

Non-clinical specific interventions to improve patient safety in perioperative care process: an umbrella review

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INTRODUCTION

- The perioperative care process is crucially related to patient safety.
- Approximately 10% of all patients admitted to hospitals experience adverse events and adverse events related to perioperative care are most reported^{1,2}.
- Adverse events have been found to cause patient complications and increased costs^{1,3}, highlighting the need for multiple types of interventions.
- Non-clinical specific patient safety interventions refer to interventions that are applied outside of the routine clinical interactions between a care-provider and patient⁴.

AIM

To summarise the available evidence of non-clinical specific interventions to improve patient safety in the perioperative care process in adult patients and to assess the quality of evidence of these interventions.



METHOD

- We followed Aromataris et al.⁵ methodology guidance for umbrella reviews.
- The review protocol was registered in PROSPERO (protocol number CRD42023397419).
- Electronic and manual search strategy to ensure comprehensive coverage of the relevant literature. PubMed, Scopus, CINAHL, PsycINFO, and Cochrane databases for quantitative systematic reviews and meta-analyses
- The inclusion criteria were:
 - EPOC criteria studies⁶
 - Studied effect evaluations of non-clinical specific patient safety interventions and involved one or more surgical sub-specialities
 - Published between 2012-2022
 - Adult patients (≥18 years)
- The quality of studies was assessed with the JBI Critical Appraisal Checklist for Systematic Reviews and Research Synthesis⁵.
- Data was analysed with the narrative synthesis method⁷.

RESULTS

Altogether 62 studies were included in the umbrella review (Figure 1). The three most common types of surgery were gastric, colorectal and orthopaedic surgery.

- Identified interventions were grouped as patient-targeted, healthcare professionals targeted, organisation-targeted, and mixed-targeted (Table 1).
- The most reported intervention was a coordinated perioperative care approach (ERAS, FTS, FTR).
- The most reported clinical outcomes were the rate of complications and/or morbidity (n=37) and length of stay (n=31).
- Most reported patient-reported outcomes were pain (n=15) and anxiety (n=14).

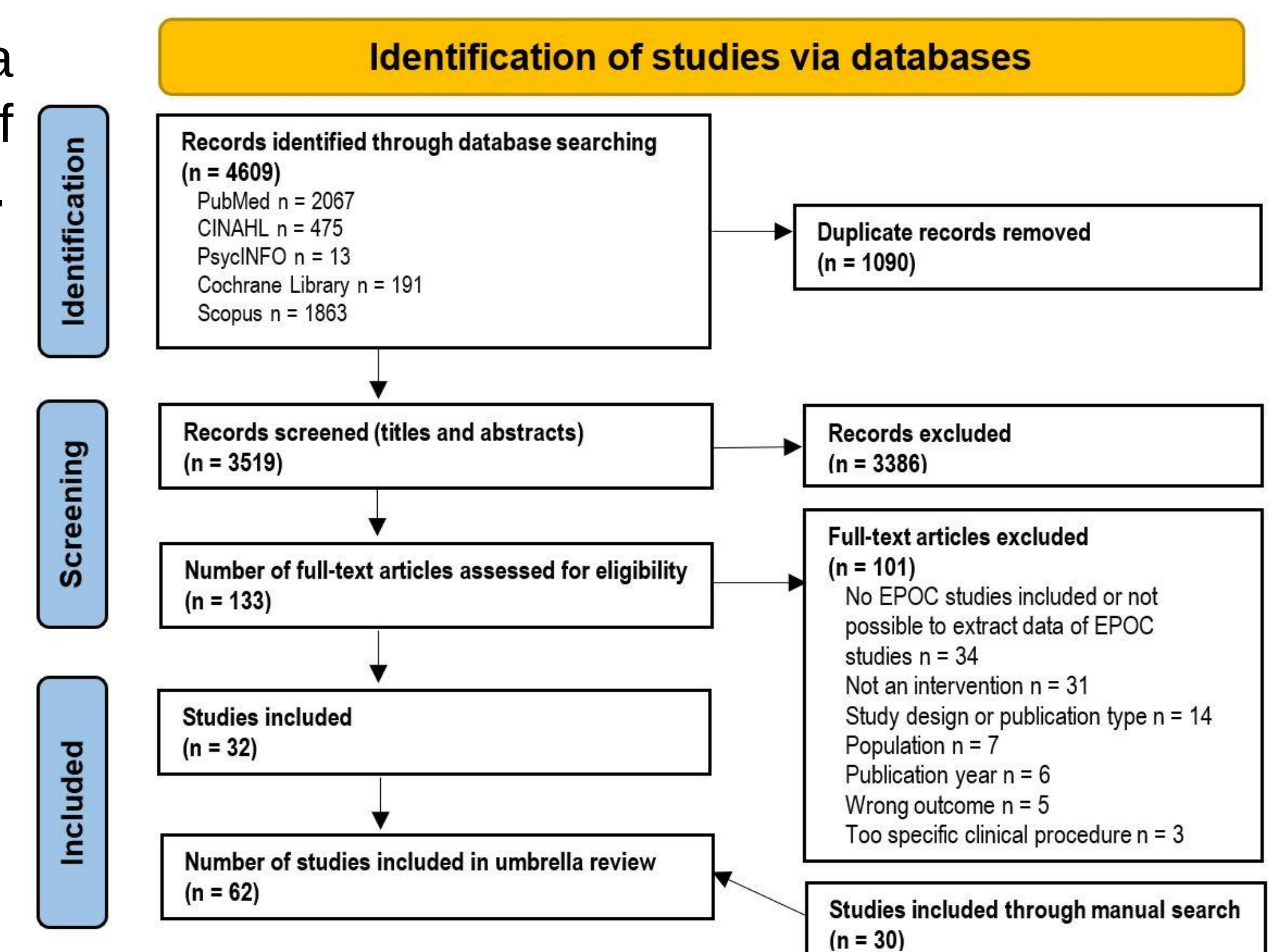


Figure 1. PRISMA Flow diagram for study inclusion

Table 1. Identified non-clinical specific interventions to improve patient safety in perioperative care process

Intervention	No studies	Significant effect on patient outcomes
PATIENTS TARGETED INTERVENTIONS		
Complementary and alternative medicine interventions		
Music medicine & therapy	9	Pain, anxiety, medication requirement, satisfaction, systolic blood pressure, heart rate
Multicomponent expressive interventions	1	Pain, anxiety, systolic blood pressure, heart rate
Aromatherapy	1	Anxiety, Depressive symptomis
Massage therapy	1	Pain, anxiety
Mental simulation practices	1	Pain, maximal strength of quadriceps, physical functions, quality of life
Preoperative preparation		
Preoperative education	3	Anxiety, length of stay, knowledge, education, satisfaction
Psychological preparation	2	Pain, anxiety, length of stay, recovery, behavioural recovery, quality of life, negative affect
Optimization of preoperative risk factors		
Perioperative warming	3	Core temperature, surgical site infection, major cardiovascular complications, blood loss, blood transfusion during surgery, total fluids infused during surgery, shivering, thermal comfort
Postoperative nutrition	2	Infectious and non-infectious complications, length of stay
Geriatric assessment	2	Discharge to an increased level of care or to home with self-care, functional status, geriatric syndroms and events
Smoking cessation	1	Postoperative complications, wound complications
HEALTHCARE PROFESSIONALS TARGETED INTERVENTIONS		
Training		
Simulation training	1	Intraoperative errors, postoperative complications, overnight stay
ORGANISATIONS TARGETED INTERVENTIONS		
Implementing checklists and protocols		
WHO surgical safety checklist	2	Any complication, abdominal complications, infectious complications, mortality, surgical site infection, unplanned return to operative theatre, pneumonia, bleeding
Other checklists	1	Postoperative complications, medication-related problems, 30-day mortality
MIXED TARGET INTERVENTIONS		
Coordinated perioperative care approach		
ERAS / FTS / FTR	32	Length of stay, morbidity, readmission rate, surgical complications, surgical site infections, other infections, mild adverse events, postoperative nausea and vomiting, delayed gastric emptying, time to first flatus, function recovery, quality of life, postoperative outcome, length of stay in intensive/intermediate care unit, pain

CONCLUSIONS

- Several effective, non-clinical specific interventions targeting different patient safety outcomes can be used to improve perioperative care.
- Most evidence for effective interventions was found for ERAS / FTS /FTR , the use of checklists and patient-related interventions.
- The moderate to strong methodological quality of the included studies is in favour of our findings.
- There is limited robust evidence to indicate which part(s) of the interventions led to particular, specific improvements. Therefore, more studies are needed.

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