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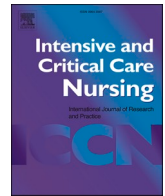
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## Research Article

## Getting the body back on track – Understanding the phenomenon of mobilisation when conscious and mechanically ventilated patients are mobilised in the intensive care unit



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## ABSTRACT

**Objective:** To gain an in-depth understanding of the phenomenon of mobilisation when conscious and mechanically ventilated patients are mobilised in the intensive care unit.

**Design:** A qualitative study with a phenomenological-hermeneutic approach. Data were generated in three intensive care units from September 2019 to March 2020. Participant observations of twelve conscious mechanically ventilated patients, thirty-five nurses and four physiotherapists were performed. Furthermore, seven semi-structured patient interviews were conducted, both on the ward and after discharge.

**Findings:** Mobilisation during mechanical ventilation in the intensive care unit followed a trajectory from a failing body to a growing sense of independence in getting the body back on track. Three themes were revealed: 'Challenging to move a failing body', 'Ambiguity of both resistance and willingness in the process of strengthen the body', and 'An ongoing effort in getting the body back on track'.

**Conclusions:** Mobilisation when conscious and mechanically ventilated included support of the living body by physical prompts and ongoing bodily guidance. Resistance and willingness regarding mobilisation were found to be a way of coping with bodily reactions of comfort or discomfort, embedded in a need to feel bodily control. The trajectory of mobilisation promoted a sense of agency, as mobilisation activities at different stages during the intensive care unit stay supported the patients in becoming more active collaborators in getting the body back on track.

**Implications for Clinical Practice:** Ongoing bodily guidance provided by healthcare professionals can promote bodily control and support conscious and mechanically ventilated patients in active participation in mobilisation. Furthermore, understanding the ambiguity of patients' reactions caused by loss of bodily control provides a potential to prepare mechanically ventilated patients for and assist them with mobilisation. In particular, the first mobilisation in the intensive care unit seems to influence the success of future mobilisation, as the body remembers negative experiences.

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## Introduction

Critical illness and treatment in an intensive care unit (ICU) are associated with substantial physical, psychological and cognitive side effects. A collective term for these is post-intensive care syndrome (PICS), which causes impairments in patients' health status after ICU stay and difficulties in returning to previous activities of daily life (Needham et al., 2012). During the last decade, minimal or no sedation (Strøm et al., 2010), together with early mobilisation of patients on mechanical ventilation (MV) in the earliest days of critical care, has resulted in improved patient outcomes (Schweickert et al., 2009; Tipping et al., 2017). Early mobilisation is defined as passive or active exercises at an early stage of intensive care treatment, with the aim of supporting and maintaining patient mobility (Nydahl et al., 2020). Starting as early as clinically possible after admission to ICU, mobilisation can shorten duration of MV, and improve muscle strength at ICU discharge and walking ability at hospital discharge (Cameron et al., 2015; Devlin et al., 2018; Girard et al., 2017), when compared to late mobilisation (Menges et al., 2021). Furthermore, early mobilisation can reduce prevalence and duration of ICU delirium (Nydahl et al., 2022). Mobilisation, combined with minimal sedation, are found to be safe and well-tolerated in patients on MV (Nydahl et al., 2017; Olsen et al., 2020). However, barriers are found, such as: patient physical and psychological condition; safety issues; culture and team influences; motivations and beliefs regarding the benefits and risks; and environmental issues (Parry et al., 2017). To overcome these multifactorial challenges, clinical training programme, and guidelines have been developed to implement and maintain mobilisation in ICU (Girard et al., 2017; NICE, 2017; Nydahl et al., 2020). Nevertheless, international cross-sectional point prevalence studies have shown a low level of mobilisation in ICU patients receiving MV, where percentages of, respectively, 16%, 24%, and 33% received out-of-bed mobilisation (Jolley et al., 2017; Nydahl et al., 2014; Sibilla et al., 2020).

Altogether, this indicates a current gap between the perceived need to enhance the level of mobilisation in patients on MV and the actual implementation of mobilisation interventions into ICU routine care. Moreover, embracing the new paradigm of non-sedation during MV opens up a unique opportunity for patient interaction with ICU nurses (Laerkner et al., 2019) and physiotherapists, to achieve a balance between patients' preferences and the need to ensure safe practice (Clarissa et al., 2022).

There is a paucity of knowledge regarding the phenomenon of mobilisation as it unfolds in the contextual practice of non-sedated MV patients during ICU stay. Therefore, there is a need to explore it further, to better understand patients' care and support needs and to optimise mobilisation in ICU.

## Objective

The aim of this study was to gain in-depth understanding of the phenomenon of mobilisation when conscious and mechanically ventilated patients are mobilised in ICU.

## Methods

This explorative study was inspired by Ricoeur's phenomenological-hermeneutic theory of interpretation (Ricoeur, 1976), which makes it possible to reach a new understanding through critical interpretation of the phenomenon of mobilisation in the contextual practice, including conscious and mechanically ventilated patients, nurses and physiotherapists in ICU.

The study is part of a larger project TO:MOVE-ICU, whose aim is to optimise mobilisation of MV patients in ICU. This paper reports the study conducted in phase one of the project, exploring both the patient and healthcare professional (HCP).

To ensure transparency, the Consolidated Criteria for Reporting

Qualitative Research (COREQ guidelines) were applied in reporting the study (Tong et al., 2007).

## Setting and participants

The study was carried out at three mixed ICUs, two at a university hospital and one at a regional hospital in Denmark. They were comparable in relation to patient demography, a nurse-patient ratio of 1:1, and treatment strategies in MV and minimal sedation. The ICUs had a pre-defined prescription of respiratory and functional mobility interventions performed by physiotherapists during the day on weekdays and always preceded by an individual patient assessment.

The participating patients and HCPs were purposefully selected (Patton, 1990) by the first author during participant observations in the ICUs. Inclusion and exclusion criteria are shown in Table 1. Before recruitment, the management granted the first author access to the ICUs, where she collaborated with key gatekeepers (nurse specialists, leading physiotherapists, charge nurses, and research team). The HCPs were informed about the study at staff meetings and in newsletters. Leaflets were handed out and posters were placed in the ICUs to raise awareness of the study. The first author participated in daily briefings in the ICUs and the clinical team supported identification of potential participants before they were approached.

In total, twelve ICU patients were included in the study; five male and seven female, between the ages of 56 and 85, who had been on MV for a median of 9.5 days. Seven patients completed the study. Three patients died in the ICU, one died on the ward and one withdrew because of relapse of a cancer diagnosis and continuous need for tracheostomy and therefore did not participate in the interviews. ICU nurses and physiotherapists involved in mobilisation of the included patients gave informed consent to participate in the field observations. Thirty-five HCPs were included: thirty-one ICU nurses, and four physiotherapists: three men and thirty-two women aged 25–64 with a wide range of ICU experience (see Table 2).

## Data collection

Data were collected from two sources, participant observations and consecutive patient interviews, conducted from September 2019 to March 2020. To enhance our understanding of the complexity of mobilisation when patients are conscious and mechanically ventilated in ICU, 200 h of participant observations were conducted across all three ICUs. Inspired by Spradley's domains, participant observations focused on: actors, place, activities, objects, actions and feelings (Spradley, 2016). Specifically, the first author recorded in field notes who

**Table 1**  
Participants' inclusion and exclusion criteria.

| Participants | Patients admitted to the intensive care unit  | Healthcare professionals   |
|--------------|---|--|
| Inclusion    | Patients over 18 years<br>Endotracheal intubated and expected time on MV > 24 h<br>RASS: -1 – + 1, CAM-ICU negative   | Nurses and physiotherapists working at the ICU and involved in mobilisation of the included patients |
| Exclusion    | Patients classified as no-touch on medical indication e.g. unstable condition or inevitably dying.<br>Cognitive impairment (diagnosed with dementia, autism or mental illness).<br>Unable to communicate in Danish or English |  |

MV: Mechanical Ventilation.

RASS: Richmond Agitation and Sedation Scale.

CAM-ICU: The Confusion Assessment Method for the ICU.

**Table 2**  
Demographics and clinical characteristics of included patient and healthcare professionals.

| Patients characteristics                       | n = 12       | Healthcare professionals characteristics | n = 35     |
|--|--------------|--|------------|
| Age (years), median (range)                    | 71,5 (56–85) | Age (years), median (range)              | 43 (25–64) |
| Sex, female, n (%)                             | 7 (58)       | Sex, female, n (%)                       | 32 (91)    |
| Unit A/B/C, n                                  | 4/4/4        | Unit A/B/C, n                            | 10/15/10   |
| ICU admission diagnoses, n (%)                 |              | Education, n (%)                         |            |
| Respiratory                                    | 9 (75)       | BA Physiotherapy                         | 4(11)      |
| Cardiovascular                                 | 2 (17)       | BA Nursing                               | 31(89)     |
| Sepsis   | 1 (8)        | Certified ICU nurse, n (%)               | 22 (63)    |
| APACHE II, median (range)                      | 23 (14–40)   | Experience in ICU (years) median (range) | 7 (0,1–33) |
| Mechanically Ventilation (days) median (range) | 9,5 (1–27)   |  |            |
| LOS ICU (days), median (range)                 | 10 (1–31)    |  |            |
| Relationship, living with partner n (%)        | 6 (50)       |  |            |

APACHE II score = Acute Physiology and Chronic Health Evaluation II (0–71). The calculation is based on 12 physiological measurements during the first 24 hr. in the ICU. Higher scores indicating more severe disease and higher risk of death.

SOFA: Sequential Organ Failure Assessment score range from 0 to 4 for each organ system, with higher aggregate scores indicating more severe organ dysfunction.

LOS: Length of stay.

Certified ICU nurse: Two year of education on top of bachelor' degree in nursing equivalent to 90 ECTS-points.

participated, how they were placed, how they acted and responded during mobilisation, how they communicated, verbally and nonverbally, and interacted with each other. The observations were primarily performed between 7.00 and 15.30 h, but some took place in the evenings and at weekends. Only data from observations of mobilisation (position change, lift transfer or sitting on the edge of the bed, standing, stepping, walking with assistance, and in-bed cycling) with participation of patients, ICU nurses and/or physiotherapists were included. Patients were observed from the time of consent was given and throughout their ICU stay. Patients' notes written to nurses during MV were included with patient consent. HCPs were observed during mobilisation activities when consent was given. This was supplemented by informal interviews to elucidate their experiences of mobilisation. Moderate participation (Spradley, 2016) was conducted. As a former ICU nurse, the first author balanced observation, while sitting or standing next to the patient's bed, and participating in daily work in the ICU, such as assisting the HCP with various tasks, e.g., holding an intravenous drip or passing a pillow. Field notes were written in the ICU, and more detailed descriptions were subsequently transcribed.

The patients' experiences of the observed mobilisation were further explored by semi-structured interviews (Kvale & Brinkmann, 2009). Two consecutive interviews were planned and conducted with each patient. The first interview to account for recall bias and the second when they had recovered to counteract for fatigue, cognitive deficit or difficulties in speaking after MV. The first took place on the hospital ward two to five days after ICU discharge (referred to as WI), and the second at home 1–2.5 months after hospital discharge (referred to as HI). The interviews lasted between 11 and 33 min, and 64 and 104 min, respectively. An interview guide, informed by the participant observations, was developed, supplemented with a literature search. The questions were open-ended and patients were asked, e.g.: 'How did you experience getting out of bed while mechanically ventilated in the ICU?' 'How did you feel when sitting/standing/walking?' The first interviews informed the interview guide used at the interviews after discharge. The questions were open-ended and observations from the participant

observations were brought into the interviews (Kvale & Brinkmann, 2009), enabling patients to elaborate on their experiences of mobilisation during their ICU stay. The questions asked were, e.g.: 'How did you experience mobilisation in the ICU?' 'What did you think about getting out of bed during MV?' The interviews were conducted by the first author, audio-recorded and transcribed verbatim. All data were collected in Danish. Demographic data and clinical data were extracted from medical records.

### Data analysis

The interpretative approach was inspired by Ricoeur's theory of interpretation (Ricoeur, 1976). The transcribed field notes, written notes from patients and interview data were analysed as one overall text. The analysis can be enriched when data on what is expressed in behaviour, interaction and reactions are combined with oral quotations regarding what is meaningful to participants, and arranged as one coherent text (Simoný et al., 2018). According to Ricoeur, a written text creates a distance that frees the meaning from the event and the author. Thus, it leaves the text open to interpretation (Ricoeur, 1973). Furthermore, Ricoeur argues that: "To understand a text is to follow its movement from sense to reference: from what it says, to what it talks about" (Ricoeur, 1976, p. 87). Thus, the focus of the interpretation is not on the text itself, but on the issues and meanings the text points towards: in this study, the phenomenon of mobilisation as experienced by patients, nurses and physiotherapists.

Inspired by Ricoeur's philosophy, the analysis was conducted as a dialectical movement between explanation and understanding on three levels, from a surface to an in-depth interpretation. First, the text was read several times and the naïve reading revealed an initial sense of the text as a whole. Secondly, a structural analysis of 'what is said' (quotations), and 'what is talked about' (meaning of the text) was conducted, and three themes were identified (exemplified in Table 3). Finally, a comprehensive understanding and critical discussion, with relevant theory and empirical studies, were performed to achieve a new meaning and deeper understanding (Dreyer & Pedersen, 2009). The first level was performed by the first author; the second level was performed by first, second and last authors and the third level discussion involved the entire

**Table 3**  
An example from the structural analysis.

| What is said   | What the text talks about  | Theme                              |
|--|--|------------------------------------|
| "When I went down and had to stand up again, it was completely and precisely as if my legs disappeared under me. I simply sat right down on the bed" (P6, W1).   | The patients experienced that their body was somehow different and reacted differently to the patients' usual experience. Their legs shook, were weak or collapsed beneath them.   | Challenging to move a failing body |
| "So... the only thing I thought about it was that it was so irritating because they [the legs] were shaking like this below me, as soon as I had to stand on them. I couldn't really understand that.. (P8, I2)          | Patients reacted to their bodily changes with surprise or fright, and spent all their energy concentrating on their body. This was seen, for example, by moving slowly or hesitantly, looking down at the floor and not always responding to the staff's attempts to get their attention, in relation to mobilisation. |                                    |
| PT1 guided P12 to stand up, and trip from one leg to the other, this went on without problems and P12 had good balance. During the entire session, P12 looks down at her leg, and seemed quite concentrated (fieldnote). |  |                                    |

research team. The analysis was managed in NVivo 12 where the text was coded by meaning (codes). The systematic approach allowed a dialectic movement between the file function where the text figured as a whole and the parts (quotations) revealing the in-depth meaning of the data (Dreyer & Pedersen, 2009). The analysis was performed in Danish and translated into English by a professional translator.

### Methodological rigour

Data, method and investigator triangulation was applied during the data acquisition and analysis to ensure that rich data were gathered (Polit & Beck, 2020). Researcher reflexivity was applied to discuss preconceptions and to clarify any unintended interpretation of data during the analysis. The research team was made up of experienced female researchers and included the interprofessional participation of a physiotherapist, a physician and nurses.

### Ethics

The study followed the principles of the Declaration of Helsinki (World Medical Association, 2013). All participants gave written informed consent. Information about the study purpose were given prior to participation and continuous attention was given to repeat this, as required. Likewise, participants were given the opportunity to re-confirm participation. The study was assessed by the Regional Committees on Health Research Ethics (S-20192000–62) and approval was unnecessary, in accordance with Danish legislation. The Danish Data Protection Agency (19/12736) approved the study. To secure data anonymity, we applied pseudonyms to each participant (P1, P2, P3 etc.) for patients interviewed and observed in participant observations, this also applies to nurses (RN) and to physiotherapist (PT).

### Findings

The naïve reading revealed that early mobilisation was a challenging and frightening process, characterised by patients' experience of a failing body. This required the HCPs in ICU to engage in different ways. Although patients experienced incomprehensible bodily reactions and fright, they also expressed an inner strength or expectation of recovery. Mobilisation was supported by nurses and physiotherapists. They stimulated the patient to start moving their body again and encouraged them to regain their bodily functions and control of the body. The structural analysis revealed three themes, as presented below.

#### Challenging to move a failing body

The body was perceived as changed and it reacted differently than normal. During mobilisation, patients' legs shook, appeared weak or collapsed under them:

*"I thought at that moment, well, it doesn't work at all. I can't stand on my legs at all, because I thought they were, like, jelly or something like that" (P8, WI).*

The failing body led to both surprise and fright. An intense concentration on the bodily function during mobilisation was seen, e.g., slow or hesitant movements, patients looking at the floor or not responding to the staff's attempts to get their attention. The movement patterns were quite static, with jerking bodily gestures, because of the endotracheal tubes, rubber hoses and drainage tubes 'sticking out everywhere'. This was experienced as an uncomfortable hassle. There was additional bodily discomfort, such as salivating and coughing fits when mobilised during MV. During mobilisation, it was difficult to control the bodily functions:

*"I was just like a long-legged stork; I would almost say ... it was Bambi on slippery ice. They [the legs] shook and trembled and did strange things" (P4, WI).*

When the body failed, things could go differently than expected, as reflected in this fieldnote:

*"Two nurses helped P8 back in bed, one at each side walking close together to support her. As she was standing near the edge of the bed, her legs collapsed and she fell heavily on the bed" (P8, fieldnote).*

This emphasised a dependency on extensive bodily support from HCPs during mobilisation of patients on MV. Patients felt overwhelmed by being let down by their own failing body.

#### Ambiguity of both resistance and willingness in the process of strengthen the body

The first mobilisation stood out in particular, with extreme bodily reactions, such as dizziness, fainting, nausea and a feeling of not being able to breathe. There was a tension, both in relation to the mobilisation itself, but also in relation to the HCP involved in the mobilisation:

*"He was there that time [when P1 stood up for the first time] and then suddenly I became ... I mean, I could not really see him... it was because of dizziness. And then I sat down. Then the next time I had to practice, he came in...ok I had to practice but not with him, in any case, because he made me faint last time" (P1, HI)*

A negative experience could cause reluctance or a wish to postpone subsequent mobilisations. Patients made defensive gestures, or entered into agreements, such as getting extra oxygen prior to mobilisation or requested use/no use of certain assisting devices, e.g., a rollator and lift (see Fig. 1).

*"I have tried to escape; I go the other way, and I have also tried to take precautions and always be one step ahead" (P6, WI).*

In other words, the reactions reflected a need to be in control of the situation. However, the adverse or insistent response could also give rise to a bad conscience, persisting even after discharge from hospital.

Conversely, patients appreciated changing position and sitting in a chair, which led to relieving bodily reactions, e.g., it helped ease breathing. Some even started doing minor exercises themselves and described their inner drive, or just their personality to help them start moving the body again:

*"So there [when bed-biking] I challenged myself to drive a bit more than I was supposed to. That was where the competition gene probably came up in me (laughs)" (P1, WI).*

This reflected a belief in regaining bodily strength, ability and control. In addition, attention and encouragement was given when patients managed to keep their balance and bodily alignment for the first time. An almost solemn atmosphere arose, ongoing tasks were paused and attention was fixed on the patient:

*"PT1 called the nurse when P5 could just sit for a moment and hold himself upright ... PT1 stepped a little to the side. RN34 looked*

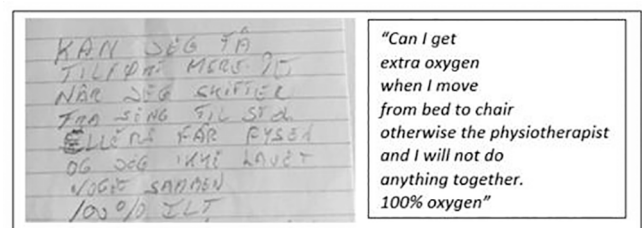


Fig. 1. Note written by P6 with a message for the ICU nursing staff.

appreciatively at the patient, smiled and said: "That is really great" (P5, fieldnote).

Thus, mobilisation seemed to be associated with an ambiguity of both resistance and willingness to move the body, caused by bodily reactions of either discomfort or comfort and bodily control, especially in relation to the first mobilisations in the process of strengthen the body.

#### *An ongoing effort in getting the body back on track*

Physical prompts and markings on the body in relation to positioning and transfer were used by nurses to stimulate the patients to feel and connect with their body again, as reflected in this informal interview:

"RN11 placed her hand on P10's leg and applied a light pressure to the bent knee. Afterwards, RN11 said "I helped P10 feel her body. I think she has a hard time feeling the limits of her body" (P10, fieldnote).

Physical prompts were also applied by the physiotherapists and they challenged balance and posture, and used their own body when guiding:

"Then try to lift your leg. Some time passes before P4 lifts one leg. PT1 sits down next to P4 and makes synchronous movements" (P4, fieldnote).

The ongoing physical prompts and bodily instructions guiding the large joints and muscles helped to stimulate the body prior to and during mobilisation. Not just being left in bed to waste away was emphasised as positive and gradually the body got more capable from being mobilised:

"You can't do this and that, but when you see that they [the HCPs] have helped us ... that it was good they did it. Now things are going better" (P8, WI).

This way, patients' ability to get out of bed was linked to hope of recovery.

Various assisting devices supported patients in getting the body back on track, both the smaller aids, such as a hand trainer, and the high walker supporting standing mobilisation. Becoming less dependent on continuous help was linked to feeling free; e.g., to some it was a relief not having to use the lift, as it was compared to hanging helpless like a sack of potatoes. Furthermore, the use of assisting devices in ICU were transferable in the course of their further rehabilitation:

"this [using the bed-bike] was at least part of what I would come across later [during rehabilitation]" (P4, HI).

Thus, mobilisation in ICU appeared to be stimulated by physical prompts and bodily guidance in getting the body back on track. Furthermore the bodily control and readiness were supported to meet the demands of the subsequent rehabilitation.

#### *Comprehensive understanding*

The overall comprehensive understanding found in this study was that mobilisation during MV in ICU followed a trajectory from a failing body to a growing sense of independence in getting the body back on track. The three revealed themes are linked through bodily changes and the ability to regain more and more bodily control, stimulated through mobilisation activities and in collaboration with a HCP.

Mobilisation during MV confronted patients with an unknown and failing body, which highlighted loss of bodily control. Furthermore, an ambiguity of both resistance and willingness to start moving the body again was found to be caused by bodily reactions of either discomfort or comfort, especially related to the initial mobilisations in ICU. Finally, mobilisation in ICU got patients back on track by stimulating the body via physical prompts and ongoing bodily guidance, together with the use of assistive devices, thereby readying them to meet the demands of further rehabilitation.

## Discussion

This study has revealed that, during mobilisation, patients were confronted with and challenged by their failing body. The French philosopher Merleau-Ponty stated that the world to be is experienced both in and through the body – a lived body. He emphasises that body and mind are inseparable (Merleau-Ponty, 1999) and that the relationship between the body and the mind is internally related to the world (Harrison et al., 2019). In that light, mobilisation while being conscious and mechanically ventilated was not merely a challenge caused by a dysfunctional physical body, but also a disruption of familiar embodied actions through which one understands the world. The inability to control one's physical and bodily functions made the world appear unpredictable and gave rise to feelings of fright and surprise. Hence, it is possible to understand how mobilisation affects the whole person, in a complex relationship between body, mind and the specific situation. Accordingly, other studies found that ICU patients perceive their bodies as unfamiliar because of their lack of control and inability to move (Fredriksen et al., 2008), and this is affecting the meaning of their life-world (Cypress, 2011).

In addition, the current study contributes with a deeper understanding of mobilisation of conscious MV patients in ICU. This is not only about changing position or moving the body, but includes an ambiguity of both resistance and willingness for patients to participate in mobilisation, caused by bodily responses of either discomfort or comfort. Physical and psychological barriers towards mobilisation in ICU are patients' fatigue, weakness, fear and refusal (Parry et al., 2017). This corresponded with our finding that extreme bodily reactions caused discomfort and reluctance to mobilise. This finding was especially related to the first mobilisations. This is aligned with a Swedish study, in which ICU patients experienced fear and insecurity particularly related to the first mobilisation (Söderberg et al., 2022). According to Merleau-Ponty, we have experiences as bodies. We experience things in the body and this shapes future perception and actions (Merleau-Ponty, 1999). This reflects a particular focus on the first mobilisations in ICU. The body remembers negative experiences and might have an adverse effect on future mobilisations. Furthermore, a consistent finding was that willingness to engage in mobilisation was associated with comfort when changing position, especially sitting in a chair. This corresponds with studies showing that position change from vertical to horizontal induced a feeling of reclaiming the body (Fredriksen et al., 2008) and hope (Laerkner et al., 2019; Söderberg et al., 2022).

In the present study, the severity of patients' illness was quite high, with a median Apache II score of 23 (Table 2). Notwithstanding this, an inner drive to start moving the body again was found. This corresponds with previous findings showing an inner strength in ICU patients, based on the will to control and manage even small things themselves (Alexandersen et al., 2021). Mobilisation in ICU has been referred to as a "negotiating space", where micro-decisions were negotiated at the bedside, as patients' ways of gaining control over a somewhat uncertain existence (Karlsen et al., 2020). As such, our findings of resistance and willingness in relation to mobilisation should not be understood as a dichotomy, but merely as a way of coping with bodily reactions of comfort or discomfort embedded in a need to feel bodily control.

Mechanically ventilated patients lack negotiation power (Karlsen et al., 2020), and we need to recognise the 'hidden work'; the physical and psychological activity required to cope with MV, that appears largely invisible to HCPs (Carruthers et al., 2018). Thus, the present study contributes valuable insight into the 'hidden work' of mobilisation when mechanically ventilated by showing how patients are let down by their own body and strive for bodily control to get the body back on track. This is important knowledge to individualise care support in ICU. Interventions should include information and ways to prepare for or assist with mobilisation activities while balancing respect for the patient's autonomy with best evidence of recovery. A balance that has been found to be essential in other studies of HCPs interaction with

conscious ICU patients (Karlsen et al., 2020; Laerkner et al., 2019).

Merleau-Ponty emphasise that, as a patient, the body is experienced as an amorphous mass and needs preparatory movements, to be able to 'take a grip' of its own body before performing movements (Merleau-Ponty, 1999). We found that ICU nurses and physiotherapists used physical prompts prior to mobilisation, which could be interpreted as a supportive preparation to awaken the body. However, it might also reflect the adoption of Basic Stimulation, an approach of bodily sensory stimulation to encourage patients with compromised attention to perceive, move and communicate, implemented in Danish ICU practice since the 1990s (Egerod et al., 2009).

Based on the present study, we argue that mobilisation in ICU can be understood as a trajectory from a failing body to a growing sense of independence in getting the body back on track. It is a trajectory that appeared to be related to patients' physical recovery and regaining bodily control. Furthermore, the use of assistive devices supported patients to meet the demands of recovery from the first step on the path in ICU to subsequent rehabilitation. A grounded theory study found 'recalibration' to be essential in aligning patients in the transition from a prior capable self to a current weak and vulnerable self during ICU stay, and further to a possible future self, as autonomy was regained (Corner et al., 2019). The current study supports Corner et al.'s findings and contributes with a proposal of 'recalibration' of conscious MV patients encouraged by HCPs' ongoing physical guidance and support toward bodily comfort and control. In addition, a previous study exploring conscious patients during MV suggests that the trajectory of mobilisation promotes a sense of agency (Laerkner et al., 2017). Mobilisation activities at different stages during ICU stay supported a movement towards bodily control and active participation, instead of remaining a passive recipient of care.

### Limitations

The sample size of this study can be considered as small. However, we wished to explore the phenomenon of mobilisation during ICU stay, which led us to a qualitative approach. The approach is concerned with the deepening and understanding of a specified phenomenon, rather than with numerical representability (Malterud, 2001). In addition, recruitment was at three sites, participants were purposefully selected, and data, methods and investigator triangulation were applied (Polit & Beck, 2020). Furthermore, an ongoing balance being both a researcher and a former ICU nurse were kept during the participant observations to limit the disturbance in the ICU's (Kvande et al., 2021). To maximise the quality of data, consecutive patient interviews were performed (Kirkevold & Bergland, 2007). Hence, it seems reasonable that the findings of the study would be transferable to similar settings, bearing in mind that the included patients were conscious and survivors of critical illness.

### Conclusion

Mobilisation in ICU was not merely about physical and emotional support, going from dependence to independence. It also included support of the living body by physical prompts and ongoing bodily guidance. Resistance and willingness in relation to mobilisation, when conscious and mechanically ventilated, must be understood as a way of coping with bodily reactions of comfort or discomfort. This is related to the ICU patients' need to feel bodily control and negative experiences might have an adverse effect on future mobilisations. The trajectory of mobilisation promoted a sense of agency, as mobilisation activities at different stages during ICU stay supported the patients in moving from passive receipt of care to more active collaboration in getting the body back on track.

### CRedit authorship contribution statement

**Lene Lehmkuhl:** Conceptualization, Methodology, Formal analysis,

Investigation, Resources, Data curation, Writing – original draft, Writing – review & editing, Project administration. **Pia Dreyer:** Conceptualization, Methodology, Formal analysis, Writing – review & editing. **Eva Laerkner:** Investigation, Formal analysis, Writing – review & editing. **Hanne Tanghus Olsen:** Conceptualization, Methodology, Writing – review & editing. **Eva Jespersen:** Conceptualization, Methodology, Writing – review & editing. **Mette Juel Rothmann:** Conceptualization, Methodology, Formal analysis, Writing – review & editing, Supervision.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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### Ethical statement

The study followed the principles of the Declaration of Helsinki. All participants gave written informed consent. Continuous ethical attention were kept towards the patients, information about the researcher and study purpose were given prior to participation and continuously when needed, likewise were the opportunity to re-confirm participation. The study was assessed by The Scientific Ethics Committee (S-20192000–62) and approval was unnecessary according to Danish legislation. The Danish Data Protection Agency (19/12736) approved the study.

### References

- Alexandersen, I., Haugdahl, H.S., Paulsby, T.E., Lund, S.B., Stjern, B., Eide, R., Haugan, G., 2021. A qualitative study of long-term ICU patients' inner strength and willpower: Family and health professionals as a health-promoting resource. *J. Clin. Nurs.* 30 (1–2), 161–173. <https://doi.org/10.1111/jocn.15532>.
- Cameron, S., Ball, I., Cepinkas, G., Choong, K., Doherty, T.J., Ellis, C.G., Martin, C.M., Mele, T.S., Sharpe, M., Shoemaker, J.K., Fraser, D.D., 2015. Early mobilization in the critical care unit: A review of adult and pediatric literature. *J. Crit. Care* 30 (4), 664–672. <https://doi.org/10.1016/j.jcrc.2015.03.032>.
- Carruthers, H., Gomersall, T., Astin, F., 2018. The work undertaken by mechanically ventilated patients in Intensive Care: A qualitative meta-ethnography of survivors' experiences. *Int. J. Nurs. Stud.* 86, 60–73. <https://doi.org/10.1016/j.ijnurstu.2018.05.013>.
- Clarissa, C., Salisbury, L., Rodgers, S., & Kean, S. (2022). A Constructivist Grounded Theory of Staff Experiences Relating to Early Mobilisation of Mechanically Ventilated Patients in Intensive Care. *Glob. Qual. Nurs. Res.*, 9, 23333936221074990. <https://doi.org/10.1177/23333936221074990>.
- Corner, E.J., Murray, E.J., Brett, S.J., 2019. Qualitative, grounded theory exploration of patients' experience of early mobilisation, rehabilitation and recovery after critical illness. *BMJ Open* 9 (2), e026348.
- Cypress, B.S., 2011. The lived ICU experience of nurses, patients and family members: a phenomenological study with Merleau-Pontian perspective. *Intensive Crit. Care Nurs.* 27 (5), 273–280. <https://doi.org/10.1016/j.iccn.2011.08.001>.
- Devlin, J. W., Skrobik, Y., Gélinas, C., Needham, D. M., Slooter, A. J. C., Pandharipande, P. P., Watson, P. L., Weinhouse, G. L., Nunnally, M. E., Rochweg, B., Balas, M. C., van den Boogaard, M., Bosma, K. J., Brummel, N. E., Chanques, G., Denehy, L., Drouot, X., Fraser, G. L., Harris, J. E., . . . Alhazzani, W. (2018). Clinical Practice

- Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU. *Crit. Care Med*, 46(9), e825–e873. <https://doi.org/10.1097/ccm.0000000000003299>.
- Dreyer, P.S., Pedersen, B.D., 2009. Distanciation in Ricoeur's theory of interpretation: narrations in a study of life experiences of living with chronic illness and home mechanical ventilation. *Nurs. Inq.* 16 (1), 64–73. <https://doi.org/10.1111/j.1440-1800.2009.00433.x>.
- Egerod, I., Almer, G.M., Thomsen, R.R., 2009. A descriptive study of basic stimulation in Danish ICUs in 2006. *Scand. J. Caring Sci.* 23 (4), 697–704. <https://doi.org/10.1111/j.1471-6712.2008.00664.x>.
- Fredriksen, S.-T.-D., Grethe Talseth, A., Svensson, T., 2008. Body, strength and movement—intensive care patients' experience of body. *Int. J. Qual. Stud. Health Well Being* 3 (2), 77–88. <https://doi.org/10.1080/17482620701788768>.
- Girard, T.D., Alhazzani, W., Kress, J.P., Ouellette, D.R., Schmidt, G.A., Truweit, J.D., Burns, S.M., Epstein, S.K., Esteban, A., Fan, E., Ferrer, M., Fraser, G.L., Gong, M.N., Hough, C.L., Mehta, S., Nanchal, R., Patel, S., Pawlik, A.J., Schweickert, W.D., Sessler, C.N., Strøm, T., Wilson, K.C., Morris, P.E., 2017. An Official American Thoracic Society/American College of Chest Physicians Clinical Practice Guideline: Liberation from Mechanical Ventilation in Critically Ill Adults. Rehabilitation Protocols, Ventilator Liberation Protocols, and Cuff Leak Tests. *Am. J. Respir. Crit. Care Med.* 195 (1), 120–133.
- Harrison, H.F., Kinsella, E.A., DeLuca, S., 2019. Locating the lived body in client-nurse interactions: Embodiment, intersubjectivity and intercorporeality. *Nurs. Philos.* 20 (2), e12241.
- Jolley, S.E., Moss, M., Needham, D.M., Caldwell, E., Morris, P.E., Miller, R.R., Ringwood, N., Anders, M., Koo, K.K., Gundel, S.E., Parry, S.M., Hough, C.L., 2017. Point Prevalence Study of Mobilization Practices for Acute Respiratory Failure Patients in the United States. *Crit. Care Med.* 45 (2), 205–215. <https://doi.org/10.1097/ccm.0000000000002058>.
- Karlsen, M.M.W., Happ, M.B., Finset, A., Heggdal, K., Heyn, L.G., 2020. Patient involvement in micro-decisions in intensive care. *Patient Educ. Couns.* 103 (11), 2252–2259. <https://doi.org/10.1016/j.pec.2020.04.020>.
- Kirkevold, M., Bergland, Å., 2007. The quality of qualitative data: Issues to consider when interviewing participants who have difficulties providing detailed accounts of their experiences. *Int. J. Qual. Stud. Health Well Being* 2 (2), 68–75. <https://doi.org/10.1080/17482620701259273>.
- Kvale, S., & Brinkmann, S. (2009). *Interviews: Learning the craft of qualitative research interviewing*. Sage.
- Kvande, M.E., Delmar, C., Lauritzen, J., Damsgaard, J.B., 2021. Ethical dilemmas embedded in performing fieldwork with nurses in the ICU. *Nurs. Ethics* 28 (7–8), 1329–1336. <https://doi.org/10.1177/0969733021996025>.
- Laerkner, E., Egerod, I., Olesen, F., Hansen, H.P., 2017. A sense of agency: An ethnographic exploration of being awake during mechanical ventilation in the intensive care unit. *Int. J. Nurs. Stud.* 75, 1–9. <https://doi.org/10.1016/j.ijnurstu.2017.06.016>.
- Laerkner, E., Egerod, I., Olesen, F., Toft, P., Hansen, H.P., 2019. Negotiated mobilisation: An ethnographic exploration of nurse-patient interactions in an intensive care unit. *J. Clin. Nurs.* 28 (11–12), 2329–2339. <https://doi.org/10.1111/jocn.14828>.
- Malterud, K., 2001. Qualitative research: standards, challenges, and guidelines. *Lancet* 358 (9280), 483–488. [https://doi.org/10.1016/s0140-6736\(01\)05627-6](https://doi.org/10.1016/s0140-6736(01)05627-6).
- Menges, D., Seiler, B., Tomonaga, Y., Schwenkglens, M., Puhon, M.A., Yebyo, H.G., 2021. Systematic early versus late mobilization or standard early mobilization in mechanically ventilated adult ICU patients: systematic review and meta-analysis. *Crit. Care* 25 (1), 16. <https://doi.org/10.1186/s13054-020-03446-9>.
- Merleau-Ponty, M. (1999). *Phenomenology of perception* (Reprint ed.). Routledge & Kegan Paul.
- Needham, D.M., Davidson, J., Cohen, H., Hopkins, R.O., Weinert, C., Wunsch, H., Zawistowski, C., Bemis-Dougherty, A., Berney, S.C., Bienvenu, O.J., Brady, S.L., Brodsky, M.B., Denehy, L., Elliott, D., Flatley, C., Harabin, A.L., Jones, C., Louis, D., Meltzer, W., Muldoon, S.R., Palmer, J.B., Perme, C., Robinson, M., Schmidt, D.M., Scruth, E., Spill, G.R., Storey, C.P., Render, M., Votto, J., Harvey, M.A., 2012. Improving long-term outcomes after discharge from intensive care unit: report from a stakeholders' conference. *Crit. Care Med.* 40 (2), 502–509.
- Nice, 2017. Rehabilitation after critical illness in adults. NICE Quality Standards (QS158). National Institute for Health and Care Excellence. Retrieved 25 July from
- Nydahl, P., Ruhl, A.P., Bartoszek, G., Dubb, R., Filipovic, S., Flohr, H.J., Kaltwasser, A., Mende, H., Rothaug, O., Schuchhardt, D., Schwabbauer, N., Needham, D.M., 2014. Early mobilization of mechanically ventilated patients: a 1-day point-prevalence study in Germany. *Crit. Care Med.* 42 (5), 1178–1186. <https://doi.org/10.1097/ccm.000000000000149>.
- Nydahl, P., Srichaorenchai, T., Chandra, S., Kundt, F.S., Huang, M., Fischill, M., Needham, D.M., 2017. Safety of Patient Mobilization and Rehabilitation in the Intensive Care Unit. Systematic Review with Meta-Analysis. *Ann. Am. Thorac. Soc.* 14 (5), 766–777. <https://doi.org/10.1513/AnnalsATS.201611-843SR>.
- Nydahl, P., Günther, U., Diers, A., Hesse, S., Kerscheneiner, C., Klarmann, S., Borzikowsky, C., Köpke, S., 2020. PROTOCOL-based MOBILIZATION on intensive care units: stepped-wedge, cluster-randomized pilot study (Pro-Motion). *Nurs. Crit. Care* 25 (6), 368–375. <https://doi.org/10.1111/nicc.12438>.
- Nydahl, P., Jeitziner, M.-M., Vater, V., Sivarajah, S., Howroyd, F., McWilliams, D., Osterbrink, J., 2022. Early mobilisation for prevention and treatment of delirium in critically ill patients: Systematic review and meta-analysis. *Intensive Crit. Care Nurs.* 103334.
- Olsen, H.T., Nedergaard, H.K., Strøm, T., Oxlund, J., Wian, K.A., Ytrebø, L.M., Kroken, B. A., Chew, M., Korkmaz, S., Lauridsen, J.T., Toft, P., 2020. Nonsedation or Light Sedation in Critically Ill, Mechanically Ventilated Patients. *N. Engl. J. Med.* 382 (12), 1103–1111. <https://doi.org/10.1056/NEJMoa1906759>.
- Parry, S.M., Knight, L.D., Connolly, B., Baldwin, C., Puthuchery, Z., Morris, P., Mortimore, J., Hart, N., Denehy, L., Granger, C.L., 2017. Factors influencing physical activity and rehabilitation in survivors of critical illness: a systematic review of quantitative and qualitative studies. *Intensive Care Med.* 43 (4), 531–542. <https://doi.org/10.1007/s00134-017-4685-4>.
- Patton, M.Q., 1990. *Qualitative evaluation and research methods*. SAGE Publications inc.
- Polit, D., & Beck, C. (2020). *Essentials of nursing research: Appraising evidence for nursing practice*. Lippincott Williams & Wilkins.
- Ricoeur, P., 1973. The hermeneutical function of distanciation. *Philos. Today* 17 (2), 129–141.
- Ricoeur, P., 1976. *Interpretation theory: Discourse and the surplus of meaning*. TCU press.
- Schweickert, W.D., Pohlman, M.C., Pohlman, A.S., Nigos, C., Pawlik, A.J., Esbrook, C.L., Spears, L., Miller, M., Franczyk, M., Deprizio, D., Schmidt, G.A., Bowman, A., Barr, R., McCallister, K.E., Hall, J.B., Kress, J.P., 2009. Early physical and occupational therapy in mechanically ventilated, critically ill patients: a randomised controlled trial. *Lancet* 373 (9678), 1874–1882. [https://doi.org/10.1016/s0140-6736\(09\)60658-9](https://doi.org/10.1016/s0140-6736(09)60658-9).
- Sibilla, A., Nydahl, P., Greco, N., Mungo, G., Ott, N., Unger, I., Rezek, S., Gemperle, S., Needham, D.M., Kudchadkar, S.R., 2020. Mobilization of Mechanically Ventilated Patients in Switzerland. *J. Intensive Care Med.* 35 (1), 55–62. <https://doi.org/10.1177/0885066617728486>.
- Simonj, C., Specht, K., Andersen, I. C., Johansen, K. K., Nielsen, C., & Agerskov, H. (2018). A Ricoeur-Inspired Approach to Interpret Participant Observations and Interviews. *Glob. Qual. Nurs. Res.*, 5, 2333393618807395. <https://doi.org/10.1177/2333393618807395>.
- Söderberg, A., Karlsson, V., Ahlberg, B.M., Johansson, A., Thelandersson, A., 2022. From fear to fight: Patients experiences of early mobilization in intensive care. A qualitative interview study. *Physiother. Theory Pract.* 38 (6), 750–758. <https://doi.org/10.1080/09593985.2020.1799460>.
- Spradley, J.P., 2016. *Participant observation*. Waveland Press.
- Strøm, T., Martinussen, T., Toft, P., 2010. A protocol of no sedation for critically ill patients receiving mechanical ventilation: a randomised trial. *Lancet* 375 (9713), 475–480. [https://doi.org/10.1016/s0140-6736\(09\)62072-9](https://doi.org/10.1016/s0140-6736(09)62072-9).
- Tipping, C.J., Harrold, M., Holland, A., Romero, L., Nisbet, T., Hodgson, C.L., 2017. The effects of active mobilisation and rehabilitation in ICU on mortality and function: a systematic review. *Intensive Care Med.* 43 (2), 171–183. <https://doi.org/10.1007/s00134-016-4612-0>.
- Tong, A., Sainsbury, P., Craig, J., 2007. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int. J. Qual. Health Care* 19 (6), 349–357. <https://doi.org/10.1093/intqhc/mzm042>.
- World Medical Association, 2013. Declaration of Helsinki: Ethical principles for medical research involving human subjects. *J. Am. Med. Assoc.* 310 (20), 2191–2194. <https://doi.org/10.1001/jama.2013.281053>.