



“Please mind the gap”: A secondary analysis of discomfort and comfort in intensive care

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Abstract

Aims and objectives: To explore in depth discomfort in intensive care as experienced by patients and attended to by critical care nurses.

Background: Discomfort in illness is complex and persistent, and its alleviation is a challenge for nurses working in intensive care units (ICU). In previous studies, we showed that ICU patients described little actual pain but suffer from much discomfort. Critical care nurses had a systematic approach to the treatment of pain, but were more haphazard in dealing with other types of discomfort.

Design: Secondary qualitative analysis of data from two previous exploratory studies.

Methods: Content analysis was used on existing data from 28 interviews with ICU patients, and 16 field notes and interviews with critical care nurses. Kolcaba's Comfort Theory was applied for further analysis. The COREQ checklist was used.

Results: Three themes, “Being deprived of a functioning body”, “Being deprived of a functioning mind” and “Being deprived of integrity” characterised the discomfort experienced by ICU patients. The nurses appeared to attend to all areas of discomfort expressed by patients. In need of, and providing acknowledgment and alleviation became a common overarching theme. We identified a comfort gap caused by the discrepancy between the patients' needs and the nurses' achievements in fulfilling these needs.

Conclusions: A gap exists between ICU patients' comfort needs and nurses' achievements in fulfilling these, indicating that discomfort currently is an inevitable part of the critical illness trajectory. Increased knowledge about how the brain is affected in ICU patients and more systematic approaches to assessing comfort needs and enhancing comfort may support nurses in fulfilling patient needs and possibly diminish the existing comfort gap.

Relevance for clinical practice: An increased understanding of the complex experience of discomfort in ICU patients may bring about more systematic approaches to enhance comfort and direct for education and further research.

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KEYWORDS

critical care nursing, critical illness, discomfort, intensive care unit, needs, nursing, qualitative, secondary analysis

1 | INTRODUCTION

Patients in the intensive care unit (ICU) experience physical and psychological discomfort, including pain, and this is well documented (Egerod et al., 2015; Puntillo, 1990; Puntillo et al., 2014; Samuelson, 2011a, 2011b). The discomfort is related to treatment and care, environmental factors and the mere experience of being critically ill. Since the days of Florence Nightingale, nurses have been judged by their ability to make patients comfortable, both physically and mentally (Goodnow, 1935, as cited in Kolcaba, 2003). Critical care nurses in the complex context of intensive care frequently need to make decisions about pain and other discomfort based on factors other than self-reported variables. ICU patients are frequently unable to report their pain verbally or with other deliberate signs because of an endotracheal tube, an altered level of consciousness or sedative agents (Shannon & Bucknall, 2003). Assessment tools for pain in noncommunicating patients are available and recommended (Gelin, Fillion, Puntillo, Viens, & Fortier, 2006; Payen et al., 2001). Corresponding valid assessment tools for discomfort other than pain are, however, lacking. If nurses are assisted in appropriately matching care with physical and psychological patient discomfort, patient suffering may be reduced and comfort in critically ill patients may be enhanced. In this regard, a better description and understanding of discomfort in intensive care is required. The purpose of this study was to expand our knowledge about discomfort other than pain in the ICU from the perspectives of both patients and nurses.

2 | BACKGROUND

Discomfort – the essential concept in this study – pertains to Kolcaba's description of discomfort as a detractor from comfort (Kolcaba, 2003). Pain, as one type of discomfort, is regarded as multidimensional, comprising nociception, perception of pain, suffering and pain behaviour patterns (Kolcaba, 1997, 2003; Loeser & Melzack, 1999). In the ICU, the presence and intensity of pain is either self-reported by patients or assessed with validated tools comprising behavioural variables (Gelin et al., 2006; Payen et al., 2001), and recommended in international guidelines (Barr et al., 2013; Devlin et al., 2018).

Current international clinical guidelines recommend strategies for focused pain treatment, and lighter or targeted sedation (Devlin et al., 2018). Deep sedation in ICU patients is associated with adverse short-term and long-term outcomes (Devlin et al., 2018; Tanaka et al., 2014). Such strategies allow patients to stay awake and alert, maintain cognitive function, and interact and communicate pain and other discomforts. When these abilities are maintained or regained, nurses may rely more on ICU patients' expressions to

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

- Discomfort in ICU is a complex and interwoven experience of deprivation of a functioning body, a functioning mind and integrity.
- The discrepancy between the patients' comfort needs and the nurses' overall success in meeting these needs indicates that discomfort is an inevitable part of critical illness and that this is reflected in a *comfort gap*.
- Nurses in intensive care may be assisted in diminishing the identified comfort gap in their patients by keeping in mind the three types of discomfort outlined in this study.

intervene appropriately and enhance patient comfort. However, similar to other organ systems, an ICU patient's brain suffers from dysfunction. When the patient is cognitively impaired, the abilities to communicate and interact diminish and make it difficult for the patient to communicate discomfort and comfort needs. This brain dysfunction in ICU patients may be explained partly by pathophysiology related to critical illness, but also by long-acting sedatives, and possibly by impaired sleep (Kamdar et al., 2013; Pandharipande et al., 2017). The patients may experience all these factors as kinds of discomfort. ICU delirium is one frequent manifestation of brain dysfunction that has been associated with increased length of stay, mortality, cognitive decline and long-term psychological sequelae (Pandharipande et al., 2013, 2017).

Discomfort was a prominent finding in patients in the qualitative part of a combined quantitative and qualitative study where we addressed the implications of implementing a systematic approach to pain, agitation and delirium (PAD); (Berntzen, Bjørk, & Wøien, 2018, 2019). The systematic approach was supplemented by an analgo-sedation protocol in line with the, at that time current international recommendations (Barr et al., 2013). Such a change in practice may affect both patients' experiences and nurses' management of discomforts in patients who are more awake.

The quantitative study showed a significant decrease in sedation levels, sedatives administered and in number of patients unable to be assessed for delirium (Wøien, 2020). The delirium prevalence, however, remained unchanged and pain scores were low. The results reflect progress in line with other studies showing the association between increased adherence to international guidelines and improvements in patient outcomes (Pun et al., 2019). In the qualitative studies – including interviews of patients after ICU discharge and

observing and interviewing critical care nurses – we also found that in general the degree of pain relief was good. However, the interviews revealed that the patients experienced a high degree of other types of discomfort during their ICU stay (Berntzen, Bjørk, & Wøien, 2018). The critical care nurses attended systematically to patient pain, but the approach to discomfort other than pain appeared to be haphazard, largely depending on the individual nurse's experience, knowledge and personal repertoire of enactments (Berntzen, Bjørk, & Wøien, 2019). The results of the two studies indicated that discomfort other than pain appeared ill-defined, making it difficult for nurses to assess and intervene appropriately. Insights from these studies – in particular, the widespread discomfort other than pain revealed by using the qualitative approach – called for a further exploration of discomfort. By separating the descriptions of pain from other discomforts and re-examining data both from patients and nurses, we searched for a deeper understanding of discomfort in intensive care.

2.1 | Aims and research questions

The aim of the study was to explore the complex and persistent, as yet ill-defined phenomenon of discomfort in intensive care. We addressed the following research questions:

1. What are the characteristic features of discomfort in patients in intensive care derived from patients' descriptions, and how can we use these features to improve our understanding of and response to different types of discomfort?
2. How do critical care nurses deliberate about discomfort and intervene to enhance comfort in their patients?
3. How can discomfort in intensive care be elucidated using concepts from Kolcaba's Comfort Theory?

3 | METHODS

3.1 | Design

This was a qualitative secondary data analysis (SDA) exploring two original datasets to undertake a more in-depth analysis aimed at increasing the understanding of the phenomenon of discomfort in ICU. A SDA can be used to investigate new or additional research questions to those initially explored from a dataset (Ruggiano & Perry, 2019). Several forms of SDA have been proposed (Heaton, 2008; Thorne, 1994, 2016). Supplementary analysis (Heaton, 2008) or analytic expansion (Thorne, 1994) implies undertaking a more in-depth analysis of an emergent aspect in the primary study that deserves further elaboration through a new or revised research question. Amplified analysis (Heaton, 2008) or amplified sampling (Thorne, 1994, 2016) implies secondary analysis by comparing and combining two or more existing datasets to extend aspects within a wider context of what was originally studied. The secondary analysis

applied in this study pertains to a combination of the two forms of SDA described. The Consolidated Criteria for reporting qualitative studies (COREQ Checklist; Tong, Sainsbury, & Craig, 2007) was used (Data S1). Some criteria are reported only in the primary studies due to the nature of the SDA.

3.2 | The primary studies

The setting for the primary studies was a medical-surgical adult university hospital ICU, with national responsibilities to treat patients with critical illness in need of advanced treatment. In the study unit, a systematic approach including an analgosedation protocol had been implemented to facilitate adherence to international guidelines and recommendations for focused pain treatment and light sedation. The nurse:patient ratio was 1:1, and the patient rooms were either single or three bedded.

Participants in the two qualitative studies included in the secondary analysis were 18 adult ICU survivors and 13 critical care nurses with more than 2 years' experience in ICU. The patients had been treated for more than 24 hr in the ICU and been on mechanical ventilation. Recruitment was driven by criterion sampling (Patton, 2002). Ten of the patients were female, mean age was 47 (range 18–78), mean length of ICU stay was 10 days (range 1–48) and 11 patients were surgical patients. In the electronic patient records, both the self-reported pain scores and those assessed by nurses with the Critical Care Pain Observational Tool (CPOT) for nonverbal patients were low. The mean sedation level scored with the Richmond Agitation and Sedation Scale (RASS) was –2, i.e. lightly sedated and able to respond to verbal stimuli. Only three of the 18 patients had a positive delirium score using the Confusion Assessment Method for the ICU (CAM-ICU); 14 had no positive scores and one was not assessable for delirium at any time during the stay.

The first study involved the ICU patients. All 18 patients were interviewed in the first week after ICU discharge. Ten of the patients underwent second interviews after approximately 3 months, which explored more in-depth how they retrospectively experienced pain, other discomforts and wakefulness during their ICU stay. In the second study, the critical care nurses were observed during patient care on 16 occasions and subsequently interviewed to explore deliberation and enactment processes in relation to patient pain and discomfort. All data were collected during autumn 2014 and spring 2015 by the first author, a female critical care nurse and doctoral student who worked at the hospital, but not at the study unit.

Interviews with patients and observations and interviews with nurses were performed within the same time period. This means that some patients who had been cared for by nurses under observation were also interviewed after discharge. Although the participant observations in general may have influenced the interviewer, patients being cared for during the observations were considered context, not participants. Therefore, no questions were asked during the patient interviews on the basis of a clinical situation involving the actual patient. In the primary data analysis, systematic text

condensation (Malterud, 2012) was used to analyse the patient interview data. Content analysis (Green & Thorogood, 2018) was used for the observational and interview data from the nurses.

3.3 | Ethics

The study was approved by the regional committee for medical research ethics (Project -ID; 2014/125) and conducted according to the Declaration of Helsinki (World Medical Association [WMA], 2013). Additional approvals were not necessary for the secondary analysis as no data were shared. The fourth researcher, formally participating only in the secondary analysis, had access only to already de-identified data. The purpose of the study was within the framework of what had already been consented to by the participants.

Studying vulnerable groups including unconscious or confused ICU patients is ethically highly challenging. Informed consent had to be obtained from all patients even when they were not included as participants, but as targets in the nurses' deliberations and enactments in the second study. Some of these patients were sedated and consent to the observation was obtained through their next of kin. Patients were considered participants only in the first study and were interviewed post-ICU discharge. In this regard, they were all able to consent and free to share their experiences of confusion or delirium.

3.4 | Secondary data analysis

3.4.1 | Process of data analysis

Abductive qualitative content analysis was used in the SDA of the qualitative studies (Graneheim, Lindgren, & Lundman, 2017; Graneheim & Lundman, 2004). This analytical strategy implies moving back and forth between inductive and deductive approaches during different stages in the analysis. We performed three analytical steps – each pertaining to one research question. The first two steps pertained to the primary data in the specific context of intensive care. In the third step, Kolcaba's Comfort Theory was applied to the results of the preceding two analytical steps. Three authors actively took part in all three steps of the analysis.

3.4.2 | Step 1 – Reanalysis of the patient data

We used Kolcaba's view of discomfort as a detractor from comfort (Kolcaba, 2003) to identify expressions of discomfort. This approach covers the physical, psychospiritual, environmental and sociocultural contexts, reflecting the holistic nature of comfort. We therefore searched for expressions of discomfort in all these contexts in the patient descriptions.

The first step in the re-analysis was to read the *condensates* from the patient data several times to identify any patterns of discomfort.

A condensate is a reduction in all meaning units of a subgroup into an artificial quotation kept in the terminology of the participants (Malterud, 2012). The condensates were based on all the transcribed interviews with the patients. As our focus was on discomfort in the ICU, condensates of subgroups from the primary analysis pertaining to experiences *after* ICU discharge were excluded. Three themes that characterised different aspects of discomfort emerged from the analysis: "Being deprived of a functioning body", "Being deprived of a functioning mind" and "Being deprived of integrity." Primary descriptions of the themes were noted. With these descriptions in mind, the full transcripts were re-read to validate the themes and to confirm that all relevant data have been selected for analysis. Figure 1 illustrates the entire range of types of discomfort resulting from this analysis, and also shows how the different themes were interrelated. An example of interrelation is how both deprivation of a functioning body (e.g. speech) and a functioning mind (e.g. comprehension) can contribute to the deprivation of integrity (e.g. expressing and guarding the self). Expressions of discomfort that did not fit into any of the three themes were to be classified as "others". However, all meaning units identified could be assigned to one or more themes and no meaningful data were left over. Going back and forth between the condensates and the thematic descriptions, we composed a thorough description of each theme. Finally, we abstracted the overall patient theme, "In need of acknowledgement and alleviation" (Table 1).

Integrity as a concept requires explanation because of its complexity. It is an important concept in nursing ethics (Beauchamp & Childress, 2001) and is closely linked to other key concepts such as autonomy, dignity, privacy and identity (Fjellstrøm, 2005). However, different conceptual interpretations of integrity exist (Fjellstrøm, 2005; Pellegrino, 1990). In this study we understand the integrity of a person to be *having a whole self and guarding and expressing this in practice resulting in a sphere of personal wholeness* (Fjellstrøm, 2005). We consider inability to guard and express this self, deprivation of integrity.

3.4.3 | Step 2 – Re-analysis of the nurse data

We aimed to answer research question 2 in light of understanding discomfort as being deprived of a functioning body, a functioning mind and of integrity. We began with the three themes and analysed all field notes and interviews with the nurses to identify deliberations and enactments that aimed at alleviating discomfort associated with each theme. Meaning units were then coded according to similar content and grouped together in six categories (Table 1), thereafter abstracted into the nurse theme "Providing acknowledgement and alleviation." Together with the overall theme from the patient data, the common overall theme "In need of, and providing acknowledgement and alleviation" was formulated (Table 1). Table 1 shows the two steps in the re-analysis of the data. The first step involving analysis of the patient data resulted in the themes in the first column derived from codes in Figure 1. Step 2 comprised codes

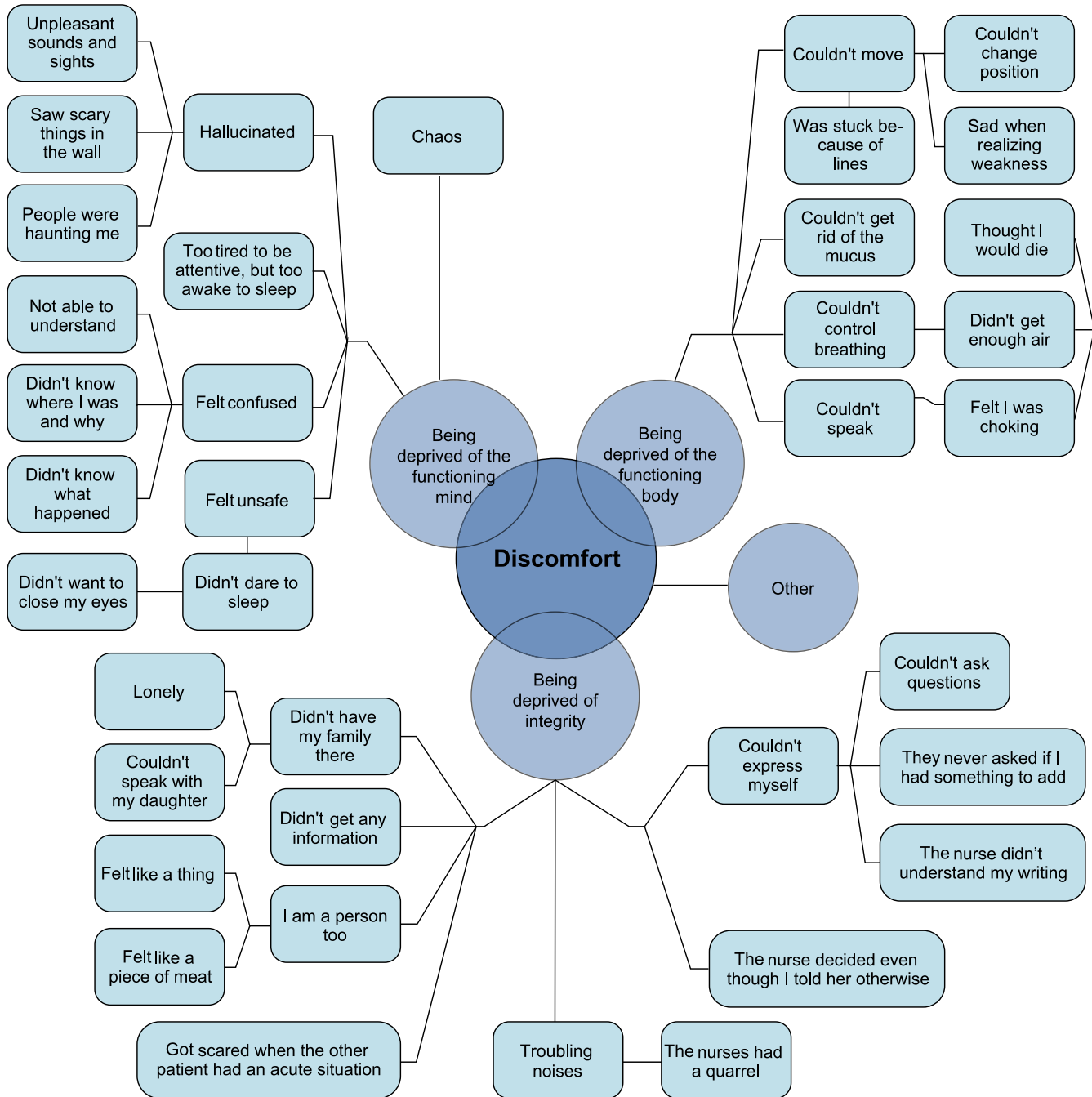


FIGURE 1 Analysis, step 1; A complex and inter-related wholeness of discomforts experienced by patients in the ICU [Colour figure can be viewed at wileyonlinelibrary.com]

and categories from the nurse data identified as pertaining to the themes from step 1. In accordance with Graneheim and Lundman (2004), abstracted interpretations representing threads of meaning throughout the data form themes, whereas descriptions closer to the data form categories.

3.4.4 | Step 3 – Application of Comfort Theory

The third research question was approached by applying Kolcaba's Comfort Theory in terms of the taxonomic structure for

comfort (Table 2) and types of comfort measures (Table 3) to the themes and adjacent categories resulting from steps 1 and 2 in the analysis.

The understanding of discomfort as a detractor from comfort and comfort as an outcome are elements of Comfort Theory (Kolcaba, 2003). This middle-range theory may offer perspectives important in intensive care where discomfort is prominent. As a framework for nursing practice, it has been applied to different patient populations and clinical settings, the peri-anaesthesia setting being the closest to the ICU setting, and to critically ill patients (Kolcaba & Wilson, 2002; Wilson & Kolcaba, 2004). Specific

TABLE 1 Patient themes, nursing categories and overall theme emerging from the re-analysis of the data

PATIENT DATA STEP 1	NURSE DATA STEP 2	PATIENT AND NURSE DATA	
Themes	Codes	Categories	Overall theme
Being deprived of the functioning body	<ul style="list-style-type: none"> • Attentive positioning • Preventive positioning • Managing respiratory distress • Facilitating participation • Supporting physical functions • Acknowledging inability to speak • Balancing activity and rest 	Acknowledging and alleviating bodily discomfort	In need of, and providing acknowledgement and alleviation
Being deprived of the functioning mind	<ul style="list-style-type: none"> • Orientating about time and place • Informing and explaining about the situation • Assessing for delirium • Preparing for procedures • Demarcation of the body boundaries • Reducing environmental stimuli • Reassuring talk • Gentle touch • Soothing speech • Showing empathy 	Recognising confusion and the need for coherence Alleviating apprehension	
Being deprived of integrity	<ul style="list-style-type: none"> • Including and involving family • Facilitating communication • "Standing by" • Facilitating patient decision making • Involving patient • Facilitating participation • Negotiating • Motivating • Instilling hope • Using personal knowledge about patient • Recognition of person or personality • Engaging in patient former life and interests • Standing up for the patient • Using personalised distraction • Promoting dignity • Respecting patient needs • Defending privacy • Protecting from noise 	Acknowledging the need for social connectedness and participation Upholding dignity Protecting from environmental distress	

concepts pertaining to comfort are organised in a taxonomic structure with three types and four contexts of comfort (Table 2). The three types of comfort are *relief*, *ease* and *transcendence* and the four contexts of comfort comprise *the physical*, *the psychospiritual*, *the environmental* and *the sociocultural*. Furthermore, three types of comfort measures are described: *technical*, *coaching* and *comfort food for the soul*. The application of these elements in Comfort Theory in this exploratory study may contribute to a deeper understanding of discomfort in intensive care that may guide critical care nurses in their everyday practice.

The themes emerging from the analysis of the patient data comprised what we consider to be a multifaceted and holistic representation of discomfort or unmet comfort needs. Figure 2 displays how the themes from our data appear to correlate with contexts and types of comfort, and types of comfort measures in Comfort Theory. Explanations of the interpretations are given in the results section. As an example, in Figure 2 the lines display that discomforts representing the deprivation of the functioning

body correspond to the physical context of comfort in Comfort Theory. All three types of comfort may be obtained in this area of discomfort, and primarily by application of technical comfort measures.

3.5 | Trustworthiness

The framework offered by Lincoln and Guba may be used to describe trustworthiness also in secondary analyses (Lincoln & Guba, 1985; Shenton, 2004; Thorne, 1994). *Credibility* in this study is ensured through triangulation of data collection methods involving observations and different types of interviewing, and data sources involving both patients and nurses, and documents to provide a background. Furthermore, thick descriptions of the phenomenon under investigation are provided and interpretations of the findings have been discussed with bedside critical care nurses. *Transferability* to similar contexts is sought by describing the studies on which the SDA was

TABLE 2 Kolcaba's Taxonomic structure for comfort (Kolcaba, 2003; Kolcaba & Fischer, 1996). Adapted and printed with permission

Type of Comfort Context of Comfort	Relief The state of having a specific comfort need met	Ease The state of calm or contentment	Transcendence The state in which one rises above one's problems or pain
Physical Pertaining to bodily sensations and functions			
Psychospiritual Pertaining to self-esteem, self-concept, sexuality, meaning in one's life and one's relationship to a higher order or being			
Environmental Pertaining to the external			
Sociocultural Pertaining to interpersonal, family and societal relationships			

TABLE 3 Types of comfort measures suggested in Comfort Theory (Kolcaba, 2003)

Comfort measures generally are of three types: (Kolcaba, 2003)
1. Technical comfort measures to maintain homeostasis and control pain
2. Coaching to relieve anxiety, provide reassurance and information, instill hope, listen and help to plan for recovery
3. Comfort food for the soul are those special things that nurses can do to make patients feel cared for and strengthened, such as massage or guided imagery

built and highlighting the context and the population. *Dependability* is sought by transparency and detailed description of the analytic process, also displayed in tables and figures, allowing the reader to assess the research practice. Finally, to prevent researcher bias, all steps in the analysis were performed both individually and as a team. Several meetings were held and the different perspectives of the researchers discussed and negotiated to ensure *confirmability*. One of the researchers has no experience in working with ICU patients. Her outsider perspective may have prevented bias from the other researchers more emic position from many years of work with this patient group.

4 | RESULTS

The overall theme "In need of, and providing, acknowledgement and alleviation" represented a common description pertaining to both patient discomforts or unmet comfort needs and the nurses' provision of care aiming to meet these needs. In the following we present content from the three themes of deprivation from the patient data under the headings, "The Body", "The Mind" and "Integrity." A field note description involving both a patient and a nurse introduces each theme. Derived from the observations and interviews with nurses, corresponding categories of nurses' attention in each area of deprivation are described after each heading. We also describe our interpretation of the correspondence with concepts in Comfort Theory shown in Figure 2.

4.1 | The body

A young man is half sitting in bed. He looks tense but makes no movements. He speaks through a tracheostomy, speaking valve and says he all of a sudden finds the bed totally wrong. The nurse straightens the wrinkled sheets, fixes the pillow behind his head and neck, tucks his feet in, which he wants to be done in a very special way, and which requires many attempts before he approves

(field note 16)

4.1.1 | Being deprived of a functioning body

The loss of bodily functions experienced by the patients pertained mainly to respiratory distress, and inability to move and speak. Not being able to reposition him- or herself, because of weakness or restriction by tubes or lines was a distinct discomfort that made the patients experience loss of control of their body. This loss of bodily function could be accompanied by an experienced loss of integrity in terms of dependency and indignity. Not being able to control breathing, feeling choked by not getting enough air and not getting rid of mucus were devastating experiences leading to anxiety and loss of control. Loss of speech caused by the endotracheal tube and being unaware of the speechlessness being temporary could be traumatising as illustrated by this young patient; "Can I speak again?? Oh God I was relieved when I realized that (...) it meant the whole world to me - I was really, really, really relieved". Even though some patients were able to communicate by using a spelling board or paper and pencil, attempts were frequently unsuccessful and led to even more frustration when they were not able to make themselves understood.

When applying Comfort Theory, comfort needs that are evoked by being deprived of a functioning body clearly pertain to the *physical* context of comfort. "Acknowledgement and alleviation of bodily discomforts" a category deriving from our nurse data may relate to

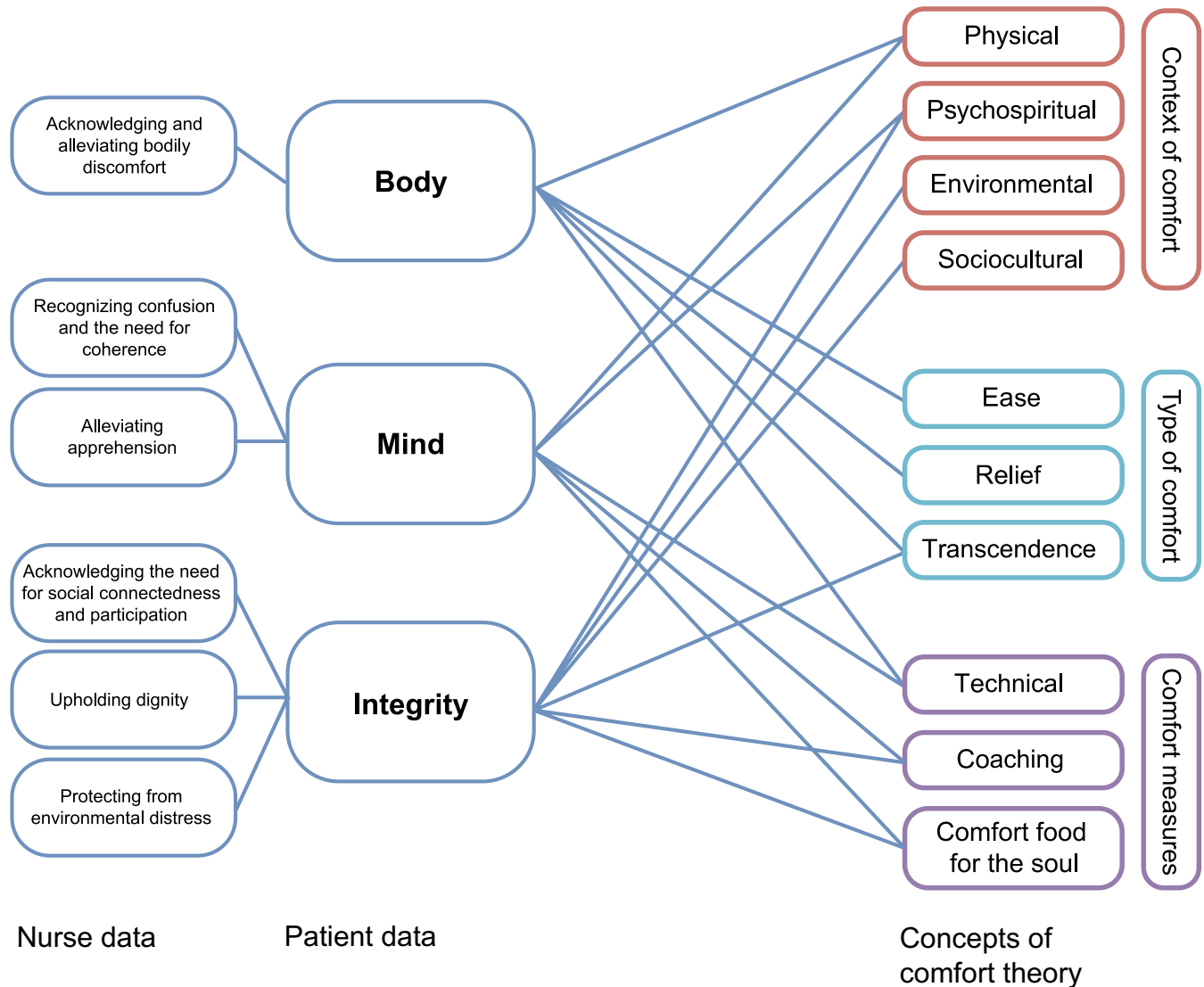


FIGURE 2 Correspondence in data from steps 1 + 2 in the analysis and concepts in Comfort Theory (Kolcaba, 2003) [Colour figure can be viewed at wileyonlinelibrary.com]

all three types of comfort. *Relief* may be obtained by managing respiratory distress, *ease* by being attentive or preventive in positioning patients to make them comfortable in bed and *transcendence* by balancing activity and rest when promoting rehabilitation. These nursing deliberations and enactments aiming at “the body” belong mainly to the *technical* comfort measures in Comfort Theory. These comfort measures are described as being designed to help patients maintain or regain physical function and comfort, and prevent complications.

asks her to squeeze her hand, carefully opens her eyes and uses a small torch to examine her pupils. She puts a stethoscope on her chest and her abdomen, asking if she is in pain. The patient does not respond, but her heart rate decreases from 120 to 113 while the nurse potters about her

(field note 9)

4.2 | The mind

A nurse is standing at the bedside close to the patient's head, holding the young woman's arm, speaking to her in a low and soothing voice. She tells her what day it is, where she is and why she is in hospital, and tells her about the monitoring procedures she is about to perform. She

4.2.1 | Being deprived of a functioning mind

Patients struggled to keep their wits and maintain connection to the real world while in ICU. Contributing to the confusion and delusions were the absent sense of reality, the fluctuating state of wakefulness and the lack of information and hence incomprehension of what was going on. The inability to speak which complicated communication reinforced the experience of incomprehension.

Delusions were common, frequently unpleasant, and often appeared at dusk or when the patients closed their eyes, thereby impairing sleep. Dreams and hallucinations mixed up the real and unreal. The presence of close relatives appeared to form an anchor to reality and contributed to alleviation of the unfamiliar and sometimes scary environment. This alleviation was illustrated by a young male patient who said: *“everything in the room changed – absolutely everything, except for my dad.”*

Discomfort from feeling unsafe and being anxious may correspond to the *psychospiritual* context in Comfort Theory. However, the deprivation of the functioning mind relating to cerebral dysfunction, e.g. confusion and delirium, corresponds more to the *physical* context. In our nursing data, the comfort needs pertaining to the mind were met by “alleviating apprehension” and by “recognizing confusion and need for coherence.” These categories comprise comfort measures of all three types according to Comfort Theory: *technical* when assessing delirium, *coaching* when informing, explaining and instilling hope and *comfort food for the soul* when using gentle touching, soothing speech and reassuring talk. Nursing interventions directed towards the deprived function of mind in terms of delirium or confusion, however, might not help in obtaining comfort to an extent of either type mentioned in Comfort Theory. A patient who is hallucinating about being haunted may not experience *relief* or *ease* or *transcendence*, no matter how great the efforts of the nurse to acknowledge and alleviate his fears.

4.3 | Integrity

Towards the end of the multidisciplinary daily round, held in a meeting room on the ward, the nurse speaks warmly about the patient, and the other meeting participants look surprised. One of them comments that there has been nothing but complaints about this patient for a long time, and that caring for him is exhausting. The nurse reports on his mental capacity, and his commitment and skills in different areas. Witnessing this, I both as an ICU nurse and a researcher, reflect on how seldom these meetings entail this kind of information and how hard it may be for ICU patients to show who they are and be acknowledged in terms other than those of being a ‘patient’
(field note 10)

4.3.1 | Being deprived of integrity

Even though the lack of a normally functioning mind was most unpleasant, being awake and aware of oneself and the situation could also be difficult. The experience of incapacity could compromise the patient’s dignity, even the feeling of being a person. The deprivation

of speech function could be scary but was only one part of the discomfort of being voiceless. The patients were also deprived of the ability to communicate needs, participate and present themselves as a person, which could lead to a feeling of loneliness, and a feeling of not being included or even respected. To a young female who tried to write her needs on paper, everything was crystal clear, but the nurse could not read her writing and made no further effort to understand. She felt rejected and told how she tried to write; *“why are you treating me like this? I am a person too.”* Integrity seemed deprived by the loss of ability to maintain autonomy, the disempowering experience of not feeling like, or not being treated like a person and by being deprived of meaningful relations with family and others. To witness other patients and situations, staying in crowded patient rooms and experiencing a noisy and unfamiliar environment deprived the patients of privacy. One patient said; *“When your bowels haven’t moved for days and suddenly they do, and you are in a room with several others - it is not exactly what you wish for”.*

Having chosen a complex description of integrity in our study, the deprivation of this in the patient data appears to correspond to three different contexts of comfort in Comfort Theory: the *psychospiritual*, the *environmental* and the *sociocultural*. Nurses intervened in the deprivation of integrity through “Acknowledging the need for social connectedness and participation”, “Upholding dignity” and by “Protecting from environmental distress.” The content of these categories pertains to Kolcaba’s comfort measures either *coaching* or *comfort food for the soul*. *Coaching*, for example, could include using motivation or facilitating patient involvement, and *comfort food for the soul* could imply recognition of the person or personality, engaging in the patients’ life and interests, reducing environmental stimuli and including and involving the family. According to Kolcaba (2003), the *comfort food for soul* targets the *transcendence* type of comfort through memorable connections between the nurse and the patient or family. These connections strengthen the patient in healing and rehabilitation.

5 | DISCUSSION

This secondary analysis of primary data showed that discomfort in ICU patients may be characterised by being deprived of a functioning body, a functioning mind and of integrity. The discomfort experienced constituted a complex and inter-related wholeness described by the overall theme of *needing* acknowledgement and alleviation. Furthermore, nurses were attentive to aspects of discomfort experienced by patients in all three areas of deprivation. The nurses’ deliberations and enactments regarding discomfort resulted in six categories constituting the overall theme of *providing* acknowledgement and alleviation.

A central finding in this study was a *comfort gap* evident in that our ICU patients expressed a high degree of discomfort despite the endeavours of critical care nurses to alleviate these. The comfort gap correlates with findings of the critical care nurses’ perceptions that discomfort experienced by ICU patients cannot be fully eliminated

(Berntzen et al., 2019). This may indicate that nurses are not capable of fulfilling all comfort needs identified. Furthermore, the existence of this comfort gap is supported by Kolcaba's argument that a state of being comfortable rarely applies to stressful health care situations (Kolcaba, 2003). It also aligns with a contemporary conceptualisation of comfort as not pertaining to a complete absence of discomfort, but rather a matter of achieving an acceptable level of comfort (Lowe & Cutcliffe, 2005). A discrepancy similar to the gap we identified was also described by Aro, Pietila, and Vehvilainen-Julkunen (2012) and Wåhlin, Samuelsson, and Ågren (2017). Wåhlin et al. used an empowerment questionnaire to investigate different topics in ICU, rated according to importance to the patient and to what extent these topics were met. The study, however, did not specifically focus on needs, or on discomfort or comfort. The largest difference found between what was rated important and what was met, pertained to the patients' "need to look forward" and to "strengthen life spirit." In their descriptive survey of ICU patients' needs, Aro et al. (2012), however, found a good correlation between the perceived importance of needs and how these needs were met. Of most importance and best met were the needs for physical comfort, feeling safe, being respected and emotionally supported and informed. The gap – although not labelled as such in their study – therefore contained unmet needs evaluated as least important by the patients. In our study, the qualitative and dual perspective of both nurses and patients on discomfort and unmet comfort needs may further elucidate the gap and what contributes to its existence.

Confusion was one prominent feature of the comfort gap identified and a factor contributing to the characteristic "being deprived of a functioning mind", sometimes accompanied by other cognitive impairment. Applying Comfort Theory to our results made it clear that the deprivation of a functioning mind was the most difficult area in which to obtain comfort of either type mentioned. According to Wilson and Kolcaba (2004), cognitive impairment is one variable for which little improvement in comfort may be obtained. Maintaining or regaining comfort related to functioning of the body and of integrity, however, appears attainable, although this depends highly on the nurses' commitment, resources available and the use of existing knowledge. Regarding the deprivation of a functioning mind, the measures to enhance comfort might have a limited impact and depend heavily on the nature of the discomfort. If a patient is hallucinating about the outbreak of World War III or about people wanting to hurt their children (examples from our primary patient data), it seems unlikely that attempts at reassurance will be successful.

Taking this into account – together with the existing lack of knowledge about how the brain is affected in critical illness – the further discussion will focus on this area of deprivation and on how the comfort gap may be diminished.

In our primary study, a large part of the discomfort reported was related to incomprehension and delusions (Berntzen et al., 2018). Similarly, in a review and synthesis of qualitative studies of critical illness experiences, the theme "transformation of perception: unreal experiences and dreams" was an overarching theme affecting all informants' memories and interpretations of such (Cutler, Hayter, &

Ryan, 2013). The deprivation of the functioning mind was also reflected in Wåhlin et al.'s study where staff failed to adequately assist the patients to maintain contact with reality (Wåhlin et al., 2017). Moreover, the topics "visit by next of kin" and "staff positive to visitors" were rated to be of great importance. In our study, the importance of family presence represented an important connection to reality, illustrated well by the young man who experienced his entire surroundings to change except for his dad.

The multiple descriptions of unpleasant delusions in our study seem incompatible with "feeling safe," which was identified as an overarching need in ICU patients by Hupcey and Zimmermann (2000). This was also supported by findings both in Aro's study (2012) and by Wåhlin et al. (2017) where it was described as "have trust in staff." In this respect, the lack of knowledge about how the brain is affected in critical illness is of major concern. Delirium is the manifestation of a highly prevalent acute brain dysfunction and organ failure in ICU patients and has to be accounted for when discomforts are assessed and treated. Delusions as part of delirium are common and may severely affect patients during and after the ICU stay (Jones, Griffiths, Humphris, & Skirrow, 2001; Nouwen, Klijn, van den Broek, & Slooter, 2012; Olsen, Nester, & Hansen, 2017; Wade et al., 2015). However, cognitive failure, such as impairments in memory and problem-solving abilities, has also been found in non-delirious ICU patients (Jones, Griffiths, Slater, Benjamin, & Wilson, 2006) and hence also requires attention.

Regarding our findings, more knowledge about the brain and the mind in critical illness is needed to establish how best to reduce the comfort gap identified. The first step ought, however, to be the implementation of existing knowledge in clinical practice, both regarding assessment and interventions. The assessment of confusion and delirium has been facilitated in patients being more awake and by valid assessment tools, but studies show that recommended tools are not sufficiently in use in current clinical ICU practice (Morandi et al., 2017). According to a recent review, various factors need better understanding: the relationship between sleep and delirium, the use of the electroencephalograph (EEG) in delirium monitoring and the role of nonpharmacological interventions like early mobilisation, enhanced communication and family presence (Pandharipande et al., 2017). The last update of the guidelines encompassing pain, agitation/sedation and delirium (PAD) in the ICU introduces approaches towards improving immobility and impaired sleep, resulting in the PADIS guidelines (Devlin et al., 2018). This appears to be a promising expansion of recommendations to address discomforts other than pain contributing to the comfort gap in this study. In 2009, Schweickert et al. had already shown a significant positive effect on its reduction and functional outcome from providing physical and occupational therapy in the initial phase of critical illness (Schweickert et al., 2009). Specifically, early mobilisation, which is facilitated by strategies of light or no sedation, has been considered an important nonpharmacological intervention to restore cognitive function and combat delirium (Baron et al., 2015; Needham et al., 2010; Schaller et al., 2016). Early occupational therapy interventions in the ICU, including multisensory stimulation, positioning, cognitive stimulation and basic training in activities in daily life

also, significantly reduce delirium (Alvarez et al., 2017; Tobar, Alvarez, & Garrido, 2017). Recent reviews, however, show insufficient evidence regarding interventions to reduce the incidence and duration of delirium in critically ill patients, and more research is warranted (Bannon et al., 2019; Burry et al., 2019; Herling et al., 2018). Inconclusive research may hamper the implementation of new knowledge and interventions that might further reduce the comfort gap.

Furthermore, in our patients, the presence of family members was important to maintain the connection to reality. Not surprisingly, other studies have found that delirious patients feel greater trust towards family members than towards health care personnel (Storli, Lindseth, & Asplund, 2008; Svenningsen, Egerod, & Dreyer, 2016). In a worldwide survey, 74% of ICUs reported that family members were allowed to visit for less than 5 hr a day (Morandi et al., 2017). A greater involvement of close relatives, including open or flexible visiting hours may be another crucial intervention to support ICU patients during delirium. Morandi et al. (2017) also found that interventions to reduce or treat delirium were more frequent when family members were actively involved. Moreover, family presence also enhanced early exercise and mobilisation in the patients.

Different types of discomfort pertaining in particular to the mind in our study appear to be inevitable at present, taking into account the existing lack of knowledge about the causes of cognitive impairment in ICU, including delirium (Pandharipande et al., 2017). However, important in Comfort Theory is that comfort obtained in one context will always affect comfort in the other contexts (Kolcaba, 2003; Kolcaba & Wilson, 2002). Hence, optimising comfort in other areas may affect the discomfort pertaining to the mind. Morse et al. argue that when comfort is unobtainable, nurses must still recognise the discomfort experienced by patients and be innovative in assisting them to find comfort to whatever level possible (Morse, Bottorf, & Hutchinson, 1994). Levels of comfort may be reflected in patients experiencing a sense of *relief* when their individual comfort needs are met, such as when analgesics are provided towards pain. Patients are at *ease* in situations enabling them to be calm or content, such as when being positioned comfortably in bed. The comfort state of *transcendence* occurs when a person rises above challenges or discomforts, often assisted by the nurse through motivation or facilitation according to Kolcaba (2003). In our primary study, one patient told how he managed the discomfort of being an ICU patient by putting himself into what he called “the hospital bubble”. This bubble may not have relieved discomfort but represented comfort by means of transcendence.

An interesting finding arising from applying Comfort Theory in this study was the feasibility of regarding transcendence as an obtainable type or level of comfort in intensive care. When a certain amount of discomfort is regarded inevitable – also with regard to the deprivation of a functioning body and integrity – nurses may apply comfort measures to help patients rise above their discomforts, i.e. achieve transcendence. If physical discomfort is inevitable during mobilisation despite the provision of pain medication, the nurse may help the patient to rise above this by reassuring the patient of the safety of mobilising, and by acknowledging the existing discomfort.

Furthermore, transcendence may be sought by focusing on how the exercise may contribute not only to “medical” goals but also to personal goals, such as participating in a future family event or going hiking. In an earlier study, we found that nurses may experience strain from witnessing patient discomfort when trying to balance rehabilitation and comfort in their patients (Berntzen et al., 2019). To regard transcendence as one type of comfort may even reduce the nurses’ feeling of not doing their best for their patients.

A central finding was the comfort gap that exists in spite of the nurses’ endeavours to alleviate discomfort and attend to comfort needs. This may also reflect the finding that unsystematic approaches were used to alleviate discomfort other than pain in our primary study (Berntzen et al., 2019). The nurses’ endeavours were closely linked to their own personal knowledge and their personal repertoire of interventions including things close to their heart or ‘specialities’. Clearly, multicomponent programmes for discomfort reduction (Kalfon et al., 2017, 2019) and bundles of care like the E-cash (Vincent et al., 2016) and the ABCDEF-bundle (Marra, Ely, Pandharipande, & Patel, 2017; Pun et al., 2019) may contribute to a more individualised and also less unsystematic approach. However, having applied Kolcaba’s Comfort Theory in this study, we argue that assessing and planning intensive care according to the taxonomic structure might represent a feasible systematic approach. Securing the assessment of individual comfort needs, defining goals of care relating to comfort of either type, and thereafter planning the care by choosing the appropriate comfort measures may enhance patient comfort. Furthermore, within the frame of systematic assessment and planning, nurses in the ICU will be welcome to use their personal repertoire, including their ‘specialities’, to achieve the common goals of care.

5.1 | Methodological considerations

Reuse of datasets obtained from vulnerable populations may be justified to maximise the use of collected data (Hinds, Vogel, & Clarke-Steffen, 1997), and secondary analyses offer an important possibility of fully exploiting valuable human data (Thorne, 1994). However, qualitative secondary analyses raise a number of issues regarding rigor and ethics (Heaton, 2008; Ruggiano & Perry, 2019; Thorne, 1994), although some apply primarily to the lack of first-hand knowledge of data and ethical issues of informed consent and confidentiality in sharing of datasets. As we reused self-collected data and the purpose of the study did not deviate from what the participants had consented to in the parent studies, these issues were considered not to apply to our study.

A pivotal concern with secondary analyses is the problem of fit between the data and the research question if the data were collected with a different purpose (Heaton, 2008; Thorne, 1994, 2016). In our study, data in both parent studies were collected on pain, other discomforts and wakefulness. The emphasis, however, was on pain experience in the context of the analgesedation protocol implemented. Discomfort was studied by separating pain

and discomfort for analytical purposes. A central finding of an overwhelming presence of discomfort other than pain in the data gave rise to this study's research questions which were considered sufficiently close to the original purpose to maintain fit for the secondary analysis.

6 | CONCLUSIONS

Our in-depth exploration of what characterises discomfort in ICU revealed a complex, interwoven experience of being deprived of a functioning body, a functioning mind and integrity, leaving the patient in need of acknowledgment and alleviation. The nurses' acknowledged and alleviated all types of discomfort experienced. However, a comfort gap between the patients' needs and the nurses' overall achievement in meeting these needs indicates that discomfort is an inevitable part of critical illness in ICU. Applying Kolcaba's Comfort Theory to our results contributed to identifying the deprivation of a functioning mind as the least accessible area for nurses' comfort measures. To diminish the gap identified, existing knowledge about the assessment of cognitive function and dysfunction must be implemented. Furthermore, increased knowledge is needed about delirium and other cognitive impairment in intensive care patients. The discomfort from these conditions may not be alleviated, but comfort in other areas may also enhance comfort issues regarding the mind. Using Kolcaba's taxonomic structure and concepts in Comfort Theory may ensure a better competency to assist nurses in enhancing comfort in ICU patients. Furthermore, transcendence as one type of comfort may be obtainable when direct relief from discomfort is not possible. Including transcendence in the comfort repertoire may offer critical care nurses an option to define attainable comfort goals and choose appropriate comfort measures.

7 | RELEVANCE TO CLINICAL PRACTICE

Knowledge of what is important to ICU patients is pivotal in diminishing the comfort gap revealed in our study. This knowledge might guide nurses when deliberating about care structures that will offer patients comfort to whatever level possible.

In the intensive care setting, the distinct focus has been on managing pain and discomfort, including the use of pain assessment tools for noncommunicating patients, and protocols for sedation and analgesia. As discomfort has not usually been regarded as distinct from pain, systematic approaches have evidently concentrated on relieving pain more than on enhancing comfort. Structuring the approach to the familiar – still ill-defined – phenomenon of discomfort as part of the ICU illness trajectory may help nurses in their endeavours to alleviate discomfort in the clinical setting. Familiarity with the concepts of Kolcaba's Comfort Theory in relation to discomfort in ICU may also assist nurses in assessing comfort needs, determining more appropriate goals of

care and intervening to alleviate discomfort experienced by their patients.

Minding the gap identified in our study may increase the focus on discomfort other than pain and enhance comfort in patients during their stay in ICU. Different, novel perspectives on discomfort may open up new approaches to the training of critical care nurses and new avenues of research.

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CONFLICT OF INTEREST

All authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Study design, analysis and manuscript preparation: HB, ITB and HW; data collection: HB.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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