience and accessibility to participants. Each interview lasted approximately 30 minutes, allowing for in-depth discussions while respecting the time constraints of busy healthcare professionals. A Phillips recorder was used to capture the audio of these interactions correctly. Following the recording process, every interview was methodically assigned a distinct sequential number to preserve its arrangement. The annotated recordings were thereafter stored on a desktop

computer with great care to ensure security and facilitate convenient retrieval. The systematic technique guaranteed the data's organisation and easy accessibility for analysis. Telephone interviews offered a flexible approach that accommodated participants' schedules, eliminating geographical barriers, and enabling the inclusion of diverse perspectives. Through structured interviews, participants could articulate their experiences, insights, and opinions regarding the subject matter, contributing valuable qualitative data to the research.

### *3.5.1 Advantages of semi-structured interviews*

Semi-structured interviews allow for flexibility in questioning and probing, allowing researchers to adapt to the conversation and explore unexpected insights (Smith, 2018). These interviews often yield rich, detailed, and contextually relevant data as they encourage participants to elaborate on their responses (Smith, 2018). Further, participants may feel more at ease in semi-structured interviews than in highly structured or closed-ended interviews, leading to more honest and open responses (Smith, 2018). To exemplify when a participant was asked a question such as, *"How do you think your patients feel when you ask them to participate in an ERAS protocol that would reduce their risks of an adverse outcome?", the* participant provided a detailed response such as:

> *"I think they get excited about it. I think, I think they feel more privileged, I guess. Like, the ones that I've had, especially for bowel, usually it's bowel cancer. There's a lack of control on their point of view. They cannot control anything that happens during the operation, but when they know that they can control and have, a say on what happens post op. I feel like that's a really positive, emotionally for them as well, and it's like a goal for them to work towards. So, I feel like there is so much control when they come into hospital, knowing what the expectation is and sort of like a benchmark for them to say, okay, this is what I should be doing, or this is where I need to be. I think it's, because as health professionals, we forget that, like, we're just used to seeing it all the time, and a lot of patients haven't even been in hospital. So, I think it gives them some form of control, and it is really positive for them, and their families as well, gives them something to focus on."*

The answer given by participant was detailed, the participant highlighted how stakeholders forget that patients are coming into hospital for the first time, they have no clue what to expect but getting patients involved in ERAS protocols gives patients more insight on what to expect and some level of control in the process of planning for surgery and recovery. Exploration of complex topics is particularly useful for investigating complex and multifaceted interview questions, as researchers can delve deeply into participant experiences and perspectives (Smith, 2018). ERAS is a complex topic, as it is new therefore using qualitative research which included semi structured questions was justified to achieve the objectives of the research project. Researcher-participant rapport, the semi-structured format allows researchers to establish rapport with participants, fostering a more engaging and productive dialogue (Braun & Clarke, 2019). This was evident during the research interviews, participants were more engaging, and they gave detailed answers to questions asked.

### *3.5.2 Disadvantages of semi-structured interviews*

Conducting semi-structured interviews can be time-consuming, as transcribing and analysing extensive qualitative data can be laborious (Smith, 2018). This was the case with the interviews for this research, all interviews had to be individually transcribed by listening to the recordings then typing individually all the responses. In addition, semi-structured interviews are susceptible to researcher bias and subjectivity, as the interviewer's probing and interpretation can influence the responses (Braun & Clarke, 2019). During interviews for this research, the interviewee would prompt the participants to say more, usually participant would give an answer like “yes”, in that can case the interviewee would prompt the participant to say more to gather more information. Further, effectively conducting semi-structured interviews requires strong interviewing and probing skills, which may be challenging for novice researchers (Smith, 2018). The findings from semi-structured interviews may not be easily generalisable to larger populations as they focus on individual experiences and perspectives (Braun & Clarke, 2019). Lastly, qualitative data analysis from semi-structured interviews can be complex and time-consuming, necessitating expertise in qualitative research methods (Smith, 2018).

### *3.5.3 Data collection instruments*

Identifying interview questions was a crucial stage in the research process. It helped refine the research objective and purpose by focusing on specific inquiries researchers aim to investigate in their studies. The questions were created and structured using the Theoretical Domain Framework. Using the Theoretical Domains Framework (TDF) as a guide to formulate interview questions is a valuable practice in contemporary research, promoting a structured and systematic approach to inquiry. The TDF is an invaluable instrument for analysing and consolidating data, particularly when studying obstacles to implementing a specific practice (Augustin Clet et al., 2024). (Augustin Clet et al., 2024) conducted a research study on barriers to implementing ERAS protocols in France.

TDF was used because it is an integrative framework based on behaviour change theories that are used to identify concerns related to evidence on implementing best practices in healthcare settings. The decision to adopt TDF was based on the precedent of previous successful research that employed TDF as a conceptual framework. TDF enables researchers to identify and integrate key theoretical domains relevant to their study, fostering a comprehensive understanding of the research topic (Cane et al., 2012).

One notable benefit of employing TDF is its capacity to enhance the precision and relevance of interview questions. By mapping out the theoretical foundations of a subject, researchers can pinpoint specific gaps in knowledge and design research questions that address these gaps (Cane et al., 2012). Furthermore, TDF encourages an interdisciplinary perspective, allowing researchers to draw from various domains and theoretical perspectives, enriching the depth and breadth of their research inquiries. Overall, the utilisation of TDF in crafting interview questions contributed to the refinement of the research process, ultimately yielding more insightful and rigorous results.

Interview questions were formulated under 11 domains of the Theoretical Domain Framework, which are knowledge, beliefs about consequences, skills, professional role identity, motivational goals, environmental context and resources, memory attention and decision process, social influence, emotion, behavioural regulation, and action planning. The interview questions are presented below (Table 3).

## Table 3:Interview Questions

| **Theoretical Domain Framework, Domains** | **Interview Questions** |
|---|---|
| Knowledge | 1. What do you think are the advantages of managing risks using the ERAS protocol? Are there any disadvantages? (If yes, why?)<br><br>2. In your view, what advantages or disadvantages does the ERAS protocol offer to you for optimising surgical outcomes? |
| Beliefs about consequences | 3. What are the consequences of implementing colorectal ERAS protocol in your facility?<br><br>4. What consequences would there be if you didn't implement the colorectal ERAs protocol in your facility? |
| Beliefs about capabilities | 5. How confident are you in your ability to implement ERAS protocol for optimising surgical outcomes now? Why do you think that is? What aspects are you least confident about? And most confident?<br><br>6. How much control do you have over implemented ERAS protocol for optimising surgical outcomes in your clinical practice? Why do you think that is? |
| Skills | 7. In general, which skills do you think are needed to implement ERAS protocol in clinical practice? What type or level of training might be required?<br><br>8. Of those skills, what skills do you already have? What skills would you need more support with? |
| Professional Role and Identity | 9. When you are implementing ERAS protocol for optimising surgical outcomes in colorectal surgery, who else would you want/expect to be involved? |
| Motivational Goals | 10. Are you motivated to implement ERAS protocol for optimising surgical outcomes in your clinical practice? Why is that?<br><br>11. Do you feel a sense of personal satisfaction when you implement ERAS? Prompt for intrinsic [their own reasons i.e. they want to be the best clinician or really care about patients] and extrinsic motivation [hospital incentives or targets]<br><br>12. When you implement ERAS protocol for optimizing surgical outcomes, how much of a priority is it to implement ERAS in your day today? |
| Environmental context and resources | 13. Which resources do you think would be needed for you to implement ERAS protocol for optimising surgical outcomes? Do you have these resources at the moment? Prompt thoughts about infrastructure (how is your theatres and screening practices set up, e.g. equipment, software/systems, budgetary resources, staff, time availability, other. Do you lack any of these resources, what could be a solution?<br><br>14. How likely is it that your organisation would encourage and support you or agree to you implementing this this ERAS protocol for optimising surgical outcomes in your patients? Why do you think that is? IF not supportive: what would help to increase their support and buy-in? |
| Memory attention and decision process | 15. What do you think other (health professionals) think about this ERAS protocol for optimising surgical outcomes? Do you know anyone who is working to this ERAS protocol for optimising surgical outcomes specifically? |

| | |
|---|---|
| | 16. If other (health professionals) that you know were implementing this ERAS protocol for optimising surgical outcomes how would that influence you? More or less likely to consider conducting implementing?<br><br>17. Similarly, when you are implementing ERAS protocol for optimising surgical outcomes how would that influence your colleagues? Do you think that would influence them to implement ERAS too?<br><br>18. How might implementing this ERAS protocol for optimising surgical outcomes affect your relationship with your patients? Prompt for positive and negative. |
| Social Influence | 19. How would you feel when you implement ERAS protocol for optimising surgical outcomes and you see a definitive difference in clinical outcomes following implementation? How would you actually feel? Could there be any negative emotions and what would they be? What if the results of implementation were not definitive?<br><br>20 How do you think your patients feel when you ask them to participate in an ERAS protocol that would reduce their risks of an adverse outcome? |
| Emotion | 21. How would you feel when you implement ERAS protocol for optimising surgical outcomes and you see a definitive difference in clinical outcomes following implementation? How would you actually feel? Could there be any negative emotions and what would they be? What if the results of implementation were not definitive?<br><br>22.How do you think your patient's feel when you ask them to participate in an ERAS protocol that would reduce their risks of an adverse outcome? |

### 3.6 Data Analysis

Following the completion of all interviews and transcriptions thematic analysis was utilised to identify consistent patterns and themes within the data. To analyse the collected data the researcher followed the four phases of thematic analysis. Familiarising with data set, coding, generating themes, developing and reviewing themes and writing up are the six phases of thematic analysis (Terry & Hayfield, 2021). The first phase of thematic analysis is to familiarise with data (Braun & Clarke, 2022). The researcher familiarised themselves with data by listening to the interview recordings and transcribing each interview by typing everything that was said in the recording. In each interview the participant first name was used however on typing out the interviews the participants name was omitted.

Transcribing the data allowed the researcher to immerse themselves in content and context of the interviews because recordings had to be played back several times to understand the contents of the interview. After completing all the interviews and transcribing them, the researcher went on to the next phase which is coding and generating themes. The researcher printed out all the transcripts. The researcher began reading through the printed transcripts highlighting information that was used to generate codes to remember which information brought about certain codes.

Researchers start by systematically coding the data, identifying meaningful segments relevant to the research question, and the codes can be descriptive or interpretive, capturing both explicit and implicit meanings (Nowell et al., 2017). The researcher generated codes the first time they read through the interviews. After rereading the transcripts codes were regenerated again, new codes and old codes were repeated. Reading the transcripts again provided certainty to the researcher that all the information that could be used to create a code had been considered.

After the codes were generated, similar codes were clustered to generate themes. Theme construction was done by clustering codes that had similar meaning together. Clustering codes is when codes that are similar are grouped according to their similarity (Terry & Hayfield, 2021). Clustering is the most common approach to theme building (Terry & Hayfield, 2021). To achieve codes clustering the researcher wrote all the codes on sticky notes and started creating clusters of similar codes to create a theme. An example of codes clusters is where ERAS is generic, rigid in approach, strict recipes, resistance to change, hard to adapt and curtailed involvement. These codes created the theme adaptation challenges (Figure 2).

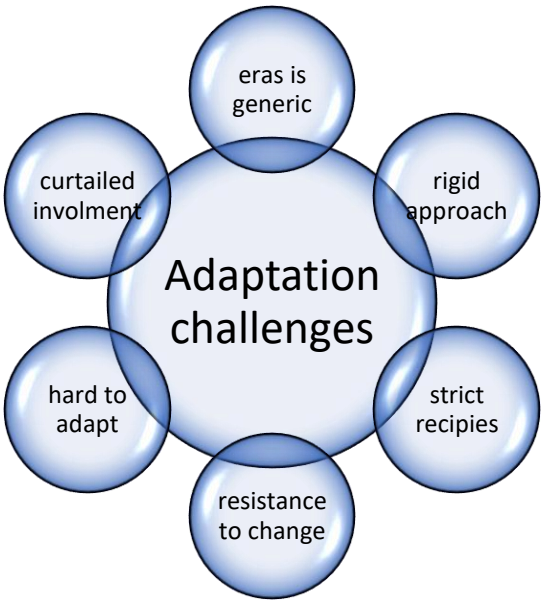


*Figure 2:* Adaptation challenges flowchart

Figure 2: Adaptation challenges flowchart: The cycle flowchart consists of 6 labelled circles. The centre of the cycle is labelled Adaptation challenges. The five circles are the cluster codes that formed the theme Adaptation Challenges.

Below is an example of themes and codes that were derived from the transcripts' themes were derived from the transcripts (Table 4). Once the themes

were developed the researcher reviewed all the themes and the codes to make sure that none of the codes, themes transcript information was overlooked. Terry and Hayfield (2021) state that reviewing themes is important because it allows the researcher to compare the themes to the collected data and wider data set to ensure that the story that is being narrated does not deviate too far beyond what can be evidenced with the data. Going back to the data allowed the researcher to check whether each theme worked in relation to the research question. Once all the themes were developed, the researcher wrote an analytic narrative weaving a coherent and persuasive story about the data set that addressed the research question.

## Table 4: Themes, code and representative quotes

| Theme | Code | Representative Quotes from Transcripts |
|---|---|---|
| Knowledge and Education | Lack of education | But I think just having what I have seen, there's just not enough knowledge around what it is or expectation, and then it sort of might be starting off doing it and then it sorts falls off the band wagon |
| | More awareness and understanding required | They do, mostly. But more awareness and understanding, from everyone could really boost that support. |
| | Lack of communication | Not really, I think that's probably more from lack of education around ERAS.I found, like, when it first came in, it was very strong, it was very like high priority, nut now it's sort of like, it's just not communicated. Or sometimes you don't realise people are on ERAS program. Like it's not there. It's not communicated. I think there needs to be more communication around who's on the programme who isn't. |
| | More education | So, it's very quick and oh yeah, Yeah, I think it there is need for more education with doctors and nurses' |
| Resource Constraints | Staff shortage | So, sometimes you can go to work and with nursing shortages, there is not enough, staff that are usually on the ward, but they are agency nurses so you can just have a patient with ERAS and then a couple of shifts with staff that don't know what ERAS is and then it sort of Yeah. I think sometimes, like everywhere in nursing we don't have enough staff. Like, that's what happened, not only in my area, but my hospital but everywhere, and I am sure the bringing a lot of nurses abroad and even churning more. |
| | Shortage of time to prepare. | Then they need education. They need you to prepare them, but you don't have that time, to prepare them. So that that can bring some consequences that when they come from the surgery, they are not going to cooperate with you. |
| | Limited time | Sometimes we ae busy with five or more patients, you might not get enough time to go and check the other patient, and they are still new in their stoma care. The most needed resource is time, according to me because you are not just doing routine, you do the work, and then you make an assessment. And then you go to the protocol. You follow it to see where, far you are. |
| | Heavy Workload | Yes. Yes, it can affect because we have a shortage of staff. |

Data validity in qualitative research pertains to the extent to which the data accurately represent the phenomenon being studied (Creswell & Creswell, 2017). In interview-based research, several strategies can enhance data validity. First, researchers should craft open-ended questions encouraging participants to express their perspectives and experiences fully (Kvale & Brinkmann, 2015). Open-ended questions allow for richer and more authentic responses, minimising the risk of obtaining shallow or biased data. The interviews had open-ended questions.

Second, establishing rapport with participants is vital in promoting data validity. Trust and a comfortable environment foster open, honest communication (Gibson & Hart, 2017). Building rapport with participants was one strategy for building their confidence in the interview. Rapport was built through active listening, empathy, and respect for participants' viewpoints. Building rapport created an atmosphere where participants were likelier to share their genuine experiences and insights.

Reliability in qualitative research focuses on the consistency and stability of data across time, settings, and researchers (Braun & Clarke, 2019). Achieving reliability in interview data requires careful planning and systematic approaches. One way to enhance reliability is by developing a standardised interview protocol. A well-structured interview guide was used as each participant was asked the same questions. This minimised variability in data collection and increased the likelihood of obtaining reliable data. Reliability will be ensured through transparent and consistent data collection and analysis procedures, including verbatim transcription, coding, and theme development. Another critical aspect of reliability is the transcription and coding process. Researchers must employ rigorous transcription methods, such as verbatim transcription, to capture participants' responses accurately (Bazeley,2020). Data were transcribed using verbatim, as well as listening to and correcting verbatim transcriptions.

### 3.7 Ethical Considerations

Ethical approval was granted through University of Southern Queensland Human Research Ethics Committee (ETH2024-0672) (Appendix 1). Informed consent was obtained from all participants, ensuring they understood the purpose of the study, their rights, and the voluntary nature of their participation. Each individual signed an informed consent form before the interview.

Confidentiality is a critical ethical principle in qualitative research that protects participants' sensitive information and maintains their privacy. Before participants agree to participate in a qualitative study, researchers should provide clear information about how their data will be handled and the steps taken to protect their confidentiality (American Psychological Association, 2020). Informed consent forms should state that participants' identities and responses will remain confidential (American Psychological Association, 2020). Participants were given an information sheet with all the information about the ERAS research and its aim. Identities and sensitive information were kept confidential throughout the research process. Participants were identified as Participant 1 and Participant 2 on data analysis and presentation.

### 3.8 Conclusion

This chapter has methodically outlined the qualitative research approach adopted to explore the implementation of ERAS protocols from the perspectives of key stakeholders undergoing colorectal surgery. The study engaged participants whose insights are critical to understanding barriers and enablers associated with ERAS implementation. The utilisation of semi-structured interviews provided a rich tapestry of qualitative data, which was meticulously analysed to ensure a rigorous examination of the complex dynamic of implementing ERAS protocols in Australian hospital settings. The chapter discussed the inherent challenges and strengths of qualitative research, acknowledging the potential of bias and the limitations regarding generalisability while highlighting the method's profound capacity for deep, contextual understanding. Ethical considerations were adhered to ensure the confidentiality of the participants. The following chapter presents the findings from the interviews. It explores the varied perspectives of healthcare professionals, highlighting key themes and insights that emerged from the data.

# CHAPTER 4: FINDINGS

## 4.1 Introduction

This Chapter presents a comprehensive synthesis of qualitative data gathered from interviews with healthcare professionals involved in the implementation of ERAS. Their perspectives highlight the critical interplay between the protocol's theoretical benefits and the practical challenges encountered in clinical settings. Key themes explored include the perceived advantages of ERAS, such as improved patient outcomes and hospital efficiencies, alongside significant barriers, such as staffing issues, resistance to change and the need for tailored patient care. The findings reveal a complex landscape in the Australian healthcare system where the success of ERAS heavily relies on education, stakeholder engagement, and adaptability to individual patient needs.

## 4.2 Overview of Participants

Nine participants were interviewed to understand the barriers and enablers in implementing ERAS protocols in clinical settings. The participants consisted of one anaesthetist and eight registered nurses all at different levels and stages of their clinical careers, reflecting a heterogenous mix of roles directly involved in perioperative care and the application of ERAS. The gender distribution among the participants included two males and seven females, indicating a female predominance in the sample group. This gender ratio is somewhat reflective of the broader nursing workforce, which is predominantly female, although it provides a limited view from the perspective of male healthcare professionals. The single anaesthetists in the group brought a unique perspective crucial in understanding the interdisciplinary approach required for successful ERAS implementation, which heavily relies on effective pain management strategies.

The selection of participants aimed to capture a range of experiences and insights into the practical aspects of ERAS protocols, including challenges in adherence, benefits observed in patient outcomes, and the multidisciplinary collaboration necessary to optimise the surgical recovery process. The qualitative inquiry enriches the understanding of ERAS from the frontline perspective and highlights areas for improvement in training, protocol, and implementation strategies.

The following table (Table 5) provides an overview of the diversity within the participant group, which is essential for analysing the varied experiences and viewpoints regarding the implementation of ERAS protocols in healthcare settings.

**Table 5: Participant overview**

| Participant number | Role | Gender |
|---|---|---|
| 1 | Anaesthetist | Male |
| 2 | Registered Nurse | Female |
| 3 | Registered Nurse | Female |
| 4 | Registered Nurse | Female |
| 5 | Registered Nurse | Female |
| 6 | Registered Nurse | Female |
| 7 | Registered Nurse | Male |
| 8 | Registered Nurse | Female |
| 9 | Registered Nurse | Female |

## 4.3 Themes

Themes that emerged from the codes generated during data analysis were adaptation challenges, knowledge and education needs, resource constraints, technical and procedural complexity and perception and attitude. These themes, as outlined in Table 6, were generated under the barriers to implement ERAS protocols and address the research question. Enablers to implementing ERAS protocols, had eleven themes generated and they all related to the research question. The eleven themes were the following, knowledge, beliefs about consequences, beliefs about capabilities, skills, professional role and identity, motivation and goals, environmental context and resources, memory and decision process, social influence, behavioural regulation and action planning and improvement and suggestions.

**Table 6: Research findings**

| Theoretical domain Framework | Barriers | Enablers |
|---|---|---|
| Knowledge | • Lack of Awareness and Education<br>• Resistance to Change<br>• Perceived patient characteristics patient lack of knowledge<br>• Enablers of Implementation<br>• Staff fail to see how they can tailor ERAS therapy to suit different patients.<br>• ERAS removes the flexibility to tailor clinical care for patients. They all have to be treated the same.<br>• Clinicians lack freehand in decision-making due to ERAS.<br>• Clinical staff believe other clinical staff have no knowledge | • Patients have reduced complications,<br>• Reduced hospital stays.<br>• Reduced hospital costs<br>• ERAS protocol reduces role overlap.<br>• All of the above are points raised by participants. |

| Theoretical domain Framework | Barriers | Enablers |
|---|---|---|
| Beliefs about consequences | • Patients refuse to participate in ERAS after surgery because they believe they are too sick to get out of bed.<br>• Resistance to change from staff. | |
| Beliefs and capabilities | • Tasks required to do ERAS like regional anaesthesia and keyhole surgery are complicated and staff are not confident to carry out those tasks although they are competent. | Enhanced Worker satisfaction. |
| Skills | • Lack of skills nursing staff & registrars. | • ERAS's care plan is self-explanatory and easy to follow. |
| Professional Role/ Identity | | • Clinicians feel there is leadership support and advocacy for them through an ERAS champion on the ward. |
| Motivation and Goals | • Staff are demotivated to implement ERAS when an ERAS patient is not educated about ERAS before admission. | • Clinicians are motivated to implement ERAS because they see the results when patients recover quickly. |
| Environmental context and resources | • Resource Constraints<br>• Lack of time<br>• Lack of staff<br>• Not enough education is given to staff about ERAS.<br>• Most patients with colorectal cancer are elderly, and it is difficult to assist them with early mobilisation.<br>• Nurses felt they had a considerable workload and less time.<br>• There is always limited time during a surgical procedure. | • There is a new technology that makes it easier to implement ERAS.<br>• ERAS care plans are a reminder of what needs to be done. |
| Social Influence | • Consultants are aware of ERAS, but registrars are not aware; therefore, care discontinues on weekends. | • Multidisciplinary Collaboration<br>• ERAS makes it easier for nurses to work together, as They can call physiotherapists to come in to do their work as it is charted.<br>• ERAS is a multidisciplinary programme; therefore, when one clinician participates the rest of the clinicians are forced to because of |
| Behavioural regulation and Action planning. | | |

## 4.4 Enablers

### *4.4.1 Knowledge*

Implementation of ERAS protocols in the Australian healthcare settings have gathered attention for its potential to enhance patient outcomes, reduce healthcare costs and improve efficiency. Through analysis of the interviews several themes emerged from the participants interviews. The first theme that emerged was knowledge. One participant highlighted the importance of educating patients prior to attending their procedure. Participant (5) noted:

> *"I think too, educating the patients before they come in for their procedure, there's an expectation Yeah".*

Participants recognised the potential for ERAS protocols improve efficiency and generate cost savings within hospitals. Participant (1) mentioned that:

> *"And number two use recovery time, yeah. Enhance, savings and efficiencies in hospital".*

A nurse, participant (7), highlighted the positive impact of ERAS protocol on speeding up patient recovery.

> *"As of the ERAS, it really helps in speeding up recovery for patients".*

Participants (1, 2 and 5) highlighted the multifaceted benefits of implementing ERAS protocols in healthcare settings, ranging from patient education to economic efficiencies and improved post recovery outcomes.

ERAS reduced patient risks for complications

'*Yes patients are aware of what is expected, Yeah ERAS reduces hospital stay, which I think sometimes when patients stay in the hospital for a lot longer they're at high risk of clots and infections and things like that '*

Participant (5) connects the reduced hospital stay with lower risks of complications, such as venous thromboembolism and hospital-acquired infections. This demonstrates an understanding of the broader implications of ERAS beyond just efficiency, emphasising patient safety and the prevention of secondary health issues. Their ability to identify specific risks highlights a detailed awareness of post-operative care and potential complications. The participants statement reflects a comprehensive understanding of ERAS protocols. They are aware of ERAS benefits

(shorter hospital stays) and the secondary positive outcomes (reduced risk of clots and infections). Their perspective also underscores the significance of patient education and involvement. This insight could suggest a broader theme in findings: participants with greater knowledge of ERAS are likely to appreciate its multifaceted benefits, including its impact on patient safety and healthcare efficiency.

The objective to investigate the perceived efficacy of ERAS protocols in improving patients' recovery, shortening hospital stays, and minimising post operative complications. This objective was achieved because participant (7), stating that ERAS helps in speeding up recovery, shows that there is awareness in some stake holders that ERAS improves patients' recovery and reduces their hospital stay in general. The objective to examine the extent to which stakeholders are aware of and knowledgeable about ERAS was also achieved because participant (1) sated that ERAS enhances savings and efficiencies in hospital. Participant (1) response indicated:

> *"I think too educating the patients before they come in their procedure, there's an expectation Yeah", Participant (5)*

This is a recommendation from participant (5). Participant states that if patients get educated on ERAS that would improve the implementation of ERAS. The participant identifies preoperative patient education as a key factor in preparing patients for their surgical journey. This shows an understanding that providing knowledge before the procedure helps set clear expectations and aligns patients understanding that providing knowledge before procedure helps set clear expectations and aligns patients understanding the goals of ERAS. The phrase "*there is an expectation* "suggests that the participant believes education not only informs patients but also fosters accountability and active engagement in their recovery process.

### *4.4.2 Skills*

Data collected on skills required for implementing ERAS protocols in the clinical practice revealed on key theme which is skills. Skills comprised of several codes. Participants emphasised the importance of managing change effectively, mastering communication skills and engaging in continuous education. Participants shed light on the importance of managing change in the work environment as well as training employees' new skills whenever there is new technology introduced.

Participant (7) stated:

*“And being able to manage change, understanding the protocols inside out, I am okay with patient care stuff, but could use more help with data side of things”.*

They further highlighted the importance of communication as it is the most prominent tool that can be brought to use to assist people with a change that has been introduced *“Communication is key really”* (Participants 3).

Participant (2) further stated that:

“*As a registered nurse the skills of a registered nurse are enough to read and understand the information and implement ERAS accordingly, I think that’s enough. I also worked with enrolled nurses, and I have seen them implement ERAS as well*”.

It was also mentioned by the participants that they believe that education is also acquired with experience in real life situations as this has helped them gain confidence, in the words of participants (3):

*“So, I think education, and also seeing another senior nurse on the ward working with them and showing us how to do things help us gain confidence”*

and

“*Such insights are invaluable for devising tailored training programs and support mechanisms to enhance ERAS implementation in clinical practice”.*

Participant 7 stated:

*“And being able to manage change, understanding the protocols inside out, I am okay with patient care stuff, I could use more help with data side of things.”*

This is evidence that the participant is aware of ERAS. That is an achievement of objective precise factor that support implementation of ERAS. Participant stated that they are managing the direct clinical care with patients however the documenting side of ERAS or data capturing they may need more support. This another recommendation for ERAS to improve in the Australian hospital environment participants need further education in data capturing of the ERAS protocols.

*“As a registered nurse the skills of a registered nurse are enough to read and understand the information and implement ERAS accordingly, I think that’s enough. I also worked with enrolled nurses, and I have seen them implement ERAS as well.”* (Participants 7).

This is evidence that that nurses have the skills that they have are enough the implement ERAS. This achieves purpose of objective a) this shows comprehension of the present comprehension of the present status of ERAS protocol application in Australiana colorectal surgery. This is also evidence off of objective c which to examine the extent to which different stake holders are knowledgeable about and accepting ERAS protocols.

### *1.7.1 Beliefs and Capabilities*

Enhanced worker satisfaction

*“So, this is a team dynamic as I mentioned. Which probably most papers don’t really highlight or don’t really explore. So, if we implemented ERAS well, it would really improve team morale, not only setting patient satisfaction and outcomes but also workers ' healthcare workers satisfaction*.” Participant (1)

The participants connect the effective implementation of ERAS to enhanced morale among healthcare workers. This suggests a belief that ERAS protocols when properly executed, foster a more supportive and efficient work environment. It implies that shared goals and clear guidelines can reduce stress, improve cooperation and increase job satisfaction, reflecting the participant’s optimism about the program's broader organisational benefits. The participant identifies a dual benefit of ERAS: improving patient outcomes and healthier worker satisfaction. This demonstrates a belief in the interconnected nature of patient care and staff well-being. It highlights an understanding that positive experiences for ERAS stakeholders stemming from clear protocols, efficient workflows and reduced stress translate to better care delivery and overall program success. Participant believes that if protocols are implemented successfully, they improve worker satisfaction which also improves patient outcomes.

### *1.7.2 Motivation and Goals*

*“when patients are not ERAS, there is trying to explain a lot of things about their surgical procedure, spending a lot of your time explaining why it's important to*

*get out of bed, that if they can get up post op ,they've got a lot of anaesthetics and pain relief on board they will be ok, so sometimes they take it in, So it's really good when you have an ERAS patient that's already prepared they know what is happening". Participant (5)*

Participant (5) expresses that there is difficulty in convincing patients who are not on ERAS to do tasks. Participant also expresses that patients who are not on ERAS need convincing and a lot of explaining what is happening which is time consuming. Participant (1) describes the difficulty in convincing unprepared patients to mobilise despite adequate pain management and anaesthetics. However, patients who are on ERAS are better prepared. Patients on ERAS create a more efficient care environment. Participants (1) words highlight a strong belief in the value of ERAS for enhancing both patient and health worker experiences. Their motivations lie in addressing inefficiencies in patient education and overcoming compliance challenges, while their goals focus on fostering better prepared patients, facilitating smoother recoveries, and optimising care delivery. The participants' (1) responses indicate that they are motivated to implement ERAS because it creates a more efficient care environment for both the staff and patients. ERAS facilitates patient readiness.

## 4.5 Barriers

### *4.5.1 Adaptation challenges*

Barriers to implementation of ERAS protocols were identified with different themes that included adaptation challenges. Participant (7) highlighted that it is challenging trying to adapt to, by stating:

> *"But adapting to these new ways can be tough, you know for both us and the patients sometimes".*

Participants further stated that ERAS has a rigid approach it does not allow stakeholders to tailor make care for patients. As highlighted by participant (1):

> *"I hope later generations of doctors and healthcare workers don't become cooks following recipes strictly, I think medicine needs to be practiced, and to be to tailor made to circumstances and patient circumstances too".*

ERAS is perceived as generic and not all patients are suitable for the generic ERAS. Participant (1) also stated:

*"I hope that it is like a base, Hope people see it as a base recipe, rather than the only recipe they have to look after their patients*".

Another adaptation challenge that some participants brought to light was resistance to change. Participants highlighted that on the wards there is resistance to change from staff, when there is new protocols or technology introduced. Participant (7) stated:

"*There is always a bit of pushback to change which can be challenge".*

The objective to identify the precise factors that either support or impede successful implementation of ERAS protocols was achieved. Participants clearly stated that ERAS is generic, it is rigid therefore it is not always possible to apply it on every patient the same way. Each patient is an individual with their own unique comorbidities as well as age. ERAS protocols applied to a 25-year-old without any comorbidities should be different to protocols applied to a 70-year-old with comorbidities. Resistant to change is another barrier that wads noted which is an achievement of identifying precise factors that impede successful implementation of ERAS.

### *4.5.2 Knowledge and education needs*

The next theme identified "knowledge and education needs", highlights the lack of knowledge. In the words of participants (5):

*"But I think just having what I have seen in the implementation of ERAS, there is just not enough knowledge around what it is or expectation, and then it sort of staff might be starting off doing it, and then it sort of falls off the bandwagon*".

Furthermore, participant (5) mentioned that there is lack of communication:

*"Not really, I think that's probably more from a lack of education about ERAS. I found like, when it first came in, it was very strong. It was very, like high priority, but now it's sort of like, it's just not communicated. Or sometimes you don't realise people are on the ERAS program. Like, it's not communicated. I think there needs to be more communication around who's on the program and who isn't".*

Participants stating that they feel that they need more knowledge on implementing ERAS while other participants stated they felt they had the knowledge and skills shows the disparities in different stakeholders in different hospitals. This disparity in knowledge of ERAS that stakeholders have is an achievement to provide valuable insight into the factors influencing ERAS implementation in the Australian context, that creates grounds for improved strategies for overcoming barriers and leveraging enablers. The lack of knowledge expressed by participants is an achievement of (e) which allows creating evidence-based recommendations for enhancing the implementation and effectiveness of ERAS protocols in colorectal surgery across Australian health care settings.

### *4.5.3 Resource constraints*

Resource constraints is another theme associated with barriers to enabling ERAS. Resource constraints is discussed and the shortage of trained staff. Participant (5) shared their views in the following words:

> *"So sometimes you can go to work and with nursing shortages, there is not enough, staff that usually on the ward, but they are agency nurses so you can just have a patient with ERAS and then a couple of shifts with staff that doesn't know what ERAS is and then it sort of yeah. I think sometimes, like, everywhere in nursing we don't have enough staff. Like that's what happened, not only in my area, but my hospital, but everywhere, and I am sure the bringing a lot of nurses abroad and even churning more."*

Participants further added that there is a shortage of time to complete tasks using ERAS protocols. Again participant (5) stated:

> *"Sometimes when we are busy with five patients might not get enough time to go and check the other patient, and they are still new in their stoma care. The most needed resource is time, according to me because you are not just doing routine nursing. You do the work? And then you make an assessment. And then you go to the protocol. You follow it to see how far you are".*

Time constraints is a barrier that some participants reported. Another participant stated staff shortages being a barrier when implementing ERAS. Participant (3) stated:

*"I think the main thing is staff at the moment sometimes we lack staff. So, if we had enough staff allocated by the in charge it would be easier to implement ERAS."*

Resource constraint is clearly a barrier to implementing ERAS from what the participants stated above. The information of resource constraint being a barrier to implementing ERAS creates foundation for practical recommendations for ERAS to be implemented successfully in the future. This achieves objective (f) which is gathering information in the context of Australian culture that will offer practical recommendations to rectify the barriers. The Australian healthcare system has to increase the number of staff on the wards to rectify this barrier.

### *4.5.4 Technical and procedural complexity*

Participants highlighted that ERAS protocols were technical and complex. Participant (5) added:

"*So, we had a lot of education when I first came in, so I was very confidant with that. I am not confidant with the patients sometimes, there is a grey area when complications occur if the patient has to go back to theatre or, with you upgrading their diet and then all of a sudden, they begin vomiting and they drop back down to nil by mouth."*

Nursing staff follow ERAS care plans however when a patient deteriorates or deviates from what is expected in the ERAS protocols there is no advise on what to do therefore nurses do not have back up or a plan on what to do with the patient. ERAS become complicated because there is no advise on which approach to take when ERAS protocols must be ceased due to patient deteriorating.

### *4.5.5 Professional role*

When implementing ERAS protocol for optimising surgical outcomes in colorectal surgery, the involvement of various stakeholders is crucial. The participants shared insights regarding who else they would want involved. Participant (2) stated that everyone who was involved in the client's care should be involved:

*"Yeah, we have to involve everybody relevant to that client."*

Other participants pointed out that as some individuals are more relevant than others, with participant (1) stating:

*"For out of hospital, I think GP's have a very important role in helping out of hospital ERAS for example, prehabilitation, pre optimisation, they potentially can play a role."*

However, other participants appear satisfied with the level of involvement in hospitals at the moment, with participant (1) also sharing:

*"Yes, I think within the hospital, most of the healthcare workers allied health already involved in the ERAS".*

Overall participants highlighted the importance of collaboration to successfully implement ERAS.

### *4.5.6 Environmental context and resources.*

The successful implementation of ERAS hinges heavily upon availability of resources. Reflecting on the various insights from various participant, it is evident that certain key resources are imperative for the effective implementation of ERAS. One crucial resource that was highlighted was staffing. Participant (3) stating:

*"The main thing is the staff."*

Participants highlighted the availability of sufficient and adequately allocated staff is essential for the seamless execution of ERAS protocols. However, it is acknowledged that there are instances where staffing shortages pose a challenge. The sentiment expressed underscores the importance of sufficient staffing levels, facilitated by effective allocation strategies overseen by management personnel. Furthermore, amidst discussions of resources, the aspect of time emerges as paramount consideration. As highlighted by participant (2):

*"The most needed resource is time."*

This acknowledgement illuminates that ERAS protocols demand more than mere procedural adherence. From staffing to ongoing support, training, equipment, and time each component plays a pivotal role in ensuring the efficacy of ERAS strategies. Recognising these resource needs and addressing them proactively is essential in fostering optimal surgical outcomes and advancing the quality of patient care.

### *4.5.7 Perception and Attitude*

Perception and attitude is the final theme that emerged under barriers to ERAS. A participant highlighted that if ERAS is implemented by stakeholders who do not understand it ERAS the outcome maybe an unintended negative outcome. Participant (1) stated:

> *"Yeah. So, I think that implementing ERAS without much thought, we could get unintended consequences."*

Participants expressed that if ERAS is not implemented well patients' chances of complications may increase. Participant (6) added:

> *"It is difficult to get patients out of bed after surgery, post op complications may increase if we do not implement ERAS."*

Patients are not always in a condition where they can participate in ERAS therefore when they refuse to participate it results in nurses respecting their wishes and not implementing ERAS protocols. This can affect patient outcomes.

## 4.6 Conclusion

The interview findings highlight a critical consensus among healthcare professionals, mostly registered nurses, while ERAS protocols offer a significant benefit in patient recovery and resource management, practical and systematic challenges often hinder their implementation. These include educational gaps, insufficient staffing, and the need for a more personalised patient care approach. The next chapter will delve into a detailed discussion of these findings, analysing how each barrier and enabler influences the efficacy of ERAS in the Australian healthcare system. This discussion will also explore strategies for overcoming the identified challenges with the aim of enhanced resource management required to influence the implementation of ERAS. The overall impacts of ERAS will be discussed and its proven benefits on patient outcomes.

# CHAPTER 5: DISCUSSION

## 5.1 Introduction

The following chapter will discuss the results of the interviews carried out. The chapter critically examines the healthcare professional's perspective on the barriers and enablers of implementing ERAS. Through qualitative analysis of interviews with the ERAS stakeholders, this chapter aims to identify key enablers and barriers, providing insights into practical challenges and opportunities for enhancing post-operative recovery in colorectal surgery settings. Limitations to the study that were encountered during the research are discussed further in the study while carrying are discussed creating the foundation for recommendations for future research.

## 5.2 Enablers to implementing ERAS in Colorectal surgery.

Participants generally understand the benefits of ERAS, including improved patient outcomes and reduced hospital stays. Understanding the benefits of ERAS allows the stakeholders to confidently implement the protocols as they have an overall picture of how the protocols benefit the patient, hospital, and staff job satisfaction. Participants are motivated by the desire to improve patient outcomes and job satisfaction through successful ERAS implementation. Lovegrove et al. (2024) carried out a study on clinicians' perception on ERAS in Australia and concluded that respondents' agreed on the benefits of using ERAS. Lovegrove et al. (2024) reported most respondents believed that ERAS protocols enhance patient care, improve institutional financial efficiency, and are a worthwhile investment of time.

Stakeholders believe in the benefits of ERAS, such as reduced length of stay and lower complication rates. Failure to implement ERAS can result in prolonged recovery times and increased post-operative complications. Stakeholders who believe positively about implementing ERAS are enablers because they understand the pros and cons of not implementing it.

Stakeholders emphasise the importance of multidisciplinary collaboration involving general practitioners, physiotherapists, occupational therapists, and stoma nurses. They recognise the role of family involvement and pre-operative optimisation by healthcare professionals in successful ERAS implementation. Electronic

documentation and interdisciplinary teamwork are identified as positive contributors to its implementation.

### *5.2.1 Social Influence*

Enhanced Recovery After Surgery champions and the proactive involvement of physiotherapists and dieticians positively influence implementation. Participants agreed that ERAS, an interdisciplinary programme, reduces role overlap issues on the ward because the ERAS care plan stipulates who is required to carry out what task and when; therefore, nurses no longer hesitate to page physiotherapists. Balfour (2019) carried out research which concluded that one of the main ERAS benefits is collaborative clinical care that focuses on personalising goal-oriented regimens for patient care. All clinicians collaborate with a unified goal for each patient, maintaining clear lines of communication

Nurses reported that previously, there were role overlaps whereby the physiotherapists would state that nurses should carry out certain tasks while nurses believed it was the physiotherapist's role. To exemplify getting the patients out of bed post-surgery. Lack of awareness among some healthcare professionals and discontinuing care on weekends hinder implementation.

### *5.2.2 Emotional Factors*

Patient motivation to participate in ERAS is influenced by their understanding and expectations of the protocols according to the participants. Colorectal cancer patients with stoma bags are highly motivated to participate ERAS programs because they understand and expect the protocols improve their surgical outcomes as per preadmission education that they are given. Their inclination to participate successfully is also influenced by individualised communication and reassurance from healthcare specialists, guaranteeing a comprehensive comprehension of the ERAS advantages and how active involvement can result in expedited recuperation and enhanced results. In addition, providing customised instruction on stoma care within the ERAS framework improves their self-assurance and ability to manage their condition.

### *5.2.3 Barriers to Implementing ERAS*

Concerns exist regarding the rigidity of ERAS protocols, which may not account for individual patient needs. Participants reported that ERAS care plans are rigid, and that is a great disadvantage because patients with colorectal cancer have

different comorbidities. To exemplify, most patients with colorectal cancer are elderly patients. ERAS requires patients to eat after surgery and get out of bed after surgery; this is seen as a barrier as pts are older and generally more unwell than young, fit patients; therefore, it is not possible to get elderly patients out of bed as soon as they are required to. There is resistance from colorectal surgery patients, and some patients are willing to get up, but they are too unwell due to their co-morbidities.

### *5.2.4 Lack of knowledge*

Lack of education and awareness among staff members is identified as a barrier to effective implementation. Participants stated that other stakeholders are unaware of ERAS, resulting in a broken care chain. To exemplify, one participant highlighted that surgeons and consultants are aware of ERAS; therefore, Monday to Friday, ERAS is being implemented correctly, but on weekends, registrars are on call, and they have no idea what ERAS is; therefore, that results in ERAS care plans not being used. Balfour (2019) confirmed that inadequate understanding, and lack of training among clinicians is one of the main barriers to implementing ERAS. Participants added that registrars are accessible on the wards for nurses, and there is conflict when caring for patients because they do not understand ERAS and have no knowledge of it; therefore, they refuse to implement it. Balfour (2019) asserts that clinician vary in their understating of ERAS therefore the way each clinician will implement ERAS will vary which in turn is ground for conflict.

Participants had varying levels of understanding and experience with the ERAS program, which influenced their responses. Stakeholders with limited knowledge or experience did not provide in-depth or accurate insights into the barriers and enablers of the program, potentially skewing the data towards the views of more informed participants. Recalling participant 6 stated that they had heard of ERAS but do not use it because they work in a public hospital and are too busy. The interview ended after the first question.

This variation in knowledge can lead to skewed data, particularly if the information is disproportionately influenced by those more familiar with the program. Those stakeholders with limited exposure or understanding, such as participant 6, might not provide comprehensive views on the barriers and enablers of ERAS,

potentially leading to a biased representation of the program's effectiveness and challenges.

Furthermore participant 6's response illustrates a critical barrier to implementing ERAS programs, especially in public healthcare settings where resources are often stretched thin, and staff are overwhelmed with patient loads. The mention that they have heard of ERAS but do not use it due to the high demands of working in a public hospital highlights significant systemic barriers to adoption, including lack of time, staff shortages, and possibly inadequate training and support for ERAS protocols.

This situation underscores the necessity for targeted education and training programs tailored to different hospital settings, including public hospitals, where the pressures and challenges might differ significantly from private healthcare settings. It also highlights the need for administrative support and adequate staffing to implement ERAS protocols successfully. Without proper education, support, and resources, healthcare professionals are less likely to adopt or implement ERAS effectively, limiting its potential benefits for postoperative recovery and care.

Moreover, this disparity in knowledge and implementation underscores the importance of including a wide range of participant perspectives in ERAS research. By ensuring diverse representation, researchers can obtain a more comprehensive understanding of the various barriers and enablers affecting ERAS implementation across different settings. It also suggests the need for strategies to improve ERAS knowledge and engagement among all hospital staff, particularly in under-resourced public hospitals, to enhance patient care and recovery outcomes.

Stakeholders lack of knowledge brings to light the question whether is it really lack of knowledge or adherence to habitual practice which is a common trait with clinicians. Lovegrove et al. (2024) concluded that in Australia clinician did not implement ERAS due to resistance to change and refusal to transitioning from historical models. Lovegrove et al. (2024) argues that in Australia there is a non-compulsory implementation of ERAS at the departmental level. This gives room to clinicians not to implement ERAS as it is non-compulsory therefore resulting in poor knowledge in clinicians and resistance to change.

### *5.2.5 Technical skills challenges and Time constraints*

While stakeholders' express confidence in implementing ERAS, challenges related to technical skills and time constraints are acknowledged. The anaesthetist stated that in theatre, time is crucial; therefore, local anaesthesia must be used precisely, but not many anaesthetists are confident in their ability to implement it under pressure. There's a need for further education and training, especially in complex tasks like regional anaesthesia. Lovegrove et al. (2024) concluded that in Australia while education on ERAS is crucial, it alone will not close the knowledge-to-practice gap. Lovegrove et al. (2024) further stated that the effort required to effectively implement ERAS protocols should not be underestimated, Australia requires more than educated to improve on implementing ERAS. Lovegrove et al. (2024) while education will enhance knowledge and implementation of ERAS protocols in Australia, it is also essential to co-design implementation strategies with stakeholders that address identified facilitators and barriers.

Nurses reported that it is not possible to implement ERAS protocols for all four patients on an average shift. A single patient on an ERAS care plan will take longer than one without ERAS. As a result, staff foregone ERAS implementation to manage time for unwell patients. Stakeholders expressed that since the inception of ERAS in the hospital, there has been no data recorded on how patients recover when they leave the hospital. The question stakeholders have is, 'Do patients return with complications, or do they recover to their normal lives'. This information is important for stakeholders because the main aim of the fast-track program is for patients to recover quickly. Regular audits of outcome recording and compliance measurement with the ERAS procedure are crucial for optimising patient outcomes and integrating new evidence-based therapies (Hill & Jin, 2024).

### *5.2.6 Staff Shortage and Time Constraints*

Staff shortages impact the quality of care and adherence to ERAS protocols, particularly in administering medications and facilitating early mobilisation. When there is a shortage of nurses in a surgical ward, they encounter many difficulties, including an augmented workload, elevated levels of stress, and potential compromises in the quality of patient care. This scenario can result in burnout and a decline in job satisfaction. In the context of stoma patients, the limited availability of time poses challenges for nurses in delivering sufficient education and assistance for

stoma care, affecting patient recovery and overall well-being. This phenomenon has the potential to result in heightened levels of patient anxiety and problems and a potential prolongation of hospitalisation. Nurses reported that there is not enough time even when they have enough staff; once a person is on an ERAS care plan, that means an additional workload on nursing staff, and time is never enough. Limited resources, including staffing shortages and lack of access to senior doctors, pose challenges to ERAS implementation. Balfour (2019) states that nurses face time constraints due to higher nurse to patient ratios which results in poor implementation of ERAS. Balfour (2019) added that having mixed wards where some patients are receiving ERAS while others are not a huge barrier to implementing ERAS as it affects nurse's implementation of care due to lack of duty consistency. Nurses will be providing different care with different programmes in the same ward which results in pressure and delay on nurses.

### *5.2.7 Patients' resistance to care*

Patients undergoing colorectal surgery and participating in ERAS programs may exhibit resistance due to postoperative pain and discomfort. Participants highlighted that nurse-patient relationships are usually strained due to patient discomfort and emotional responses post-surgery. Resistance to care due to pain was one of the main findings. This resistance can create animosity towards clinicians as patients navigate their emotional responses and physical discomfort post-surgery. The effectiveness of ERAS programs depends significantly on patient compliance, which can be challenging to achieve due to patients' subjective experiences and attitudes. The pain and discomfort associated with recovery can lead to decreased motivation and engagement with ERAS protocols. Qualitative studies have highlighted the importance of understanding patients' experiences and attitudes towards ERAS to improve compliance and outcomes. Balfour (2019) highlighted that patients' personal perspectives on care factors, such as their readiness for discharge, significantly impact the implementation of ERAS protocols.

In clinical practice, addressing the challenges of pain and discomfort requires effective communication and empathetic care from nursing staff. Tailoring the ERAS approach to meet individual patient needs and providing comprehensive education on pain management and postoperative care can help mitigate resistance. Nurses are crucial in facilitating patient understanding and engagement with ERAS

protocols, which is essential for improving postoperative outcomes and patient satisfaction.

### 5.3 Limitations

Recruiting a diverse and representative sample of stakeholders was challenging. The research focused on ERAS protocol stakeholders, recruiting a diverse and representative sample of stakeholders, such as surgeons, anaesthetists, physiotherapists, nurses, dieticians, general practitioners, and pharmacists, presented significant challenges. This diversity is crucial to understanding the barriers and enablers within the ERAS framework from multiple healthcare perspectives. Wenke, Noble, Weir, and Mickan (2020) states that there is a growing body of evidence that highlights the importance of health professionals in participating in research and their participation results in benefits at individual, organisational and societal levels. It was important for this research to successfully recruit and engage with healthcare professionals to acquire diverse perspective of stakeholders. Successful recruitment of research participants is essential as an appropriate sample enables data saturation and acquisition of diverse views in a qualitative study (Bruneau, Moralejo, Donovan, & Parsons, 2021). Being unable to recruit participants was a major limitation to the study.

However, the recruitment process encountered a significant hurdle due to selection bias, predominantly because nurses were more accessible than other healthcare professionals, particularly surgeons. Surgeons and other specialists often have tight schedules and high workloads, limiting their research participation availability. Consequently, efforts to contact and involve colorectal surgeons and other less accessible stakeholders were met with limited success, leading to a disproportionate number of nurses in the study sample.

This imbalance in stakeholder representation significantly impacted the research findings. Nurses, while crucial, represent only one aspect of the multidisciplinary approach required for effective ERAS programs. The underrepresentation of surgeons, anesthetises, and physiotherapists could lead to an incomplete picture of the ERAS implementation process, as these professionals play key roles in perioperative care, patient management, and rehabilitation. For instance, surgeons and anaesthetists can provide critical insights into preoperative

preparations and postoperative care protocols, while physiotherapists are essential in the early mobilisation and rehabilitation of patients.

While valuable, the overrepresentation of nurses' perspectives may skew the data and limit the generalizability of the findings. This selection bias undermines the study's ability to provide a holistic view of the ERAS program's barriers and enablers, potentially leading to biased conclusions that do not fully reflect the complexities and multidisciplinary nature of ERAS protocols.

Future research efforts should implement more robust recruitment strategies to mitigate these issues. These might include scheduling interviews outside of peak hospital hours and offering incentives for participation. Engaging professional organisations and using snowball sampling techniques, where existing study participants recruit future ones from their professional networks, could also improve the diversity of the sample.

Additionally, emphasising the research's importance and potential benefits to patient care and recovery processes may motivate more stakeholders to participate. Clear communication about the minimal time commitment required and the flexibility of participation methods might also increase the willingness of busier professionals to contribute to the study.

In summary, addressing the challenges of recruiting a diverse and representative sample requires strategic planning, flexibility, and persistent efforts. Research can yield more accurate, comprehensive, and generalisable findings by ensuring a more balanced representation of all stakeholders involved in ERAS protocols, ultimately improving perioperative care and patient outcomes.

Interviews were held over the phone; both the participant and the interviewer could not read each other's body language, which could have assisted in prompting for more information or giving more information. If interviews are conducted over the phone or without video, it can be challenging to interpret participants' non-verbal cues, such as body language and facial expressions, which can provide important context to their spoken words (Patil, Patil, & Katre, 2023).

Limitations of using a recorder for telephone interviews include the inability to capture non-verbal communication, resulting in one-dimensional assessments. Additionally, the different linguistic backgrounds affect accents; therefore, the recorded messages were not always easy to understand when listening to them for transcriptions. Two interviews could not play back after recording, which resulted in

recruiting more interview participants and losing important information from other participants.

Stakeholders were under time constraints during interviews, which could have limited the depth and detail of their responses. Additionally, participants could have prioritised discussing topics they believe are most important, potentially overlooking other significant barriers or enablers. Acknowledging limitations indicates the constraints of this study, and the findings are interpreted in the context of the shortfalls. Outlining the constraints of this research contributes to transparency and helps guide future research in this area.

## 5.4 Recommendations

Participants advised that improving ERAS protocols can significantly enhance patient outcomes, particularly in the context of colorectal surgeries where recovery can be intensive. Participants acknowledged that standardised ERAS education for healthcare professionals and patients is crucial. This includes comprehensive training modules and materials that detail each aspect of ERAS pathways, from pre-operative preparations to post-operative care, ensuring a unified approach across the healthcare team.

### *5.4.1 Developing ERAS protocols that are tailored for Australian context.*

Australia can adapt the ERAS guidelines to suit Australia. Australia has a unique spatial dynamic in terms of population distribution around its continent. Taylor et al. (2021)  Australia is a vast country characterised by densely populated coastal regions and sparsely populated inland. Australia is a very large country compared to European countries. As a result, when a patient is diagnosed with colorectal cancer, for preoptimisation of care access to health care services is complex due to location. There is uneven distributions of healthcare workforce, especially specialists and that co relates with unequal health services and facilities in regional areas (Taylor et al., 2021). Population in remote areas are unable to access healthcare facilities. Unger et al. (2018)  carried out research and concluded that rural oncology resources are sparce and rural parts are lost to follow up. Therefore, Australia should adopt ERAS, but tailor make it to suit its population distributions. Lovegrove et al. (2024) Carried out research and concluded that it would be beneficial of ERAS protocols to be co designed by the stakeholders targeting the identified facilitators and barriers which include resource constraints and lack of support from administrators in Australia.

### *5.4.2 Strengthen Patient-centred care*

Intensive pre-operative counselling is another critical component that was recommended. Participants recommended that pre-operating counselling involve detailed discussions between patients and healthcare providers about what to expect during and after surgery. Preoperative counselling encompasses diet, physical activity, pain management, and the psychological aspects of recovery. Educating patients about the benefits and challenges of ERAS protocols could help set realistic expectations, reduce anxiety, and improve compliance with postoperative instructions. Hospitals should design robust preoperative education programs that address patients; expectations, cultural beliefs, and concerns to improve adherence. Hospitals should implement mechanisms for continuous patient feedback during and post treatment to refine protocols and enhance patient satisfaction. As highlighted with one of the findings ERAS is a generic and rigid, protocols are followed on each and every patient besides patients being different . Althans, Holder-Murray, and Tessler (2024) emphasise that ERAS protocols are typically formulated according to the surgical technique and alternatively suggest that these protocols should be developed based on “person type” rather than surgical type to improve patient outcome. Considering  The method to develop or change ERAS protocols should consider patient specific risk factors beyond surgical risk factors to optimally focus post operative risks that the patient faces (Althans et al., 2024)

### *5.4.3 Enhance Institutional support.*

Australia to advocate for hospitals to integrate ERAS into their standard procedures by allocating budgets for necessary resources, staff training and infrastructure upgrades. Hospitals to encourage healthcare leadership to actively promote ERAS adoption. Participants advised that addressing staffing shortages, particularly in nursing, is crucial for the success of ERAS programs. Involving community care nurses can extend the continuum of care beyond the hospital, facilitating better recovery at home and reducing the likelihood of readmission. Recruitment from overseas can help alleviate immediate staffing shortages, but it requires support in terms of relocation, integration into the healthcare system, and cultural adaptation

### *5.4.4 Conduct regular audits and feedback mechanisms*

Ongoing quality assessment is vital to continually improving ERAS outcomes. Implementing a system for regular review and analysis of patient data, feedback, and program efficacy can identify areas for improvement. This should involve surgeons, nurses, anaesthetists, and other healthcare staff, ensuring that all aspects of the ERAS pathway are scrutinised and optimised. Australian healthcare should establish a framework for ongoing evaluation of ERAS protocols at both institutional and national levels. Audit findings to be used to identify areas for improvement and share best practices across institutions.

### *5.4.5 Hospitals to promote Research on ERAS sustainability and long-term outcomes*

Australia to fund studies to evaluate the long-term impact of ERAS on patient recovery and healthcare costs. Funding studies on RAS in colorectal surgery will create foundation for Australia to tailor ERAS protocols to its own healthcare system. Gehrke et al. (2019) states that it is important to develop research related policies and processes at organisational levels. Gehrke et al. (2019) further states that mandating participation in research by hospitals would secure funding to support studies there by guaranteeing dedicated research time for clinicians at hospitals who are interested in research. Australian hospitals should establish research conducive policies and operational protocols tailored to promote research in hospitals. Hospital to foster relationships with universities to promote research. To exemplify in Toowoomba trying to knock on the Surgeons doors to explain purpose of research and building rapport with the surgeon would have been easier had the University had a research relationship with the Toowoomba base hospital. Gehrke et al. (2019) Hospital collaborations with universities for the purposes of research facilitate a swift advancement in research reducing time of participant recruitment either patient or staff which in turn reduces cost. In this research project a lot of time was lost communicating with participants who wanted to participate but did not have the time. If hospitals offer incentives for clinicians who participate that will reduce the lack of time and interest from clinicians. Therefore, Universities and hospitals should foster a relationship that promotes research. The university of southern Queensland should establish an office that has a direct relationship with the Toowoomba hospital to promote research. Gehrke further states that engagement in research has been

linked to enhance career satisfaction among physicians and nurses. Hospitals in Australia would benefit from establishing research relationships with universities.

### *5.4.6 Plan a study method that can facilitate participation.*

Due to stakeholders being unavailable or unwilling to participate in the studies, it is important to rethink future studies on ERAS.A study that involves a healthcare professional with an interest in ERAS would be beneficial as the results will be of their interest. A colorectal surgeon, would be a beneficial professional to collaborate with in a study that involves colorectal surgery. Bruneau et al. (2021) states that identifying knowledge users belonging to the specified target group who will ultimately benefit from the study's outcomes and including them as part of researchers result in easier recruitment of participants as well as ensuring that the study components are relevant. A comprehensive strategy to secure access to the organisation and garner support from critical stakeholders, including administrators and managers will be formulated to improve stakeholder participation. Hospital ward administrators will be contacted to assist in the recruitment of further ERAS research. Bruneau et al. (2021) states that support from administrative workers is an advantage because they can facilitate with the recruitment of clinicians within the organisations. Hospital administrators are aware of the rosters and times that clinicians will be available therefore in the future they will be contacted first prior to recruiting clinicians.

Participants advised that addressing staffing shortages, particularly in nursing, is crucial for the success of ERAS programs. Staffing shortages can be due to poor rostering or staff being able to come to wok due to sick leave. Engaging in clinicians regarding any potential factors that may affect their capacity to attend work would be vital to reduce staff being short on the ward (Marshall et al., 2021). Recruitment from overseas can help alleviate immediate staffing shortages, but it requires support in terms of relocation, integration into the healthcare system, and cultural adaptation

### *5.4.7 Australian Hospitals to create ERAS teams on the wards*

Australian hospitals can benefit from creating ERAS teams in hospitals that are created to initiate and follow up on the ERAS implement ERAS. The essence of transforming practice and achieving the advantages of ERAS lies in a team of essential personnel from the participating units (Ljungqvist, Scott, & Fearon, 2017).The medical leadership of ten consists of a surgeon, accompanied by an

anaesthetist (Ljungqvist et al., 2017). The ERAS clinical leaders have the medical responsibility for the ERAS programme and their role as local advocates is significant (Ljungqvist et al., 2017).In Europe ERAS teams have a project manager who is a nurse and this manager serves a pivotal function dedicating their time to the management of logistical tasks which include composing and distributing ERAS memos, overseeing and reporting feedback to units as well as organising ERAS training programmes(Ljungqvist et al., 2017).Adopting the idea of having an ERAS team on the wards would improve staff awareness of ERAS as well as improved implementation strategies. Barriers such as lack of awareness or lack of knowledge of ERAS would be eliminated with ERAS teams active on the wards. Ulf O. Gustafsson et al. (2011) states that implementing ERAS procedures typically necessitates a significant alteration in clinical practices and numerous units may have challenges in executing all these modifications. It is important that Australian healthcare systems implement ERAS teams to manage the significant changes in clinical practices that come with the implementation of ERAS.

Involving community care nurses can extend the continuum of care beyond the hospital, facilitating better recovery at home and reducing the likelihood of readmission. In the last ten years, the idea of providing acute hospital -level care at home has been increasingly popular due to advances in telemedicine and remote patient monitoring (Hegney et al., 2019). Hospital at home have advantages such as decreased hospital-acquired infections and enhanced patient satisfaction (Hegney et al., 2019). ERAS successful implementation could be improved with training Australin community nurses about ERAS, so that they can continue with ERAS with patients at home which will likely reduce the likelihood of patients returning to the emergency department with complications post discharge. Virtual care nursing can also improve patient care at home and reduce travel time. In America a programme known as Safer @ home is a virtual care nursing programme for patients that has reduced the readmission of patients post-surgery (Maniaci, Rothman, & Hohman, 2024).Virtual care nursing is an outpatient based system that reduces the need for in home visits while maintaining a rigorous patient monitoring and access to the healthcare system (Maniaci et al., 2024). Virtual care nursing would improve patient care when they are discharged because patients will have direct access to healthcare professionals from the comfort of their homes. This will cut the cost of

patients travelling to hospitals and back or Nurses travelling to patients' homes which increases patients risks of infection as nurses will be travelling from one home to another.

These measures can significantly enhance the effectiveness of ERAS programs, leading to shorter hospital stays, reduced complications, and improved patient satisfaction. However, these improvements require commitment from the entire healthcare team, support from hospital administration, and active engagement from patients and their families.

## 5.5 Conclusion

The insights gathered from this chapter show the complexity of implementing ERAS protocols in the context of colorectal surgery. While ERAS has clear benefits, such as improved patient outcomes and enhanced operational efficiencies, healthcare systems have significant logistical constraints to overcome. The chapter highlights the critical need for comprehensive education, adaptive strategies tailored to diverse patient needs, and robust support systems to overcome these barriers. It also emphasises the importance of interdisciplinary collaboration and the active involvement of all stakeholders to ensure the successful integration of protocols. Recommendations outlined aimed to guide healthcare providers and administrators in refining ERAS practices to better meet the needs of patients and enhance the overall quality of care. The subsequent conclusion chapter summarises the study's key findings, articulate the implications, and suggest areas for future research.

# CHAPTER 6: CONCLUSION

## 6.1 Introduction

Enhanced Recovery After Surgery protocols present a paradigm shift in the perioperative care, intraoperative care, and post operative care in Australia. ERAS protocols are fundamentally altering the approach to surgical recovery. This research project delved into the stakeholder's perspective on ERAS protocol in Australia. In this conclusion chapter we synthesise the key findings of our investigation, reflecting on the implications for clinical practice and future research. By integrating evidence from literature reviews, clinical trials, and case studies, this chapter aims to offer a holistic view of the benefits and limitations of ERAS, providing actionable insights for the healthcare practitioners and policy makers.

The aim of the study was to understand the stakeholder's perspectives on the barrier and enablers on implementing ERAS in colorectal surgery. In line with the aim, the objectives were to identify factors influencing the implementation of ERAS protocols in colorectal surgery, including institutional policies, resource availability, staff training and multidisciplinary collaboration among healthcare professionals. The interview findings met this objective. The interview findings included staff shortage and lack of human resource availability. Enquiry on staff training on ERAS in the hospitals was another objective achieved because participants expressed a need for training staff. Participants have various levels of knowledge about ERAS, with some being aware of ERAS but have not been trained to implement ERAS.

Investigating the perceived efficacy of ERAS protocol in improving patient recovery, shortening hospital stays, and minimising postoperative complications was another objective achieved. Participants highlighted that ERAS had positive outcomes on patients when implemented correctly. Participants stated patients recovered sooner and were able to get back to their daily lives. Participants also highlighted that when ERAS is incorrectly implemented, it may result in unintended complications in patients' recovery post-surgery.

Another objective was to evaluate the communication and collaboration among healthcare professionals in relation to ERAS protocols. This objective was achieved because participants were able to explain that ERAS care plans indicate what each clinician is meant to do. ERAS care plan reduces duplication of staff.

ERAS improved clinicians and reduced conflicts in the ward. Clinicians indicated that once they completed their task on the care plan, they alerted the next clinician who was required to perform the next task. To exemplify, when a nurse administers pain medication, they contact the physiotherapist to come in and assist the patient with mobility. ERAS care plan stipulates which clinician performs which task first and who performs the next task. The research objectives have been achieved generally, as indicated by the findings.

### 6.2 Final remarks

The above study concluded that ERAS protocols significantly improve recovery times, reduce hospital stays and enhance overall healthcare efficiency. These advantages show the transformative potential of ERAS in optimising surgical outcomes and resource management. Participants reported that the structured approach of ERAS facilitates better postoperative care and supports multidisciplinary collaboration, essential for holistic patient management.

However, several barriers impede the seamless implementation of ERAS. Primary challenges include inadequate staffing, resistance to change and rigidity of protocols, which can limit the ability to tailor care to individual patient needs, The study also identifies a critical need for ongoing education and training to ensure that all healthcare professionals are well versed in ERAS protocols. The lack of awareness and knowledge among some staff members, particularly those less familiar with the program, can hinder its effectiveness and continuity of care, especially during weekends or in public hospital settings.

The overall study creates foundation for future directions for ERAS, emphasising the need for continuous innovation and adaptation to address emerging challenges in surgical care. The study sample remains small to represent the whole of the Australian health care system, thus there is need for repeating similar research on a larger scale for a better representation of Australia’s health care system. The insights garnered from this research underscores the transformative potential of ERAS protocols in enhancing patient outcomes and fostering a more efficient and patient cantered healthcare environment.

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# APPENDIX 1

University of Southern Queensland

**Office of Research**

Human Research Ethics Committee

human.ethics@unisq.edu.au

15/07/2024

Mrs Julliana Warure

Australia

Dear Julliana

**UniSQ HREC amendment approval certificate**

Thank you for submitting your amendment to the University of Southern Queensland Human Research Ethics Committee (UniSQ HREC) for consideration for consideration by the University of Southern Queensland Human Research Ethics Committee (UniSQ HREC). The Committee has reviewed your amendment and is deemed to meet the requirements of the *National Statement on Ethical Conduct in Human Research, 2023*. Ethical approval has been granted as follows:

HREC Project ID: ETH2024-0672

HREC Project title: The NICER Cancer Survivorship Programme (Nurse-Initiated Care Experiences for Regional Cancer Survivorship): A Qualitative Socio-Ecological Exploration of Survivorship Experiences

Amendment number: 1

HREC Project approval date: 04/01/2021

HREC Amendment approval date: 15/07/2024

HREC Project expiry date: 31/07/2024

This approval is for the work as outlined in your application and only within the commencement and expiry dates listed approved (unless amended by a subsequent UniSQ HREC decision).

**Standard conditions of approval**

University of Southern Queensland

The UniSQ HREC requires you, as Principal Investigator, to:

(a) Conduct the project strictly in accordance with the submitted and granted ethics approval, including any amendments to the proposal.

(b) Ensure any person engaged by the University of Southern Queensland on this project is named and approved by the UniSQ HREC.

(c) Advise the University immediately (email: ResearchIntegrity@unisq.edu.au) immediately of any complaint pertaining to the conduct of the research or any other issues in relation to the project which may warrant a review of the ethical approval.

(d) Promptly report any adverse events to the University (email: ResearchIntegrity@unisq.edu.au) and take prompt action to handle the adverse event.

(e) Make a submission for any project amendments before implementing the changes.

(f) Provide a progress report when requested and at least for every year of approval.

(g) Submit a final report when the project is complete or following the expiry of a UniSQ HREC approval.

(h) Submit any other report as required by the UniSQ HREC.

**Other conditions of approval**

(i) If your project involves the use and/or collection of biological materials, please contact biosafety@unisq.edu.au before commencing your project.

(j) If your project involves the use of drugs or poisons, please contact biosafety@unisq.edu.au before commencing your project.

The University of Southern Queensland Human Research Ethics Committee reserves the right to undertake spot audits of your project records at any time to ensure compliance with this ethical approval. Non-compliance may result in the withdrawal of this approval.

If you have any questions, please do not hesitate to contact the UniSQ HREC Executive Officer (human.ethics@unisq.edu.au).

Yours sincerely

**UniSQ Human Research Ethics Committee**