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Review

Health Professionals Perception of Enhanced Recovery After Surgery: A Scoping Review

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A B S T R A C T

Keywords:

perception
enhanced recovery after surgery
health workers

Purpose: The Enhanced Recovery After Surgery (ERAS) program is currently poorly implemented by healthcare workers. Furthermore, several inhibiting and supporting factors for this implementation have been discovered to influence healthcare workers' perception of the program. This study aims to investigate the perception of healthcare workers regarding the ERAS program.

Design: A scoping review in a systematic manner.

Methods: A systematic search was performed using six databases: PubMed, ScienceDirect, SCOPUS, EBSCO, Proquest, and Sage Journals, from August 2011 to August 2021. The data was extracted using an excel worksheet, and the results obtained were presented descriptively.

Findings: This study selected a total of 10 articles, where both qualitative and quantitative methods were used to discuss the perceptions of healthcare workers about ERAS.

Conclusions: Based on this study's findings, not all healthcare workers have a good perception of ERAS. The implementation of ERAS is often hindered by several factors, including resistance to change and lack of knowledge about the program. However, good teamwork and support from hospital management can support the program's implementation.

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The ERAS (Enhanced Recovery After Surgery) program was introduced and implemented in the late 1990s. Patient perioperative management technique for patient recovery immediately after surgery by maintaining preoperative organ function and reducing the stress response.^{1,2} This program has several primary key components, including preoperative counseling, optimal nutrition, standard anesthetic and analgesic drugs, and early mobilization.³

According to previous studies, ERAS helps to reduce the length of hospital stay, the occurrence of readmission, postoperative complications, morbidity rates, as well as treatment costs.⁴ Currently, this protocol has been implemented in various surgical fields across hospitals, however, not all health workers have

implemented the program.^{5,6} For instance, the implementation of ERAS requires the cooperation of health workers and support from hospital management.^{7,8} In addition, not all healthcare workers are familiar with the program and the ones that are, have different perceptions regarding the protocols.⁶

The healthcare workers' perceptions must, therefore, be understood to identify potential barriers to implementation and success in all types of care.⁹ These perceptions are either negative, positive, or indifferent, and each health worker's perception and experience of ERAS is bound to affect their attitude in daily practice. Therefore, these perceptions must be investigated and understood.¹⁰

Few studies have discussed health workers' perception of ERAS across various surgical fields. However, this study conducted a scoping review to assess the existing literature related to this topic. The primary purpose of this review is to identify the perceptions of health workers about the ERAS method, while the secondary objective is to identify the factors supporting or hindering the program's implementation.

Conflict of interest: The authors declare that they have no conflict of interest.

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Method

Research Design

This study used a scoping review methodology because this design provides coverage and scope for a specific issue and aims to review the key concepts from various relevant literature. The scoping review was carried out using Arksey and O'Malley's five-step process, which comprises: defining research questions, finding relevant research studies, study selection, data extraction, and mapping, followed by compiling, summarizing, and reporting results.¹¹

Step 1: Identifying Research Question

The research questions in this scoping review include:

1. What is the perception of healthcare workers regarding ERAS?
2. What is the perception of healthcare workers about the factors supporting and hindering the implementation of ERAS?

Step 2: Identifying Relevant Studies

Systematic searches were carried out across six databases: ProQuest, science direct, Scopus, Ebsco, sage, and PubMed, using the Boolean operators "AND" and "OR," wildcards, and truncation, to broaden the search. Furthermore, the search keywords were ("ERAS" OR "enhanced recovery" OR "fast-track" OR "accelerated recovery" OR "rapid recovery" OR "early discharge" OR "patients discharge")

AND ("perspective" OR "experience" OR "perception") AND ("professional" OR "staff" OR "nurse" OR "healthcare workers").

All related primary research published within August 2011 and August 2021, including qualitative and quantitative studies on health workers' perceptions of ERAS, was included in the review.

Step 3: Study Selection

Inclusion and Exclusion Criteria

The criteria for study include all qualitative and quantitative studies on the perception of healthcare workers about ERAS, published in full-text English. Meanwhile, the exclusion criteria include opinion pieces, conference abstracts, posters, editorials, and textbooks.

Study Selection

The article selection process was performed using Mendeley software, with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guideline.¹² Subsequently, the data collected were processed and categorized according to the stages of identification, screening, eligibility verification, as well as inclusion and exclusion criteria. The results of two independent searches were compared, and any discrepancies in the article findings were discussed and resolved until an equal number of articles were reported.

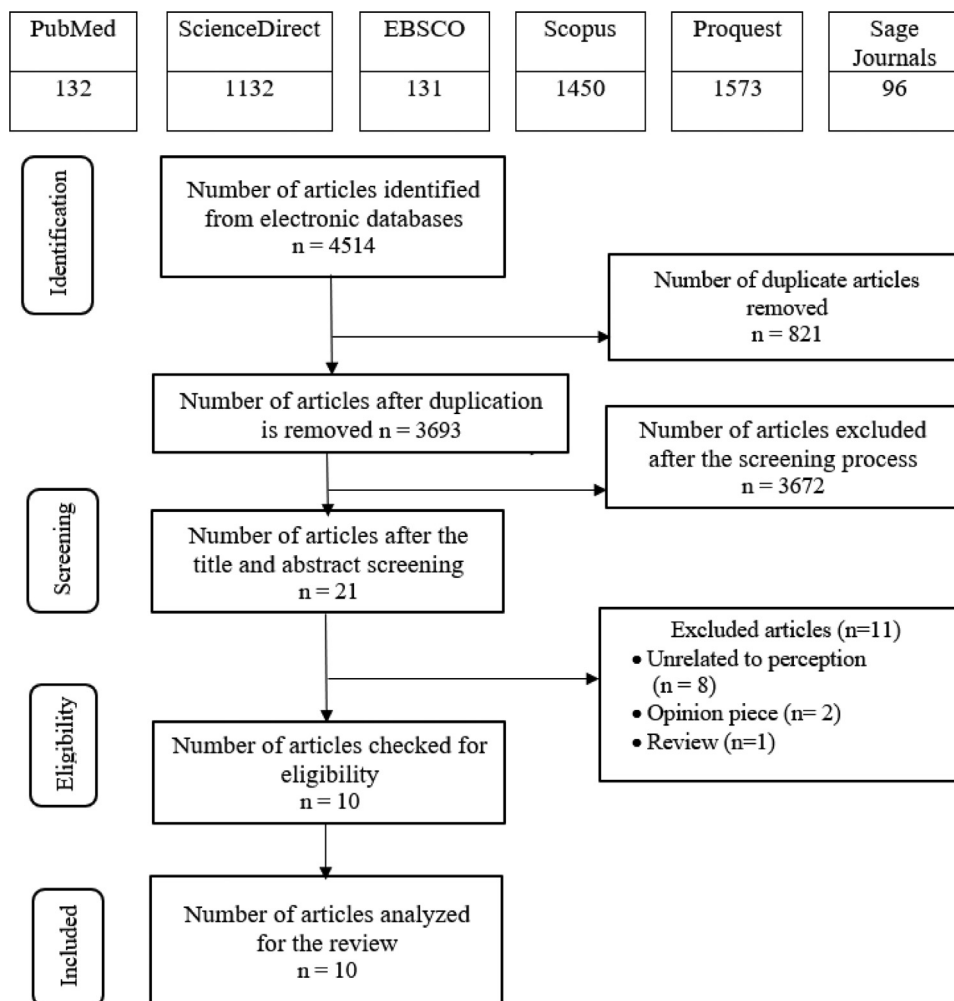


Figure 1. The Systematic Review and Meta-Analyses (PRISMA) flowchart for the identification, inclusion, and selection of articles, using the preferred reporting items.

Table 1
A Summary of the Articles Included in this Review (N = 10)

Article Title	Country of Research	Objective	Research Design	Number and Type of Participants	Type of Surgery	Main Findings
Result of colorectal enhanced recovery after surgery (ERAS) program and qualitative analysis of healthcare workers' perspective ¹³	Singapore	This study aims to discover the difference in patient outcomes before and after the implementation of ERAS and to explore the perception of colorectal surgeons regarding the ERAS program.	Retrospective cohort study	147 patients undergoing colorectal surgery, 12 colorectal surgical specialists, and 5 colorectal resident nurses.	Colorectal	The majority of surgeons do not believe that the ERAS program provides different outcomes to patients. Several surgeons only adopt the ERAS program for certain patients. The challenges of implementing ERAS for nurses include resistance to change, logistical or labor constraints, and poor perceptions of the program.
Healthcare professionals' views of the enhanced recovery after surgery program: a qualitative investigation ⁷	United Kingdom (UK)	This study aimed to investigate the factors supporting and hindering the implementation of ERAS	Qualitative semistructured interview. Normalization process theory framework analysis.	26 health professionals, comprising surgeons, anesthesiologists, nurses, and clinical managers.	Thorax, colorectal, head and neck surgeries	This study concluded that serious efforts are required to successfully implement ERAS, including the abolishment of harmful deep-rooted surgical practices, standardization of the ERAS protocol, collaboration between teams, and the involvement of stakeholders.
A multicenter qualitative study assessing the implementation of enhanced recovery after surgery program ¹⁴	Sweden, Switzerland	This study aimed to investigate the supporting and inhibiting the implementation of ERAS	Qualitative and online survey	146 health workers, comprising surgeons, anesthesiologists, and nurses for the online survey and 30 health workers for interviews.	All surgical specialties	Applying ERAS to nursing practice is a challenge that requires important changes in clinical practice for all the specialties involved. The main reasons for implementing ERAS are reducing complications, reducing the length of stay in the hospital, as well as increasing patient satisfaction. Furthermore, the main obstacles in implementing ERAS are inadequate time and human resources, as well as reluctance to change.
Neurosurgery perception of enhanced recovery after surgery (ERAS) protocols ²⁶	United States of America (USA)	This study aims to investigate the implementation of ERAS and the benefits of this implementation.	Online survey with google forms	39 neurosurgeons	Neurosurgery	A total of 69.5% of neurosurgeons implement ERAS in their institutions of work. However, the neurosurgeons believe several protocols in ERAS need to be improved.
Are we doing "better?" the discrepancy between perception and practice of enhanced recovery after cystectomy principles among urologic oncologists ¹⁵	USA	This study aims to discover the perception and application of ERAS in cystectomy surgeon	An online survey using email	128 urologists	Cystectomy	Significant variability was discovered in the choice of the ERAS protocol. Furthermore, there is a significant gap between self-perception and the adoption of ERAS principles.
A survey of health care providers' perceptions of enhanced recovery after surgery and perioperative surgical home protocols at tertiary care hospital ¹⁷	Ohio	This study aimed to evaluate the perception, knowledge, and preferences of the ERAS protocol.	Online survey	223 surgeons and 72 anesthesiologists	All surgical specialties	The respondents rated their colleagues and institutions as supporting ERAS and preferred to learn by participating directly in the institution, rather than participating in seminars and lectures. However, the respondents believed the inadequate time was given to learn about the program.
Orchestrating care through the fast-track perspective: A qualitative content analysis of the provision of individualized nursing care in orthopaedic fast-track programmes ¹⁸	Denmark	This study aimed to investigate nurses' perceptions and experiences in caring for geriatric patients based on the ERAS program.	Qualitative	10 interviews with orthopaedic nurses	Orthopaedic surgery	The nurses feel compelled to discuss appropriate nursing care to implement the ERAS program.
A qualitative study of the barriers and enabling factors in implementing enhanced recovery after surgery program ⁸	Canada	This study aimed to identify the barriers to implementing ERAS	Qualitative with grounded theory analysis	19 general surgeons, 18 anesthesiologists, 18 nurses.	Colorectal surgery	According to the results, inadequate human resources, poor communication and collaboration, resistance to change, and lack of patience are considered inhibiting factors for implementing ERAS.
Successful implementation of enhanced recovery after surgery program for elective colorectal surgery: a process evaluation of champions' experiences ¹⁹	Canada	This study aimed to identify the factors supporting and hindering the implementation of ERAS	Qualitative semistructured interviews. Normalization process theory framework analysis.	5 surgeons, 14 anesthesiologists, 15 nurses and 14 projects coordinators	Colorectal surgery	Successful implementation of ERAS was achieved through a series of complex cognitive and social processes.
A qualitative study assessing the barriers to implementation of enhanced recovery after surgery ⁶	Australia	This study aimed to identify the barriers to implementing ERAS	Qualitative semistructured interviews. Grounded theory analysis.	18 interviews with multidisciplinary team staff	Colorectal surgery	The barriers to the ERAS program are patient-related factors, staff-related factors, problems related to ERAS practice, and inadequate resources.

Table 2
Perceptions of the Factors Supporting and Hindering the Implementation of Enhanced Recovery After Surgery (ERAS)

Support and Barriers	Perception of Health Workers
Factors supporting the implementation of ERAS	<ol style="list-style-type: none"> 1 The existence of standardized ERAS practices are included in the patient care routine⁷ 2 The involvement of all stakeholders in the hospital^{7,17} 3 ERAS is applicable for patients of all ages¹⁸ 4 Availability of continuous training on ERAS¹⁸ 5 Healthcare workers believe ERAS is important for patients¹⁴ 6 Solid teamwork¹⁷ 7 ERAS can improve financial efficacy in hospitals¹⁴ 8 Good communication between teams in implementing ERAS¹⁷ 9 The need for discipline in the implementation of ERAS⁸
Factors inhibiting the implementation of ERAS	<ol style="list-style-type: none"> 1 Resistance of healthcare workers to change^{7,26,32} 2 Inadequate human resources for ERAS implementation^{6,7,18,26,32} 3 Inadequate knowledge of the components in the ERAS protocol³² 4 ERAS is not regarded as a significant change³³ 5 Inadequate time to implement ERAS^{7,14,18,34} 6 Inadequate management support⁷ 7 Unfamiliar taste of drinks in oral carbohydrate loading (maltodextrin)⁷ 8 Challenges from colleagues facing difficulties in adopting ERAS^{18,22} 9 Logistics problems (must compile/distribute maintenance memos and maps)¹⁸ 10 The patient has comorbidities so that he cannot apply ERAS¹⁸ 11 Components of the ERAS protocol require improvement^{6,8,22} 12 Concerns about the reduction in patient satisfaction²⁶ 13 Inadequate knowledge of healthcare workers regarding ERAS^{14,26} 14 Healthcare workers are not convinced by the evidence of ERAS' capacity to improve patient outcomes^{14,26} 15 Poor communication between teams⁶ 16 Perceptions of inadequate support to apply ERAS²⁶ 17 Unfamiliarity with ERAS¹⁴ 18 Inadequate human resources for implementing ERAS⁸

Step 4: Extracting and Mapping Data

Data extraction was carried out using an excel worksheet. Subsequently, the data was converted into an extraction table, comprising each article's title, author, year of publication, country, research objectives, research design, number and types of participants, the field of surgery, as well as the main findings.

Step 5: Compile, Summarize and Report Result

Each article found was identified regarding the reasons for carrying out the ERAS protocol or not and the support and obstacles in implementing ERAS. The codes generated from these findings were entered in the codebook then entered into categories, ensuring no overlapping data. From the categorization results, the themes of supporting and inhibiting factors for the implementation of ERAS were generated.

Result

A total of 4,514 articles were identified during the systematic search. Of these articles, the Mendeley software detected 821 duplicate articles, and the remaining 3,693 articles were subjected to the title, as well as abstract filtering, where 3,672 articles were deemed irrelevant, and only 21 articles were selected for the full-text review. Only 10 articles were selected for this study based on the inclusion criteria (Figure 1), and the articles analyzed were publications of studies carried out in the continents Asia, North America, Europe, and Australia (Table 1). Table 2 shows a summary of the perceptions of health workers of the ERAS program, as well as the factors supporting and hindering the program's implementation.

Discussion

According to the results, most of the studies on the perception of healthcare workers regarding ERAS were carried out in the field of

colorectal surgery. In addition, healthcare workers' perceptions of ERAS also vary across hospitals. In several hospitals, the protocol has been well received by healthcare workers,¹³ and this is most likely due to the solid teamwork and support of all stakeholders in the hospital.² The support of stakeholders aids the implementation of the ERAS protocol in the standard patient care routine and this is beneficial to all stakeholders because the program is bound to reduce treatment costs and increase financial efficacy in hospitals.¹⁴⁻¹⁶

However, for the program to be successfully implemented, all healthcare workers must receive continuous training to improve their knowledge of the program, and also demonstrate discipline, strong communication skills, as well as teamwork.^{8,17,18,19} A positive perception of ERAS by healthcare workers, as well as support from hospital management, are bound to aid the program's implementation.^{19,20}

However, several factors hinder the effective implementation of the program, particularly inadequate time and resources.^{7,18} This is a concern for healthcare workers, considering the protocol comprises several components, including the preoperative, intraoperative, and postoperative pathways.²¹ Several healthcare workers believe some ERAS components require further study, for instance, at the University of Toronto Hospital, early postoperative feeding must be adjusted to the patient's condition, and early mobilization requires the involvement of nurses, as well as the patient's family.^{8,22}

The resistance of healthcare workers has presented a significant challenge in the protocol's implementation at both the group and individual levels because several habits and practices must be changed, and well-seasoned healthcare workers tend to resist these changes, while new healthcare workers tend to be more receptive.^{8,17,23}

Several healthcare workers do not regard ERAS as a significant change because some of the protocols have already been implemented in daily practice, however, numerous health workers are unfamiliar with the program.^{7,24,25} Therefore, healthcare worker's knowledge of ERAS must be improved, because an inadequate

understanding of the program will hinder its effective implementation.^{14,26,27} A study conducted in Korea regarding the implementation of ERAS in gastric cancer surgery showed most doctors were well acquainted with the protocol, however, most of these doctors failed to implement the program.²⁸ This was due to several factors, including resistance to change and lack of support from the hospital management.²⁹

A survey of doctors' perceptions regarding ERAS in gynecological urological surgery discovered the program was not implemented due to distrust of the ERAS concept, as well as inadequate convincing evidence and support from the hospital management.³⁰ This shows managerial support and involvement of all hospital teams are essential factors for the program's success.³¹ Therefore, healthcare workers ought to be provided continuous ERAS training to increase their knowledge of the program, while hospital management ought to provide unwavering support to ensure the program is successfully implemented in hospitals.¹⁶

Implications for Future Research

Only a few studies are available on the perception of healthcare workers regarding the ERAS protocol, and these studies are dominated by the implementation in colorectal surgery. Therefore, future studies on the perception of health workers regarding ERAS in other surgical fields, are required. Knowledge of these perceptions, as well as the inhibiting and supporting factors for the implementation of ERAS, are required to successfully implement the program across hospitals.

Limitations

This research is a scoping review, which covers the breadth of the literature on a certain topic without evaluating the article's quality. The reviewed articles do not cover every aspect of surgery and are focused mainly on colorectal surgery.

Conclusion

Based on the findings of this review, ERAS is currently poorly implemented across all existing surgical fields. In addition, healthcare workers' perceptions of the program, as well as the availability of resources and support from hospital managements, are critical factors for the program's success.

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