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REVIEW

How nursing care is expressed among nurse anaesthetists in the perioperative context: A meta-ethnographic synthesis

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Abstract

Aim: To develop a conceptual framework describing nursing care from the anaesthesia nurse's perspective in the perioperative context.

Background: Surgical patients find themselves in a vulnerable situation in need of advanced treatment and care. Nurse anaesthetists have a central role in reducing harm and enhance patient safety, in which person-centred care has been identified as a key component. However, they are challenged by productivity and efficiency demands leading to a potential risk to patient safety.

Design: Noblit and Hare's interpretative meta-ethnography, directed by the eMERGe reporting guidance.

Methods: A comprehensive systematic search of nine databases without year limitation. Fifteen studies published between 2002 and 2021 were found eligible for inclusion. Quality appraisal was performed using the Joanna Briggs Institute Qualitative Assessment and Review Instrument.

Results: Four themes were identified: being vigilant to keep safe from harm, strengthening patients' confidence, expressing courage to act and speak up, and endorsing team collaboration to achieve best practice. The themes were synthesised into the metaphor, '*Continuously assessing and acting according to the patients' needs in a holistic perspective*'. A conceptual framework was developed, illustrating the interconnection between the different nursing expressions, as the nurse anaesthetists seek to care for the patient as a whole person.

Conclusions: Nurse anaesthetists aim to deliver holistic nursing care. Nursing care is expressed at two levels, foregrounding and backgrounding anaesthetic nursing, in line with the philosophy of person-centred care. Nursing care in anaesthesia is a matter of how and why it is performed, expressed in attitudes toward the recipients of care.

Relevance to clinical practice: The framework may be used to inform educational programs and clinical practice in nurse anaesthesia and to promote person-centred care as a shared value across all levels involved in perioperative patient care.

No patient or public contribution: Data were retrieved from already published literature.

KEYWORDS
meta-ethnography, nurse anaesthesia, nursing, patient safety, perioperative, person-centred care, qualitative research

1 | INTRODUCTION

In 2021, the International Council of Nurses officially recognised nurse anaesthesia as advanced practice nursing, stating that nurse anaesthetists (NAs) provide person-centred (also termed patient-centred), high-quality, holistic, evidence-based and cost-effective care in collaboration with the patient and other healthcare professionals (Stewart et al., 2021). According to The International Federation of Nurse Anesthetists (IFNA), a NA is *'a person who has completed a program of basic nursing education and is qualified and authorized in his/her country to practice as a nurse anesthetist'* (Meeusen et al., 2016). Anaesthesia is complex and potentially hazardous to the patient. Thus, safe anaesthesia practice requires advanced knowledge in human sciences, pharmacology, surgical and anaesthesia procedures, and the use of advanced communication skills to meet patients' needs (IFNA, 2016). Person-centred care (PCC) has been identified as a key component with the potential to improve healthcare quality, safety and patient outcomes. It is a perspective rooted in the universally held values of human rights, dignity, participation, empowerment and partnership of equals (Eklund et al., 2019; WHO, 2007). However, increased efficiency demands and a shortage of qualified health personnel in anaesthesia care have the potential to threaten the conditions for PCC (Feo & Kitson, 2016). Through their basic training, NAs hold perspectives that are essential to promoting quality PCC. Therefore, the aim of this study was to develop a conceptual framework describing nursing care from the anaesthesia nurse's perspective in the perioperative context.

1.1 | Background

A surgical patient is a person in a vulnerable situation in need of advanced treatment and care. Nurse anaesthesia is an intentionally coordinated and goal-directed response to surgical patients' specific needs (Kim, 2010), which NAs are specially educated and trained to meet. NAs administer or participate in anaesthesia services in 107 countries and in 70%–80% of all anaesthesia cases in the world (Meeusen et al., 2016). However, education and roles and responsibilities differ widely. Commonly, NAs are continuously present during anaesthesia, rapidly assessing and adjusting to the patient's situation. Together with other health professionals, they are involved in all three phases of perioperative anaesthesia care (pre-, intra- and postoperative), facilitating surgery, trauma care, advanced life support and other emergency cases with the aim of achieving the best possible outcome and preventing adverse events (Stewart et al., 2021).

Anaesthesia is provided in the context of advanced technology and productivity demands. Treatment programs designed to enhance recovery and enable early hospital discharge, such as Enhanced Recovery after Surgery (ERAS), and fast-track protocols, are a growing trend in surgery and anaesthesia. Despite their benefits, there are some concerns related to the applicability of technology and productivity regarding certain patient groups (Sibbern et al., 2017). The increased focus on both the quality of care and cost reduction challenges the delivery of holistic healthcare and needs to be balanced. As such, there is a growing interest in shifting from a biomedical model of healthcare to a biopsychosocial model, integrating the fundamental physical and psychosocial aspects of PCC with the relational aspects of care, such as hygiene, nutrition, dignity, respect and empathy (Kitson, 2018). However, certain areas of nursing care tend to be rendered invisible and devalued. Rationing of fundamental patient care may lead to fragmented delivery of care, in contrast to holistic care (Feo & Kitson, 2016; Mandal et al., 2020).

In this study, we argue that there are certain underlying ontological concerns for anaesthesia nursing that the NA needs to address, such as human suffering, pain, anxiety, vulnerability, despair and hope, with the aim of reducing harm and enhance patient safety.

To truly understand NA practice as it relates to nursing care, it is necessary to further explore the epistemology as it is performed in its specific clinical setting, which can only be revealed by accessing the practice (Kim, 2010). To our knowledge, a study of nurse anaesthesia care in the perioperative setting using meta-ethnography has not been synthesised before.

What does this paper contribute to the wider global clinical community?

- Nurse anaesthetists aim to establish a therapeutic relationship in brief meetings with the patient to enhance patient safety, reduce harm and balance out challenges related to productivity and efficiency demands.
- Supportive team collaboration and shared values across disciplines are essential in the delivery of holistic nurse anaesthesia patient care, and thus needs to be promoted.
- The conceptual framework developed in this review offers an analytical scheme which may be used to inform educational programs and further development of clinical practice in nurse anaesthesia and perioperative care.

2 | AIM

The aim of this review was to develop a conceptual framework describing nursing care from the anaesthesia nurse's perspective in the

perioperative context. The review question guiding the study was How do NAs express nursing care in the perioperative context?

3 | MATERIALS AND METHODS

3.1 | Design

We used the inductive interpretative method of meta-ethnography developed by Noblit and Hare (1988), to conduct a systematic review of qualitative studies. The method consists of seven steps (Table 1) and is characterised by its distinct rigorous approach as the researcher reinterprets conceptual data from primary studies to create higher-order themes. Thereby, this method is suitable to reveal deeper insights and explanations, which would not be possible to achieve from a single study (Sandelowski et al., 1997; Sattar et al., 2021). The eMERGe reporting guidance (Table S1) was used to direct the synthesis (France, Cunningham, et al., 2019).

3.2 | Search methods

In February 2020, we conducted a comprehensive systematic search for qualitative studies, with an update in November 2021. The review question and the SPIDER tool (Cooke et al., 2012) were used to guide searches in Embase, Medline, CINAHL, British Nursing Index, Cochrane, Epistemonikos, Web of Science, Idunn and SweMed+ (Table S2). The search strategy included a combination of words considered to cover the three major areas of interest: anaesthesia nursing, descriptions and qualitative design. Simplified search terms are presented in Table 2. Full search strings are reported in Table S3. Final searches were conducted by a senior librarian. Papers were included if they met the predetermined eligibility criteria (Table 3).

3.3 | Search outcomes

A total of 2563 records were screened, of which 115 were selected based on title and abstract and screened independently by the first and last authors. Fifty-six studies were read in full text by all three authors and assessed for eligibility against the inclusion and exclusion criteria. A final inclusion of 15 studies was reached through discussion and consensus. The selection process is summarised in Figure 1.

TABLE 1 Seven steps of meta-ethnography (Noblit & Hare, 1988).

Step 1	Getting started
Step 2	Deciding what is relevant to the initial interest
Step 3	Reading the studies
Step 4	Determining how the studies are related
Step 5	Translating the studies into one another
Step 6	Synthesising translations
Step 7	Expressing the synthesis

3.4 | Quality appraisal

The first and last authors individually performed a quality appraisal of each primary study (Table 4) using the Joanna Briggs Institute Qualitative Assessment and Review Instrument (JBI, 2017). Any potential disagreement was resolved through discussion and consensus. The studies were considered to have high quality with respect to their goals, methodology and analysis. Half the studies were unclear about, or did not address, the researchers' possible influence on the research. Half the studies were unclear about applying for ethical approval but included a statement that such was not required for this type of study for the country in which the study was conducted. Nevertheless, all studies were included because they were considered to contain valuable information suitable to inform our research question.

3.5 | Data abstraction

None of the papers were identified as seminal and were read in alphabetical order by author name. Data abstraction was performed by the first author and involved creating a translation table describing characteristics of each study and providing context for interpretations (Table 5). First- and second-order constructs from the primary studies, identified as nursing care expressions, were extracted and recorded verbatim by the first and last authors (Britten et al., 2002). Key terms used in the data synthesis are explained in Table 6.

3.6 | Synthesis

All three authors were involved in the analysis process (Figure 2). A list of preliminary concepts from each study was created, and concepts were juxtaposed against each other to identify any recurring concepts (France, Uny, et al., 2019). Any potential refutational concepts were also considered at this stage. According to Noblit and Hare (1988), the researcher must determine the relationship between the studies as either reciprocal (similar), refutational (in opposition) or in line of argument (cumulative) (France, Uny, et al., 2019; Noblit & Hare, 1988). We found the studies to be relatively comparable and therefore could be analysed as a reciprocal translation. As new concepts evolved, the text was analysed inductively and condensed into codes, new concepts and themes. Guided by the research question, similar concepts and themes were revised through discussions within the review team, referring to the original text and context to ensure consistency with the original data (Britten et al., 2002; France, Cunningham, et al., 2019; Sattar et al., 2021). This phase is referred to as 'translating the studies' into one another (Noblit & Hare, 1988). Rich,

#1	Anesthesia nursing OR nurse anesthetist OR perioperative nursing
#2	Nurse (attitude OR role OR function OR descriptions OR understanding OR experience OR attitude OR reflection OR practice OR perception OR opinion)
#3	Qualitative (research OR methods OR analysis) OR interview OR narrative OR storytelling OR grounded theory OR ethnographic research OR observational study OR field study OR participant observation OR phenomenology OR hermeneutic OR mixed method
#4	A combination of #1 AND #2 AND #3

TABLE 2 Search terms.

TABLE 3 Eligibility criteria.

Inclusion criteria	Exclusion criteria
1. Original, peer-reviewed qualitative or mixed-method research 2. Nurse anaesthetists identified in the literature as either nurse anaesthetist (NA), registered nurse anaesthetist (RNA) or a certified registered nurse anaesthetist (CRNA) with a postgraduate diploma or master-level degree 3. Focus on RNA's descriptions, experience, reflections, attitudes, opinions, perceptions or understandings of what is nurse anaesthesia 4. Perioperative anaesthesia care (pre-, intra- and postoperative) 5. In-hospital care, day clinics or private clinics 6. Scandinavian or English publication language	1. Reviews 2. Quantitative research 3. Conference abstracts 4. Prehospital care 5. Textbook manuscripts 6. Articles with focus on specialised nurses other than RNAs 7. Articles focusing on the patients' perspective 8. Language other than Scandinavian or English

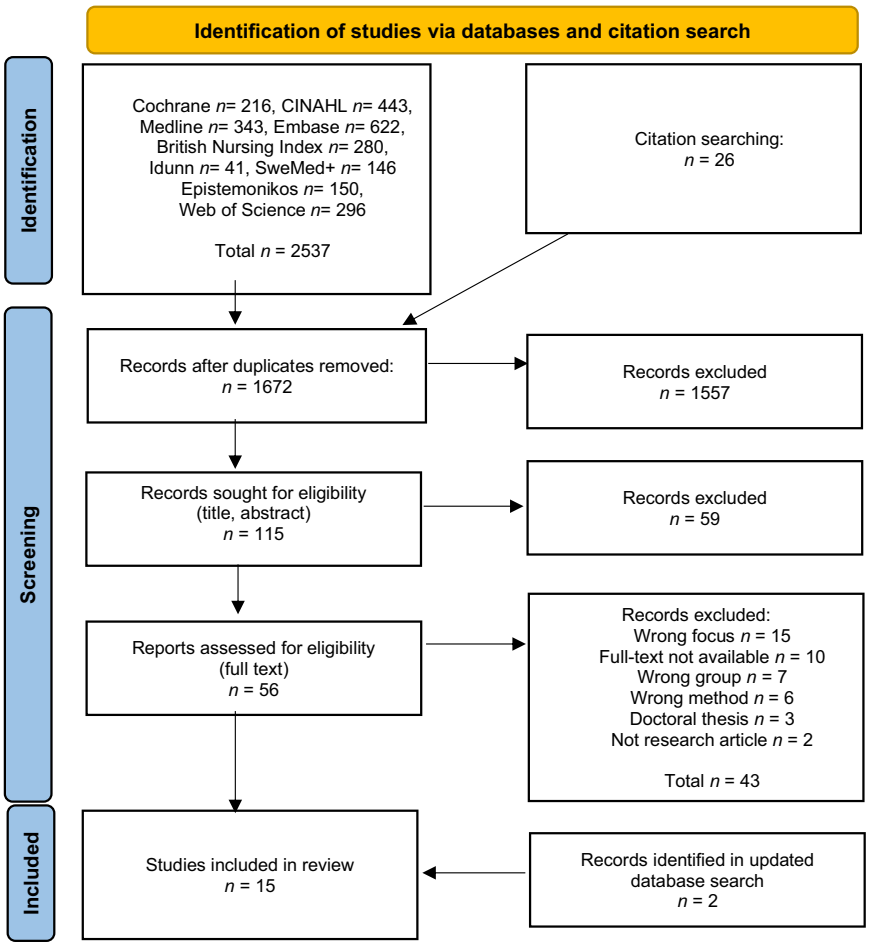

FIGURE 1 Prisma flow diagram (Page et al., 2021).

descriptive data allowed us to develop third-order constructs, reframing the concepts used in the primary studies, thus providing new perspectives (Noblit, 2016; Sattar et al., 2021). An example of the translation is represented in Table 7.

4 | RESULTS

Reciprocal synthesis led to the identification of four themes as an interpretative understanding of how nursing care is expressed among

TABLE 4 Quality assessment of included studies (JBI Critical Appraisal Checklist for Qualitative Research, Joanna Briggs Institute (JBI), 2017).

	Questions									
Study	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Abelsson et al. (2021)	✓	✓	✓	✓	✓	–	✓	✓	✓	✓
Abelsson and Nygårdh (2020)	✓	✓	✓	✓	✓	–	–	✓	–	✓
Calebrant et al. (2016)	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓
Clair et al. (2020)	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓
Danielsson et al. (2018)	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓
Krupić (2019)	✓	✓	✓	✓	✓	✓	✓	✓	–	✓
Krupić, Grbić, Bišćević, et al. (2019)	✓	✓	✓	✓	✓	✗	–	✓	–	✓
Krupić, Grbić, Čustović, et al. (2019)	✓	✓	✓	✓	✓	–	–	✓	–	✓
Krupić et al. (2016)	✓	✓	✓	✓	✓	✓	✓	✓	–	✓
Larsson et al. (2005)	✓	✓	✓	✓	✓	✗	✗	–	✓	✓
Mauleon and Ekman (2002)	✓	✓	✓	✓	✓	✓	✓	✓	–	✓
Schreiber and MacDonald (2010)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sundqvist et al. (2018)	✓	✓	✓	✓	✓	✓	✓	–	✓	✓
Sundqvist and Carlsson (2014)	✓	✓	✓	✓	✓	✓	✓	–	✓	✓
Thomasgaard et al. (2021)	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓

Note: ✓ Yes – Unclear ✗ No; Critical appraisal questions: (1) Is there congruity between the stated philosophical perspective and the research methodology? (2) Is there congruity between the research methodology and the research question or objectives? (3) Is there congruity between the research methodology and the methods used to collect data? (4) Is there congruity between the research methodology and the representation and analysis of data? (5) Is there congruity between the research methodology and the interpretation of results? (6) Is there a statement locating the researcher culturally or theoretically? (7) Is the influence of the researcher on the research, and vice-versa, addressed? (8) Are participants, and their voices, adequately represented? (9) Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body? (10) Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?

NAs (Table 8). The review team agreed on the synthesis metaphor *'Continuously assessing and acting according to the perioperative patient's needs from a holistic perspective'*, to illustrate how NAs integrate different approaches to meet individual patients' needs. Findings are represented below with reference to each core theme. The themes are not mutually exclusive but interconnect and must be seen as part of a whole.

4.1 | Being vigilant to keep safe from harm

Being vigilant calls for focused attentiveness to details and changes in the patients' situation. Systematic planning and preparing were necessary to be one step ahead, such as reading up on the patient's history, identifying each patient's risk factors and preparing drugs and technical equipment before surgery to ensure patient safety, but also paying attention to what is going on in the surgical field and interacting with the surgeons to be prepared for the next step (Calebrant et al., 2016; Danielsson et al., 2018; Krupić et al., 2016; Sundqvist et al., 2018; Sundqvist & Carlsson, 2014).

> The RNAs had several different strategies for providing the best possible care for the patient, which was described as 'having the entire care plan clear in my mind'
>
> (Sundqvist & Carlsson, 2014, p. 284).

Vigilant monitoring was described as finessing and titrating the human–technology interface.

The NAs were directly vigilant in terms of assessing patients' breathing, pulse, skin colour and temperature through observation and touch, but also indirectly because they used technology as proxies, seeing the patient through the machinery. This required translating data from the monitor and combining it with theoretical knowledge and previous experience to provide meaningful interpretations in specific situations (Calebrant et al., 2016; Krupić, Grbić, Bišćević, et al., 2019; Krupić, Grbić, Čustović, et al., 2019; Schreiber & MacDonald, 2010).

> Managing sophisticated anaesthesia technology to ensure patient safety requires skill and a subtle discrimination of minute changes in physiology so that the process can be refined to adapt to or control patient responses to the anaesthetic
>
> (Schreiber & MacDonald, 2010, p. 556).

> If you see that they are beginning to have tachycardia and you don't really suspect that it's due to pain, then you can give a small amount of fluid by administering a few hundred milliliters and see if the pulse begins to go down
>
> (Calebrant et al., 2016, p. 409).

TABLE 5 Characteristics of the included studies.

Author, year, country	Aim	Sample (male/female)	Study design and methods	Key findings
Abelsson et al. (2021) Sweden	To describe how the nurse anaesthetist epowers the patient in the perioperative dialogue	12 (7/5)	Individual interviews Hermeneutic text interpretation with a foundation in Gibsons' epowerment model	The NA helps the patient master the situation by talking to and touching the patient. The patient is helped to find their own strengths and to cope with their fears. The patients decide over their own bodies. When the patients do not want to or cope with protecting themselves, the NA protects and represents the patient
Abelsson and Nygårdh (2020) Sweden	To describe the nurse anaesthetist's experience of the perioperative dialogue	12 (7/5)	Individual interviews Interpretive content anaysis	Understanding the patient is possible when entering in a genuine relationship with the patient and confirm the patient. The perioperative dialogue forms a safety for the patients in the operating environment
Calebrant et al. (2016) Sweden	To determine the factors that affect how nurse anaesthetists in a county in Sweden decide how to manage perioperative fluid status	16 (5/11)	Cross-sectional qualitative study Qualitative content analysis	Three categories emerged: 1. Clinical criteria; the nurse anaesthetist is to a great extent independent in the decision-making process and the thought process that drives decision-making 2. Interdependence in decision-making; with anaesthesiologists and with other colleagues 3. Uncertainty in decision-making; as a result when lack of guidelines, lack of evaluation/response or when difficult patient assessment
Clair et al. (2020) Sweden	To investigate nurse anesthesists' experience of strategies that alleviate adult patients' preoperative anxiety before anaesthesia administration	6 (2/4)	Qualitative approach through semistructured individual interviews. Critical incidence technique (CIT)	Four different categories emerged: behaviour of nurse anaesthetist, preoperatively providing information, diverting attention to create security, and medicine as an alternative. Awareness can increase the use of different strategies by both new and experienced nurse anaesthetists, as well as by nurses in preoperative units, which in turn alleviates patient anxiety about anaesthesia. This may result in a better perioperative experience for the patient
Danielsson et al. (2018) Sweden	To describe nurse anesthesists' experiences of encountering and caring for children in connection to anaesthesia	8 (Initially 10 (4/6) minus 2 withdrawal; gender not accounted for)	Qualitative design. 16 written narratives based on 8 nurse anesthesists' experiences of meeting children Critical incidence technique (CIT) and Qualitative content analysis	Anaesthetizing children is a complex caring situation, including interactions with the child and parents as well as ensuring patient safety, affected by the perioperative team and organisational prerequisites. Knowledge about children's development and fears and parents' needs are essential for an optimal caring situation. Extra time, skills and resources are needed to safely anaesthetize children
Krupić (2019) Sweden	To explore the experience of preoperative communication of nurse anaesthetists in brief meetings with patients in an orthopaedic setting	18 (6/12)	Qualitative. three group interviews Qualitative content analysis	Protecting the patient's integrity, informing worried patients, lack of routines, language difficulties, being present at the meeting, protecting the patient from disturbance and encouraging the patient to participate were stated as the main challenges in the brief meeting with patients
Krupić, Grbić, Bišćević, et al. (2019) Sweden	To explore the experiences of anaesthesia nurses in assessing postoperative pain in patients undergoing total hip and/or knee arthroplasty	18 (6/12)	Four focus group interviews Critical incidence technique (CIT)	Maintaining communication with orthopaedic patients, different ways to assess pain, the assessment of unresponsive patients, using pain assessment scales and different work circumstances influencing their use, were stated as the main problems the nurses emphasise while assessing the pain of patients. A well-functioning organisation and continuity of care facilitate communication and the assessment of pain in patients

TABLE 5 (Continued)

Author, year, country	Aim	Sample (male/female)	Study design and methods	Key findings
Krupić, Grbić, Čustović, et al. (2019) Sweden	To explore the experiences of anaesthesia nurses in brief meetings with immigrant patients in the perioperative setting	18 (6/12)	Qualitative individual interviews Qualitative content analysis	Meetings with immigrant patients made nurses with less experience to prepare more, to study behaviour of these patients and to ask their older colleagues for advice. More experienced nurses acted on the basis of their previous experience and treated the patients in the same way as before. They emphasised the great responsibility and wider scope of assistance needed by these patients than those born in Sweden. The majority of nurses begin the meetings with these patients by requesting an interpreter, while some nurses begin the meeting directly with the patient and, if they see it is not going well, they request an interpreter
Krupić et al. (2016) Sweden	To describe the experience of anaesthesia nurses of the difficulties that emerge in care situations and how communication with patients can be maintained in the perioperative setting of hip fracture surgery	10 (5/5)	Individual interviews Qualitative content analysis	Time must be allocated to communicate clearly and patiently, to meticulously plan and carry out care while providing distinct information to enable patient participation. Establishing a mental bridgehead by confirming the patients' perceptions/feelings significantly reduced distress in a majority of the patients. A holistic and respectful approach was deemed mandatory at all times
Larsson et al. (2005) Sweden	To illuminate what it means for nurse anaesthetists to be in a problematic anaesthesia care situation concerning older patients	7 (0/7)	Individual interviews with a focus on the participants' narratives. Interpretive phenomenological method developed by Benner	To be in problematic anaesthesia care situations means becoming morally distressed, which arises from the experience or from being prevented from acting according to one's legal and moral duty of care. There is a need for an ethical forum to discuss and articulate moral issues, so that moral stress of the kind experienced by these nurse anaesthetists can be dealt with and hopefully reduced
Mauleon and Ekman (2002) Sweden	To identify and describe different ways in which new NAs experience and perceive anaesthesia.	9 (0/9)	Interviews or open questions. The responses were written in narrative forms based on four open end phenomenographic method and questions	Nurse anaesthesia was described from the perspectives of 1. Maintaining physical well-being; 2. Being protectors and advocates; and 3. Ability to perform good nurse anaesthesia given all the demands placed on the NAs. For the new NAs, the nurse anaesthesia care situation was largely influenced by context and generated feelings of inadequacy because the NAs could not provide the emotional support that they believed their patients required

(Continues)

TABLE 5 (Continued)

Author, year, country	Aim	Sample (male/female)	Study design and methods	Key findings
Schreiber and MacDonald (2010) USA / Canada	To explore the role and practice of CRNAs, with particular attention to revealing whether and how 'nursing' is integral to their practice		Grounded theory study gathering data from multiple sources over a 16-month period: 1. Participant observation and face-to-face interviews at the 75th annual American Association of Nurse Anesthesists convention 2006 2. Follow-up telephone interviews 3. A 4-day visit to a small city in the west of the US to observe nurse anaesthetists in practice and working with students, visiting an educational program and conduct further interviews	A basic social process of how nurse anaesthetists practice. Keeping Vigil over the Patient was identified. Keeping vigil over the patient is comprised of four categories: Engaging with the patient, Finessing the Human-Technology Interface, Massaging the Message and Foregrounding Nursing. Despite an initial dismissal of anaesthesia as falling within the domain of medicine, the participant's description of their work resonated with the study authors' understanding of nursing and with historical descriptions of the evolving role of nursing
Sundqvist et al. (2018) Sweden	To examine the extent to which the findings from an integrative review regarding perioperative patient advocacy could be empirically supported and to describe Swedish registered nurse anaesthetists' patient advocacy actions and interactions during the perioperative period	8 (2/6)	Qualitative descriptive. 16 individual, nonparticipant observations, directly followed up by 16 short, informal conversational interviews. Qualitative content analysis	The predetermined categories were empirically supported. They were further refined by identifying 11 new subcategories leading to a conceptual extension of the theoretical frame. The RNA interacted with the patient and all members of the surgical team when practicing perioperative patient advocacy and the actions were mostly initiated by the RNAs themselves
Sundqvist and Carlsson (2014) Sweden	To describe advocacy in anaesthesia care during the perioperative phase from the perspective of the registered nurse anaesthetist	20 (4/16)	Individual interviews Inductive qualitative content analysis	The main theme, 'Holding the patient's life in my hands', described the nurse anesthesists' perception of advocacy and comprised three subthemes: providing dignified care, providing safe care and a moral commitment
Thomasgaard et al. (2021) Norway	To obtain knowledge that may improve practice in preparing preschoolers for anaesthesia and surgery by analysing NAs' preoperative experiences with children	6	Focus group interview Systematic text condensation	The professional and personal qualities of a CRNA are important when managing paediatric patients' anxiety. It is essential that CRNAs have the ability to adapt the induction of anaesthesia to suit the child individually (and parents). The parents constitute an important collaborator for CRNAs. Young children need explanations and knowledge about what is happening and what to expect. CRNAs should focus on codetermination and participation for preschool children undergoing anaesthesia

TABLE 6 Our understanding of key terms used in the data synthesis.

Term	Explanation	Reference
First-order constructs	Participants' quotations reported in each primary study	Britten et al. (2002); Sattar et al. (2021) Noblit and Hare (1988)
Second-order constructs	Authors' interpretations of primary data in each study	
Third-order constructs	Our fresh interpretations across studies, providing new perspectives and higher level of analysis	
Key concepts	Words identified as having analytical or conceptual power to explain the data	
Themes	Identifies recurring key concepts and the relationship between these	
Metaphor	Noblit & Hare used the term metaphor; in this study understood as key words and key concepts with sufficient breadth and impact to carry with them the main ethnographic findings	Noblit and Hare (1988)

The NAs used different checklists, tools and clinical procedures when preparing for anaesthesia or when assessing a patient's needs. This was considered the basis for maintaining patient safety. At the same time, they highlighted the importance of individual assessment of each patient. Different situations led to different choices (Abelsson & Nygårdh, 2020; Krupić, Grbić, Bišćević, et al., 2019; Krupić, Grbić, Čustović, et al., 2019; Krupić et al., 2016; Schreiber & MacDonald, 2010; Sundqvist & Carlsson, 2014).

> I examine and observe constantly, and I ask my patients many times about their pain … The VAS scale is very helpful; depending on the number on the scale, I give injections of morphine or alfentanyl
>
> (Krupić, Grbić, Bišćević, et al., 2019, p. 306).

Individual assessment was also challenging, especially when dealing with patients in need of a wider scope of assistance to maintain patient safety, such as children, patients with dementia or immigrants (Clair et al., 2020; Danielsson et al., 2018; Krupić, Grbić, Bišćević, et al., 2019; Krupić, Grbić, Čustović, et al., 2019; Larsson et al., 2005; Thomasgaard et al., 2021). In these cases, they would use parents, family members, or request an interpreter to access critical information. In the two latter cases, NAs were concerned about patient safety due to obstacles in communicating directly with the patient.

> I had one patient who did not want to communicate with men at all and did not want to give me her hand because I am a man … I waited for the interpreter … it took a long time
>
> (Krupić, Grbić, Čustović, et al., 2019, p. 96).

Because of the inability of patients to care for themselves, the NAs felt responsible for maintaining physiological equilibrium and avoiding adverse events through actions such as avoiding tissue damage caused by immobility by careful positioning on the operating table, changing position or massaging an arm, providing warm blankets and preserving hygiene levels according to standards. Substantial medical and pharmacological knowledge, technical flair and experience enabled them to develop strategies and skills, and also maintain control to handle different situations (Calebrant et al., 2016; Mauleon & Ekman, 2002; Schreiber & MacDonald, 2010; Sundqvist et al., 2018; Sundqvist & Carlsson, 2014).

> Participants spoke of 'doing for them [patients] what they can't do for themselves' during surgery – literally breathing, stabilizing blood pressure, pulse, respirations, and temperature, and maintaining equilibrium of all systems
>
> (Schreiber & MacDonald, 2010, p. 556).

> To have control of the anesthesia situation when using different drugs and to know how these drugs will affect the human body. To have good medical and technical competence and to know how you use all equipment functions and how they work
>
> (Mauleon & Ekman, 2002, p. 284).

4.2 | Strengthening patients' confidence

Empowering the patient meant encouraging them to be involved by creating security and building patient confidence. Informing the patient, such as by explaining NA actions, describing the role of equipment being used or responding to the patient's discomfort by loosening the mask, enabled patient participation (Abelsson et al., 2021; Abelsson & Nygårdh, 2020; Clair et al., 2020; Krupić, 2019; Mauleon & Ekman, 2002; Sundqvist et al., 2018; Sundqvist & Carlsson, 2014). When anaesthetising children, it was considered crucial to establish a well-functioning contact with the child by turning directly to the child and to praise, empower and arouse the child's curiosity (Danielsson et al., 2018; Thomasgaard et al., 2021).

> The child can choose, and then they get a feeling of self-determination, and we avoid restraint
>
> (Thomasgaard et al., 2021, p. 345).

Being a surgical patient was recognised by the NAs as being in a vulnerable situation, and patients were likely to be worried and anxious.

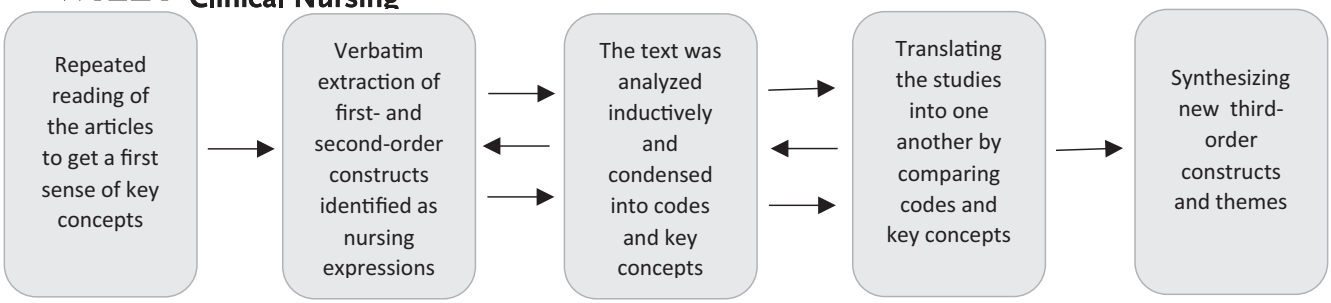

FIGURE 2 Overview of the analysis process.

TABLE 7 Example of translation table.

First-order constructs	Second-order constructs	Third-order constructs
When a patient tells me that they are afraid of not waking up again, I tell them that almost all people are afraid of that, and I can understand your fear, but you will wake up again. (Clair et al., 2020)	Through such conversations, they could give the patient control, which made them feel secure. (Clair et al., 2020)	Empowering the patient
I want to encounter the child with respect and integrity, as far as possible. I just go on my gut feeling. (Danielsson et al., 2018)	The nurses tried to praise and empower the child. (Danielsson et al., 2018)	
You must provide information about all the tubes and instruments and why they are used before, for example, you connect patients to ECG electrodes and tubes. To give patients five extra minutes to make them more relaxed. (Mauleon & Ekman, 2002)	The NAs say that they focus on mental assistance and support to fulfil the individual patients' human needs while carrying out nurse anaesthesia care. (Mauleon & Ekman, 2002)	
...somewhere finding the strength to dare to speak up or dare to question at all. (Sundqvist & Carlsson, 2014)	Advocacy involved defending the patient (...) It meant defending the rights of a defenceless human being (Sundqvist & Carlsson, 2014)	Patient advocacy
The RNA stood firm and said: 'No, I think this will be better for the patient, and I'm not going to discuss this anymore'. (Sundqvist et al., 2018)	In standing firm for the patient, the RNAs did not submit to what others' thought was best for the patient, but rather questioned and argued their case if they thought this would produce the best outcome. (Sundqvist et al., 2018)	
I did not succeed in living up to my desire to show faithfulness to the patient. (Larsson et al., 2005)	Such experience was recognised as a moral failure by the NAs, as yielding to demands to do what they thought was wrong, and as obedience to what they believed was wrong. (Larsson et al., 2005)	

The NAs responded to patients' feelings by providing information adapted to the situation and acknowledged patients' feelings as valid (Abelsson et al., 2021; Abelsson & Nygårdh, 2020; Clair et al., 2020; Mauleon & Ekman, 2002).

> It was incredibly important to talk about what created anxiety, give the patient security, and confirm the nurse anesthetist had heard what the patient was saying and thus understood the problem and came to do something about it
>
> (Clair et al., 2020, p. 4).

Many of the studies highlighted the importance of NAs being present in the moment. Many described it as using themselves as a kind of tool, practicing physical contact, eye contact and reassuring patients of their constant presence (Abelsson et al., 2021; Abelsson & Nygårdh, 2020; Clair et al., 2020;Krupić, 2019; Sundqvist et al., 2018). The NAs used different diverting strategies to make the situation appear as normal as possible, such as verbal and nonverbal communication, conversations about daily or family life, playing music, focusing on breathing, and using heated covers as a dissipative method. Conversations about daily life allowed them to know the patient, creating a personal relationship, despite only a brief meeting (Clair et al., 2020; Sundqvist & Carlsson, 2014).

> I use myself as a technique, you can trust me, I look you in the eyes and promise you will wake up again and you will sleep well. Trying to create trust with myself, I am calm and I touch them, look at them and see them as the individual they are
>
> (Clair et al., 2020, p. 3).

TABLE 8 Developing themes and synthesis metaphor.

Third-order constructs	Themes	Synthesis metaphor
Preparing in order to be one step ahead Vigilant monitoring and individual assessment Taking responsibility to avoid adverse events	Being vigilant to keep safe from harm	Continuously assessing and acting according to the perioperative patients' needs in a holistic perspective
Empowering the patient A conscious presence Shielding the patient from the outside world	Strengthening patients' confidence	
Tending the nursing role in an advanced context Patient advocacy Balancing loyalty	Expressing courage to act and speak up	
Acting autonomously while being supported by a greater community Sophisticated communication in reciprocal support of other team members	Endorsing team collaboration to achieve best practice	

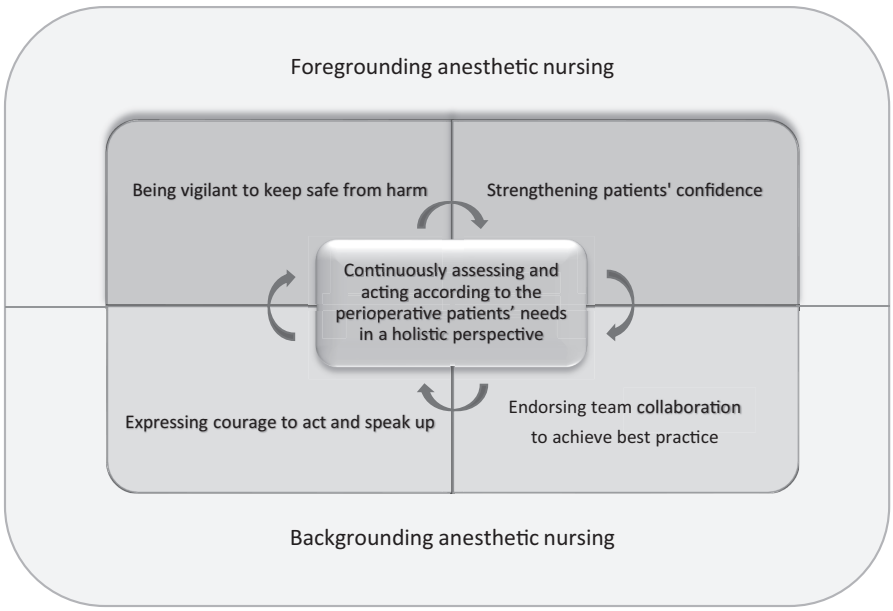

FIGURE 3 Conceptual framework illustrating the mutual interconnection of areas for nurse expressions in nurse anaesthesia care.

The NAs strived to be continuously on standby to give psychological comfort to the patient. Importantly, time pressure was perceived as a barrier that could block the opportunity to establish a safe relationship. Avoiding interruptions from others was also important, especially when working with children and patients with dementia because this could break a fragile connection (Danielsson et al., 2018; Krupić et al., 2016; Thomasgaard et al., 2021).

> Interruption of such a bond, even briefly, should probably be eliminated since this can cause disorientation and anxiety, which may require starting all over again (Krupić et al., 2016, p. 102).

The NAs took actions to protect patient integrity and shield the patient from unnecessary exposure and such as using blankets to cover them (Krupić, 2019; Sundqvist et al., 2018).

> The RNA noted this and pulled down the window curtains, preventing others from looking into the operating room (Sundqvist et al., 2018, p. 2408).

4.3 | Expressing courage to act and speak up

The NAs felt they experienced a unique role as nurses in an advanced context, and their nursing baccalaureate had prepared them to treat patients as individuals.

> The foundation of a nursing baccalaureate gave them a holistic window, and an understanding of practice deeply rooted in nursing … For CRNAs, the difference between their practice and that of an anesthesiologist is in the 'how' of anesthesia care rather than the 'what' (Schreiber & MacDonald, 2010, p. 558).

Newly graduated NAs described their function as a decision-making role, coordinating a wider scope of assistance, upholding standards, ensuring compliance with preoperative routines and providing holistic care to heterogeneous groups of patients (Mauleon & Ekman, 2002). Keeping patients safe from harm was considered a moral duty. Sometimes, this meant having to stand up for the rights of a defenceless human being and argue their case. Occasionally, there was a dichotomy between tending to individual patients' needs and providing efficient care. Ward expectations, insufficient time allocated and the operation schedule dictated the pace, causing dilemmas and a sense of moral stress (Danielsson et al., 2018; Krupić, Grbić, Bišćević, et al., 2019; Krupić, Grbić, Čustović, et al., 2019; Larsson et al., 2005; Mauleon & Ekman, 2002; Sundqvist et al., 2018; Sundqvist & Carlsson, 2014; Thomasgaard et al., 2021).

The NAs acknowledged that different team members and professions may understand the patient's situation differently, potentially leading to conflicting interests. It was important to seek support from other team members. When interdisciplinary dialogue failed, emotions could raise barriers between staff, forcing NAs to step aside, thus imposing obedience on them, causing feelings of inadequacy and loneliness and a feeling of being trapped without moral authority (Abelsson et al., 2021; Krupić et al., 2016; Larsson et al., 2005; Mauleon & Ekman, 2002; Sundqvist et al., 2018; Sundqvist & Carlsson, 2014).

> Such experience was recognized as a moral failure by the NAs, as yielding to demands to do what they thought was wrong, and as obedience to what they believed was wrong
>
> (Larsson et al., 2005, p. 268).

> The new NAs experienced a dilemma and viewed themselves as being trapped in having to choose between acting on behalf of the patient or on behalf of the ward
>
> (Mauleon & Ekman, 2002, p. 285).

4.4 | Endorsing team collaboration to achieve best practice

The NAs endorsed the framework regulating the division of labour between themselves, the anaesthesiologist and other professions (Calebrant et al., 2016; Danielsson et al., 2018; Krupić, Grbić, Bišćević, et al., 2019; Schreiber & MacDonald, 2010; Sundqvist et al., 2018). They displayed a strong confidence in their own ability to assess and execute the patients' anaesthesia care plan. The NAs were committed to following guidelines and gave each other advice for evidence-based practice while emphasising the importance of each patient being treated individually. They would argue their case, but suggestions were not always accepted. The occasional conflict between team members was often solved through the use of sophisticated communication to promote a calm environment for patient safety, but also to support team members who were about to perform a difficult task that made them nervous (Calebrant et al., 2016; Larsson et al., 2005; Schreiber & MacDonald, 2010).

> Well, I'm the one monitoring and I'm the one giving signals when I think that something needs to be done. Uhm, but I often confer with the anesthesiologist, but it is like I'm saying. If you have a plan then you can deal with certain things very early on because I already have directions, a plan on what we will do. And that's my safety net
>
> (Calebrant et al., 2016, p. 410).

> In response, she framed her messages to the surgeon carefully to demonstrate that she was supporting him, but at the same time her goal was to contain and counteract the anxiety and create a peaceful environment, thereby protecting the patient
>
> (Schreiber & MacDonald, 2010, p. 556–557).

4.5 | Line of argument synthesis

The themes were synthesised, and a line of argument was performed with the aim of providing a fresh interpretation across the themes (France, Cunningham, et al., 2019; France, Uny, et al., 2019). All themes were identified as being interconnected and explicable only by reference to the whole as the NAs seek to care for the patient as a whole person, rather than in fragmented parts (McEvoy & Duffy, 2008). As the review team developed an overview of the data, we discovered how the first two themes mainly represent activities performed in the immediate proximity of the patient, both in time and space, while the latter two themes represent indirect activities that are mostly hidden from the patient but are nevertheless necessary to support the first two themes. Inspired by the work of Kim (2015), we framed them as *Foregrounding* and *Backgrounding anaesthetic nursing*, respectively, as illustrated in the conceptual framework (Figure 3).

5 | DISCUSSION

The aim of this meta-ethnography was to develop a conceptual framework describing how nursing care is expressed among NAs in the perioperative context. We found that nursing care is directly present through foregrounding anaesthesia nursing, expressed as advanced knowledge, technical competency, and establishing a therapeutic relationship in brief meetings with patients. Nursing care is also expressed indirectly through backgrounding anaesthesia nursing in the form of professional courage and team collaboration. Because of efficiency requirements, NAs are challenged and need to strike a balance between the risk of objectifying patients and treating them as individuals. This study reveals how NAs work

at different levels to deliver fundamental PCC by continuously assessing the perioperative patients' needs from a holistic perspective.

The concept of 'Foreground anaesthetic nursing' originates in clinical situations as understood by NAs who are in direct contact with each patient. Practical skills, such as airway management and maintaining a patient's homeostasis, the hallmarks of anaesthesia, are necessary for the surgical patient to be safe. By combining context-specific knowledge based on each patient's risk factors, together with psychological, social and spiritual aspects of patient safety, the NAs create mental models to anticipate and react appropriately, to ensure decisions are justified in the specific context (IFNA, 2016). Flin et al. (2008) referred to this as situational awareness. Through gathering and interpreting information, NAs are able to anticipate future states.

We were not surprised to find a large focus on technology and monitoring. The relationship between technology and humane nursing care has been thoroughly described in the works of Barnard and Sandelowski (Barnard, 2002; Barnard & Gerber, 1999; Sandelowski, 1999), suggesting that technology is implicit in the way nursing care is shaped and understood. Technology has the potential to dehumanise and objectify the patient, by juxtaposing physical care and compassionate care (Feo et al., 2018). On the contrary, if we consider technology as a mere agent for any given situation, it has the potential to unite different elements of care (Barnard & Sandelowski, 2001), so that it becomes an instrument for utilising human care (Locsin, 2017). Technology also helps to magnify certain aspects of the patient that requires immediate attention. As such, technological competency is expressed as caring in nursing, allowing the nurse to better know the person being nursed (Locsin, 2019). It is only through proper use of technology that NAs can obtain accurate critical information about the patient during anaesthesia care. The NAs in our study argued that the data retrieved from technology also had to be validated by natural ways of knowing, such as manually palpating the pulse, touching patients' skin and looking at their pupils.

Furthermore, we found that NAs encouraged patient participation, with the intention of helping patients mobilise their inner strength, retain a sense of control and preserve their dignity. In a high-tech-dominated environment such as the operating room, the risk of depersonalization of the patient is high and challenges the team to preserve their humanness. It is, therefore, necessary to aid in strengthening the patient's confidence. Creating a sense of safety seems to be twofold as actual safety, as defined by risk management, does not always correspond with the patient's sense of feeling safe (Henriksen et al., 2021).

Studies of patients' perception of quality of care indicate a strong correlation between participation and tailored information (Forsberg et al., 2015; Liebenhagen & Forsberg, 2013). The NAs described how the success of such a relationship depended on mutual trust and understanding, indicating a self-awareness and use of self as the NAs engage in a caring relationship with their patients (McEvoy & Duffy, 2008). Human dignity and being recognised as a unique entity are core values in PCC and nursing ethics, characterised by attributes of personhood, respect and autonomy (Arakelian et al., 2017; Franco et al., 2021; Kitson, 2018).

The concept of 'Background anaesthetic nursing' orients toward what are considered nurses' responsibilities to their clients in a broader sense, such as generally held values and philosophies regarding nursing practice (adapted from Kim, 2015). Our data show that NAs take on a great moral responsibility to provide what they believe to be good nursing and standards of excellence, identified as courage to act and speak up. Courage as a nursing expression manifests itself in a readiness to respond to a patient's appeal for help, to act on their behalf, and to trust themselves in arguing for and providing professional care (Lindh et al., 2010; Thorup et al., 2012). NAs' narratives of literally holding the other person's life in their hands assume an existential and moral responsibility for the life of the other. Nortvedt (1998) refers to this as the *concerned observation* as part of the ethical foundation of nursing. It is to encounter human suffering as something moral. To comprehend the surgical patient in pain means not only having knowledge about the pathophysiological mechanisms, it is also a moral recognition of pain as a human suffering and experience. As such, nursing care in anaesthesia is expressed through ways of seeing, ways of touching and ways of communicating in response to the patients' experience of illness. Nursing care in anaesthesia is the integration of explaining (biomedical approach) and understanding (phenomenology) life phenomena (Holmberg, 2021). When the NAs failed to live up to their expected standards of excellence, they experienced moral stress, especially when they felt trapped into having to choose. Shortage of time could lead to a rationing of nursing care, which is a potential threat to holistic care (Mandal et al., 2020).

Despite the occasional rise of conflicting interests, the NAs in our study endorsed being part of a greater system, supported by team collaboration, guidelines and procedures. These are elements intended to optimise decision-making and form a common ground for the team. A surgical team is made up of several highly specialised professions, each with its own relatively narrow scope of practice. In our opinion, proper team collaboration and shared values across disciplines are essential in the delivery of holistic nurse anaesthesia patient care (McEvoy & Duffy, 2008). McCormack et al. (2017) also pointed out the potential conflict between the duty of providing the patient with PCC and at the same time providing the 'best' evidence in care decisions. All members of the team, including the patient, need to cooperate and share their horizons to provide the best of care.

5.1 | Study strengths and limitations

This meta-ethnography has a strength in its comprehensive literature search, transparent reporting and detailed audit trail supplemented by tables and figures, allowing the reader to assess the study's credibility and transferability. Most of the included studies were conducted in Sweden. This may be considered a weakness, and the Swedish context should be considered with respect to

transferability. On the contrary, the aim of this meta-ethnography was to gain conceptual insight, not as an exhaustive aggregation of existing knowledge. Meta-syntheses are sometimes criticised for moving too far from the primary source, and not paying attention to the context from which the data originated (Sandelowski & Barroso, 2007). Although we did not have access to the full experience of the participants, their stories were told as representations of what they considered valuable and were chosen by the primary study authors as valuable data accordingly. During data abstraction, verbatim translations were retained for as long as possible to preserve their original context. Therefore, the validity of the study rests on the interpretive trail of logic provided in the synthesis. Reflexivity is essential in all good qualitative research (Braun & Clarke, 2013). We had several reflective and critical discussions, uncovering our preunderstandings and discovering new understandings and perspectives. The authors' backgrounds (anaesthesia and intensive care nursing), in addition to experience as researchers, provided us with opportunities for a new and wider understanding of the phenomenon under investigation.

6 | CONCLUSIONS

The findings outlined in this meta-ethnography show how NAs aim to deliver holistic anaesthesia nursing care to their patients, as illustrated in the conceptual framework. We identified nursing expressions at two levels, foregrounding and backgrounding anaesthetic nursing, performed in line with the philosophy of PCC. Nurse anaesthesia is not only a matter of being able to perform specific tasks. It is also a matter of how and why they are performed, expressed in attitudes toward the recipients of nursing care, with the aim of reducing harm and enhance patient safety.

7 | RELEVANCE TO CLINICAL PRACTICE

The framework developed in this study may be used to inform the basis for educational programs and contribute to the development of knowledge-based nurse anaesthesia caring in clinical practice. We suggest educational and healthcare institutions further support and strengthen the importance of PCC in anaesthesia practice.

Future research should explore each section of the framework and show how the principles of PCC may be articulated as a shared value across all levels of perioperative patient care. Tools to evaluate the effect of a PCC approach on quality of care and patient satisfaction in the perioperative context should be explored to inform decisions on policy at the system level.

AUTHOR CONTRIBUTIONS

All authors approved the final version for publication and meet at least three of the following criteria recommended by the ICMJE (http://www.icmje.org/recommendations/):

- Substantial contributions to the conception or design of the work; or the acquisition, analysis or interpretation of data for the work
- Drafting the work or revising it critically for important intellectual content
- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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