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Early Active Mobilization of Mechanically Ventilated Patients in the ICU: A Qualitative Study on Patient Experience

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Abstract

This study aims to explore the experiences of mechanically ventilated ICU patients receiving early active mobilization, with a focus on their perceptions, emotions, and psychological impacts to inform nursing practices. A qualitative approach using semi-structured interviews and thematic content analysis was employed, with interviews conducted face-to-face between March and December 2021 across 5 comprehensive hospitals. Data from 14 patients were analyzed using Colaizzi's 7-step method, revealing 3 main themes: (1) Significant physical discomfort, including feelings of weakness, foreign body sensation, pain, and fatigue; (2) Complex psychological experiences, with perceived benefits, negative self-perception, and diverse emotional responses; and (3) Expectations for treatment, such as a desire for family support, rehabilitation goals, and humanized care. The study found that mechanically ventilated ICU patients undergoing early active mobilization experienced significant physical discomfort, complex psychological responses, and had specific expectations for treatment, highlighting the need for holistic nursing practices that address these aspects.

Keywords

early active mobilization, mechanical ventilation, patient experience, qualitative research

Highlights

- Mechanically ventilated ICU patients undergoing early active mobilization reported significant physical discomfort, including weakness, pain, and fatigue, which hindered their participation in rehabilitation activities.
- Patients experienced complex psychological responses, recognizing the benefits of early mobilization while struggling with fear, anxiety, and negative self-perception about their recovery.
- The study emphasized the need for humanized care, including better communication, family involvement, and personalized rehabilitation goals, to improve patient engagement and outcomes.

Introduction

Mechanical ventilation (MV) is crucial for managing critically ill patients but often requires prolonged immobilization, leading to significant complications such as ICU-acquired weakness and delirium.[1] To mitigate these complications and enhance quick recovery, evidence and guidelines recommend Early Active Mobilization (EAM) for patients undergoing mechanical ventilation.[2,3] Early mobilization (EM) typically refers to initiating activity within 48 h of ICU admission or as soon as the patient is hemodynamically stable and able to participate.[4] EM spans both passive and active approaches, EAM specifically involving a variety of physical activities tailored to the patient's abilities, such as muscle activation, active exercises in bed, active resistance exercises, active side-to-side turning, or mobilization to sitting at the bedside, standing, or walking.[5] The goal of EAM is to mitigate the adverse effects of extended bed rest and immobility by enhancing muscle strength and overall functionality, benefits that cannot be fully achieved through passive activities alone.[6] The value of EAM goes beyond counteracting physical deconditioning; it has the potential to accelerate recovery, shorten hospital stays, and improve the quality of life after discharge.[7] Although EAM is recognized for its safety and efficacy, its implementation in the ICU faces multifaceted challenges.[8]

For MV patients, these barriers include physiological limitations such as muscle weakness and fatigue from critical illness, psychological barriers like anxiety and fear of movement, and logistical constraints caused by invasive lines (eg, endotracheal tubes, catheters) and monitoring equipment. When patients struggle to complete prescribed activities, they may experience frustration, self-doubt about recovery progress, and even depression.[9,10] This highlights the importance of patient-centered implementation—patients' subjective experiences during EAM directly influence their engagement, adherence, and ultimately the clinical effectiveness of early mobilization protocols.

While previous studies have highlighted the physiological benefits of EAM, less is known about the patient's perspective on these interventions. Recognizing the essential role of patient involvement in EAM, this study uses a qualitative approach to deeply understand the experiences of MV patients undergoing EAM. The Insights gained will guide healthcare providers in creating personalized interventions to enhance patient engagement in EAM, with the aim of improving outcomes, shortening ICU stays, and facilitating rapid recovery. This emphasizes the critical importance of focusing on the patient's experience during early active rehabilitation.

Methods

Study Design

We conducted a descriptive phenomenological study to investigate the lived experiences of mechanically ventilated patients undergoing EAM in ICUs. Phenomenology, as a qualitative research framework, seeks to understand individuals' subjective meanings of their experiences through detailed descriptions of consciousness and intentionality.[11] Our research complied to the Helsinki Declaration of 1975 as revised in 2024,[12] and followed the SRQR guideline for the study design, analysis, and presentation of findings.[13]

Setting

The study was conducted from March 2021 to December 2021 in 5 general adult ICUs within tertiary public hospitals in Western China (All 5 hospitals are in towns). These hospitals were purposively selected as regional EAM demonstration sites with established protocols, including: (1) Minimum 3-year EAM implementation history. (2) Multidisciplinary mobility teams (physicians, nurses, physiotherapists). (3) Standardized EAM training for ≥80% ICU staff.

Participants and Inclusion and Exclusion Criteria

We employed a purposive sampling strategy to recruit adult patients who were mechanically ventilated in the ICU. Eligibility criteria required participants to: (i) age ≥ 18 years; (ii) have undergone EAM and achieved successful weaning from MV. EAM includes activities such as muscle activation, active exercises in bed, active resistance exercises, active side-to-side turning, and mobilization to sitting at the bedside, standing, or walking. All these activities were conducted under the supervision of nurses and trained physical therapists to ensure the safety and effectiveness of the rehabilitation process; (iii) conscious; (iv) normal hearing; (v) able to express themselves verbally; (vi) informed consent and voluntary participation in this study. Exclusion: Cognitive function was assessed by a trained nurse using the Confusion Assessment Method for the Intensive Care Unit (CAM-ICU) and patients with cognitive dysfunction were excluded.

The sample size for this qualitative study was determined based on the principle of data saturation, a well-established criterion in phenomenological research. Data saturation occurs when no new themes or insights emerge from subsequent interviews, indicating that sufficient depth and breadth of information have been captured to address the research objectives.[14,15] In this study, thematic saturation was achieved after analyzing data from the 12th participant, as further interviews yielded redundant information without generating new themes. To ensure rigor and confirm the robustness of our findings, we conducted 2 additional interviews (total sample size: 14 participants), which reaffirmed that no new themes emerged.

Data Collection

Face-to-face semi-structured interviews were conducted with participant consent. A quiet, clean, spacious, comfortable and

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Table 1. Interview Guide.

1	What were your feelings and experiences the first time you got out of bed in the ICU?
2	Did you think that having a tracheal intubation (or tracheotomy) influenced your ability to mobilize? Is it convenient to talk about it in detail?
3	Did you encounter any difficulties during your mobilization? What were they?
4	What is your experience in the following mobilization? Is there any change compared with the first one? Would you like to talk about it in detail?
5	In your opinion, how did early active movement help or harm you? Please provide examples.
6	How do you feel about the nurses assisting you with early active mobilization? What do you think of the nurse who implemented the early active mobilization for you?
7	What kind of support do you wish to receive during early active mobilization to enhance your experience?

undisturbed environment was chosen for the interviews, with 9 interviews conducted in a demonstration room and 5 in a single ward.

First, the literature related to the early activities at home and abroad was reviewed, combined with the purpose and significance of the research, 3 critical care experts and 2 qualitative research experts were consulted, and the first draft of the interview outline was formed, including 10 questions. After that, 2 subjects were selected for one-on-one face-to-face pre-interview, and the interview data was converted into written materials. Subsequently, the researcher discussed and summarized the process of pre-interview and data arrangement and analysis with critical care medical experts and qualitative research experts. The researcher reflected and improved the existing problems in the interview, such as the pertinence of the interview outline, the rationality of the interview language and the follow-up of the interview details, and formed the final interview outline, including 7 questions (Table 1).

Each interview lasted 30 to 45 min, with duration flexibly adjusted based on patients' clinical status. All audio recordings and non-verbal data (eg, facial expressions, body language) were transcribed verbatim within 24 h post-interview and securely archived to facilitate subsequent collation and analysis.

Data Analysis

We employed NVivo 12 software for data organization and utilized Colaizzi's phenomenological descriptive method to gain insights into the subjective meanings, personal experiences, and the motivations and actions of the participants.[16,17] The process includes: (i) Becoming thoroughly familiar with the data; (ii) Recognizing statements within the data that pertain to the participants' experiences and are significant; (iii) Constructing meanings from these significant statements; (iv) Organizing these meanings into thematic clusters; (v) Providing detailed descriptions of the studied phenomena; (vi) Developing a fundamental structure based on the comprehensive descriptions; (vii) Returning the analysis results to participants for verification, asking them whether the analysis truly reflects their real experiences during the initial activities. If discrepancies are found, the analysis should be revised based on the participants' original statements.

Each interview dataset was analyzed separately by 2 researchers, and the theme was summarized after comparing the analysis results. When there is no agreement on the topic of induction and sublimation, discuss with the third researcher and an associate professor with research experience in EAM and qualitative research to make a determine.

Ethical Considerations

This study has been approved by the Ethics Committee of the School of Nursing, Lanzhou University (Approval number: LZUHLXY20210021), and was conducted across 5 comprehensive hospitals under established ethical agreements. After receiving written approval for the study, participants were contacted. The people who were asked to participate were given verbal and written information about the study and those interested in participating signed a written request for informed consent. They were also informed that they could withdraw from the study at any time and that their decisions would not affect their care. Confidentiality of the participants was guaranteed in the presentation of the findings. To ensure participant confidentiality in this sensitive interview-based study, a multi-layered protection approach was implemented:

(1) Interview protocol: Some of the interviews were conducted in a private teaching room adjacent to the ICU, while others took place within the ICU itself. We ensured that no other healthcare professionals were present during the interviews, and in the ICU, only one interviewer was present at one time. The private teaching room was equipped with soundproofing devices to further protect patient privacy. All interview staff received ethical training before the interviews, with particular emphasis on protecting vulnerability in the ICU environment.
(2) Data Anonymization: Pseudonyms were used for all transcripts (eg, P1-P14), and only the researchers had access to the patient data for analysis during the data processing.
(3) Dissemination Controls: In manuscript preparation, all participants reviewed their anonymized transcripts through secure portals prior to final analysis.

Results

Interviews were conducted with 14 ICU patients after they had been successfully weaned from mechanical ventilation. This group included 8 males and 6 females, aged between 38 and 71 years, with a mean age of 56.7 ± 9.8 years. Regarding

education levels, 6 patients had not completed high school, 5 had graduated from high school, and 3 had junior college education. Among these patients, 9 were ventilated through endotracheal intubation, while 5 underwent tracheotomy. Detailed demographic information is provided in Table 2.

Interview Results of Participants

After repeatedly reading, analyzing, and summarizing the interview data, we identified 3 main themes: significant physical discomfort, complex psychological experiences, and expectations for treatment. Furthermore, 10 sub-themes emerged: weakness, foreign body sensation, pain, fatigue, perceived benefits, negative self-perception, diverse emotional experiences, desire for family companionship, setting rehabilitation goals, and the provision of humanized care.

Theme 1: Significant Physical Discomfort

The first theme, significant physical discomfort, emerged prominently from patient narratives. This discomfort, stemming from their critical condition and the presence of various tubes, manifests through several subthemes: feelings of weakness, foreign body sensations, pain, and fatigue. Each of these subthemes contributes to the complex challenges that patients face during their recovery journey. Verbatim supporting quotations for these subthemes are provided in Table 3.

Weakness

Long-term bedridden states due to critical illness lead to a decline in bodily functions and muscle strength, especially in the limbs, causing a sensation of weakness during initial EAM activities. One participant vividly described their first attempt to stand as entering a state where "everything just felt so floaty. . .my feet weren't feet; the ground wasn't ground." This disorienting sensation was echoed by others, who spoke of their limbs feeling "just like wood, totally strengthless" or experiencing their legs as "super shaky."

> The first time I got off the bed, everything just felt so floaty, you know? It's like, my feet weren't feet, the ground wasn't ground, my legs had no strength, sit felt like I lost my feet, couldn't step on the ground, and my arms had no strength either. (Participant 1)

> When I first got out of bed, my legs were just like wood, totally strengthless. Oh man, I wanted to hold onto someone nearby, but I didn't have the strength in my hands, couldn't hold on. They had to support me, lift me to the chair.(Participant 8)

Foreign Body Sensation

Movement during EAM may pull on the ventilator tubes, leading to significant foreign body sensations. A patient articulated feeling "a huge sense of something foreign, like a tight band constricting me," highlighting the invasive nature of tracheotomy bandages and the psychological impact of feeling physically bound. Another described the multiplicity of medical attachments as a source of anxiety, fearing movement might dislodge essential tubes.

> I felt a huge sense of something foreign, like a tight band constricting me, also like a rubber band stretching tight here (pointing to neck and tracheotomy bandage), super uncomfortable! (Participant 8)

> At that time, with a tube in my mouth, multiple intravenous infusion tubes in my hand, and tubes on my nose, I was scared the tubes might fall when I moved. And the places where the tubes were inserted, that foreign body feeling, something stuck there you can't swallow or spit out, was especially uncomfortable. (Participant 3)

Pain

Chronic pain, exacerbated by the disease and long-term pressure from ventilator tubes, becomes more pronounced during EAM due to the movement of wounds and tubes. Patients' descriptions of their pain, from the sensation of "so many tubes. . .where the tubes pulled," "it hurt a lot," to the struggle of "getting out of bed," being "a bit painful," highlight the pervasive challenges of managing discomfort. Terms like "burning pain" and "unbearable" further illustrate the severity of their experiences. These accounts underscore the crucial need for effective pain management strategies.

> So many tubes on me, and when I moved, where the tubes pulled, it hurt a lot. (Participant 6)

> . . .painfully unbearable, especially around the wound area. (Participant 10)

Fatigue

Despite indications for EAM, the weakened condition of ICU patients makes enduring the exercises challenging due to lack of stamina, leading to quick onset of fatigue. Patients articulated the overwhelming nature of early mobilization efforts, saying, "too exhausting," "Sitting down at the chair initially. . .My body kept sliding down. . .I felt so tired," underlining the difficulty of performing even simple movements without being overwhelmed by fatigue.

> Ah, at the start of moving around, it felt too exhausting. Couldn't last long before giving up. . . (Participant 5)

> Sitting down at the chair initially, I couldn't quite stay put, you know? My body kept sliding down. The nurse beside me kept watching, supporting me, and after sitting for a bit, I felt so tired, I had to ask the nurse to help me back into bed. (Participant 8)

Theme 2: Complex Psychological Experiences

Initiating EAM evokes a spectrum of psychological responses in ICU patients, including their perception of the activity,

Table 2. Characteristics of Participants.

Participant	Gender	Age	Education level	Occupation	Disease	APACHE II	Mechanical ventilation method	Days of mechanical ventilation
1	Male	56	High school	Civil servant	Respiratory failure	10	Tracheal intubation	7
2	Male	60	Junior college	Electrician	Respiratory failure	12	Tracheotomy	10
3	Female	38	Junior high school	Farmer	Pregnancy-induced hypertension	15	Tracheotomy	6
4	Male	68	Technical secondary school	Farmer	Esophageal Carcinoma	19	Tracheal intubation	12
5	Female	58	High school	Freelancer	Liver abscess	27	Tracheal intubation	8
6	Male	53	High school	Security guard	Severe pneumonia	24	Tracheal intubation	8
7	Male	58	Junior college	Civil servant	Cholangitis	11	Tracheal intubation	14
8	Female	48	Elementary school	Driver	Septic shock	9	Tracheal intubation	7
9	Female	65	Elementary school	Farmer	Acute peritonitis	17	Tracheal intubation	7
10	Male	43	High school	Freelancer	Acute severe pancreatitis	18	Tracheal intubation	6
11	Female	71	Junior college	Retired	Respiratory failure	22	Tracheal intubation	15
12	Male	55	Junior high school	Miner	Multiple organ dysfunction syndrome	13	Tracheotomy	5
13	Female	51	Junior high school	Farmer	Gastric cancer	16	Tracheotomy	12
14	Male	70	High school	Retired	Severe pneumonia	14	Tracheotomy	9

Table 3. Significant Physical Discomfort.

Subtheme	Illustrative quotes
Weakness	"The first time I got off the bed, everything just felt so floaty, you know? It's like, my feet weren't feet, the ground wasn't ground, my legs had no strength, it felt like I lost my feet, couldn't step on the ground, and my arms had no strength either." (Participant 1) "You see, right after getting off the bed, my legs were all wobbly, and I felt a bit dizzy too. It was mainly my husband and the nurse who were supporting me; otherwise, I literally couldn't stand up, nor could I sit still. Initially, I had no strength at all." (Participant 3) "When I first got out of bed, my legs were just like wood, totally strengthless. Oh man, I wanted to hold onto someone nearby, but I didn't have the strength in my hands, couldn't hold on. They had to support me, lift me to the chair." (Participant 8)
Foreign body sensation	"I felt a huge sense of something foreign, like a tight band constricting me, also like a rubber band stretching tight here (pointing to neck and tracheotomy bandage), super uncomfortable!" (Participant 2) "At that time, with a tube in my mouth, multiple intravenous infusion tubes in my hand, and tubes on my nose, I was scared the tubes might fall when I moved. And the places where the tubes were inserted, that foreign body feeling, something stuck there you can't swallow or spit out, was especially uncomfortable." (Participant 3) "It's not easy to describe, it's an unspeakable pain that I'll remember for the rest of my life, it's like there's something stuck in my throat, there's too much air in the tube, it keeps blowing on me and blowing on me." (Participant 4)
Pain	"So many tubes on me, and when I moved, where the tubes pulled, it hurt a lot." (Participant 6) "Moving with the tube in was very uncomfortable. I wanted to pull it out, but I knew I couldn't just remove the tube. I just had to endure it. Once, when moving, the tube jabbed my throat, it was burning with pain." (Participant 7) ". . .painfully unbearable, especially around the wound area." (Participant 10)
Fatigue	"Ah, at the start of moving around, it felt too exhausting. Couldn't last long before giving up. . ." (Participant 5) "Sitting down at the chair initially, I couldn't quite stay put, you know? My body kept sliding down. The nurse beside me kept watching, supporting me, and after sitting for a bit, I felt so tired, had to ask the nurse to help me back into bed." (Participant 8) "I pushed that (the ventilator) forward with a nurse with me, but only walked for almost 10 minutes before I felt like I couldn't go any further. . ." (Participant 13)

self-perception, and emotional experiences during the process. Despite recognizing its advantages, patients often develop self-doubt about their ability to participate in such activities because of their medical condition. Table 4 provides verbatim quotations supporting the identification of these subthemes.

Perceived Benefits

EAM can strengthen patients' limb muscles, prevent complications such as pressure injuries and pneumonia. Most participants acknowledged the benefits of EAM, believing that it could promote their physical recovery and also help to improve their sleep quality.

> I feel like my body is getting better day by day. At the beginning, I couldn't even turn over in bed without help, but after the nurse helped me get up and move a few times, I started moving my arms and legs in bed on my own. Eventually, I wasn't panting as much, felt stronger, and the doctor quickly removed the tubes. I'm sure this (tube removal) had something to do with my exercising. (Participant 11)

> After daytime activities, I can sleep a bit longer at night and feel more rested. (Participant 12)

Negative Self-Perception

Patients undergoing MV in ICU have partial loss of physiological function due to disease, coupled with physical discomfort, which leads to self-perception bias. Phrases like "really scared. . ." "about to die" and "wasn't a 'normal person' anymore" reflect that the deep-seated fears and challenges they face. They believe that they cannot complete early active activities, and their enthusiasm to participate in activities is reduced.

> Honestly, I was really scared. I thought I was about to die, and they still wanted me to get out of bed and move. Wouldn't that worsen my condition? (Participant 5)

> I was scared to walk then. I hadn't heard of anyone in intensive care being able to get up and walk around, after all, I wasn't a 'normal person' anymore. (Participant 14)

Diverse Emotional Experiences

Starting EAM in the ICU elicits mixed emotions among patients. On the one hand, the prospect of getting out of bed to exercise signals recovery for long-term bedridden patients, evoking genuine happiness and excitement. On the other hand, uncertainty about their physical abilities and the safety of their medical tubes during activities often leads to fear and worry during the mobilization process.

> Lying down all the time, I felt like I was going to die, couldn't survive. Now that I can sit in a chair, move around a bit, I feel like I've come back to life, like my body has improved a lot, and I've got the confidence to live on. I'm happy, always thinking maybe I can be discharged soon. (Participant 8)

Table 4. Complex Psychological Experiences.

Subtheme	Illustrative quotes
Perceived benefits	"The first time I got off the bed, everything just felt so floaty, you know? It's like, my feet weren't feet, the ground wasn't ground, my legs had no strength, it felt like I lost my feet, couldn't step on the ground, and my arms had no strength either." (Participant 1) "You see, right after getting off the bed, my legs were all wobbly, and I felt a bit dizzy too. It was mainly my husband and the nurse who were supporting me; otherwise, I literally couldn't stand up, nor could I sit still. Initially, I had no strength at all." (Participant 3) "When I first got out of bed, my legs were just like wood, totally strengthless. Oh man, I wanted to hold onto someone nearby, but I didn't have the strength in my hands, couldn't hold on. They had to support me, lift me to the chair." (Participant 8)
Foreign body sensation	"I felt a huge sense of something foreign, like a tight band constricting me, also like a rubber band stretching tight here (pointing to neck and tracheotomy bandage), super uncomfortable!" (Participant 2) "At that time, with a tube in my mouth, multiple intravenous infusion tubes in my hand, and tubes on my nose, I was scared the tubes might fall when I moved. And the places where the tubes were inserted, that foreign body feeling, something stuck there you can't swallow or spit out, was especially uncomfortable." (Participant 3) "It's not easy to describe, it's an unspeakable pain that I'll remember for the rest of my life, it's like there's something stuck in my throat, there's too much air in the tube, it keeps blowing on me and blowing on me." (Participant 4)
Pain	"So many tubes on me, and when I moved, where the tubes pulled, it hurt a lot." (Participant 6) "Moving with the tube in was very uncomfortable. I wanted to pull it out, but I knew I couldn't just remove the tube. I just had to endure it. Once, when moving, the tube jabbed my throat, it was burning with pain." (Participant 7) ". . .painfully unbearable, especially around the wound area." (Participant 10)
Fatigue	"Ah, at the start of moving around, it felt too exhausting. Couldn't last long before giving up. . ." (Participant 5) "Sitting down at the chair initially, I couldn't quite stay put, you know? My body kept sliding down. The nurse beside me kept watching, supporting me, and after sitting for a bit, I felt so tired, had to ask the nurse to help me back into bed." (Participant 8) "I pushed that (the ventilator) forward with a nurse with me, but only walked for almost 10 minutes before I felt like I couldn't go any further. . ." (Participant 13)

> . . .but I was also scared the tubes might come off because they usually pull when I cough. So, getting out of bed to move, I was even more worried about the tubes slipping out. (Participant 2)

Theme 3: Expectations for Treatment

Most participants expressed satisfaction and gratitude toward healthcare staff during the EAM process but still had specific unmet needs, shown with verbatim examples in Table 5.

Desire for Family Companionship

Participants shared that the EAM process could be lengthy and strenuous, emphasizing the need for emotional support, such as encouraging words, preferably with family members by their side.

> If my family could be right there helping me, cheering me on, and I put in that extra effort, I think both my body and mind would see a big improvement. (Participant 5)

Setting Rehabilitation Goals

Participants noted the lack of clear goals during the EAM could lead to fatigue and a diminished desire to continue with the activities. One emphasized the need for guidance, saying, "Nurses should tell me which activities to do and how many times," and another expressing the consequence of unclear objectives, "Without a goal, I just feel tired after exercising."

> I think the nurses should tell me which activities to do and how many times, so I know I can stand up. Having a goal would give me more motivation. (Participant 6)

> Without a goal, I feel tired after exercising, without seeing any signs of recovery. (Participant 7)

Provision of Humanized Care

In the stressful environment of the ICU, patients highlighted the need for more compassionate, humanized care. They described challenges such as difficulty communicating with nursing staff due to medical tubes, feeling restrained, and experiencing rough or impatient handling. They hope "nurses to be gentler and more careful," emphasizing the critical need to prioritize patient comfort and emotional well-being alongside medical treatment.

> They all held me up and put my tubes in order, but I couldn't talk to the nurses because I had the tubes in. Sometimes they couldn't understand me, sometimes the nurses were hard on me and felt bad. (Participant 7)

Table 5. Expectations for Treatment.

Subtheme	Illustrative quotes
Perceived benefits	"I feel like my body is getting better day by day. At the beginning, I couldn't even turn over in bed without help, but after the nurse helped me get up and move a few times, I started moving my arms and legs in bed on my own. Eventually, I wasn't panting as much, felt stronger, and the doctor quickly removed the tubes. I'm sure this (tube removal) had something to do with my exercising." (Participant 11) "After daytime activities, I can sleep a bit longer at night and feel more rested." (Participant 12)
Negative self-perception	"Honestly, I was really scared. I thought I was about to die, they still wanted me to get out of bed and move. Wouldn't that worsen my condition?" (Participant 5) "I know, the nurse told me, but I don't think my heart is in it, I get panicky when I move around the bed a little bit, and with all the tubes, I don't think I can do it if I have to get out of bed and move around on my own. . ." (Participant 11) "I was scared to walk then. I hadn't heard of anyone in intensive care being able to get up and walk around, after all, I wasn't a 'normal person' anymore." (Participant 14)
Diverse emotional experiences	"I was happier with myself and enjoyed being able to exercise." (Participant 2) P8: "Lying down all the time, I felt like I was going to die, couldn't survive. Now that I can sit in a chair, move around a bit, I feel like I've come back to life, like my body has improved a lot, and I've got the confidence to live on. I'm happy, always thinking maybe I can be discharged soon." (Participant 8) ". . .but I was also scared the tubes might come off because they usually pull when I cough. So, getting out of bed to move, I was even more worried about the tubes slipping out." (Participant 2) "It's when I first started moving around on the floor, I was always worried that the tube would fall out or I'd fall and I'd get worse again." (Participant 6)

> Some nurses were impatient when they helped me out of bed and speak very loudly. It is very bad and makes me feel like scolding me. I hope the nurses can be gentler and more careful. (Participant 10)

Discussion

Previous qualitative studies focused on the influencing factors and implementation barriers of EM. Parry et al identified 6 system-level influencing factors, such as team collaboration and resource allocation, through multidisciplinary focus groups.[18] From the perspective of doctor-patient cognition, van Willigen et al confirmed the importance of patients'/families' positive attitude toward EM and trust relationship.[19] These studies laid the theoretical foundation for EM generalization, they paid less attention to the patient's subjective experience. Although Corner et al discussed the rehabilitation experience of ICU survivors, their retrospective design (the interview took place after discharge) was limited by memory bias and it was difficult to accurately recall the dynamic experience during hospitalization.[9]

By capturing the experience of mechanically ventilated patients during EAM in real time, the study revealed 3 core findings: significant physical discomfort (eg, catheter traction pain, activity fatigue), complex psychological adaptation processes (benefit perception and self-doubt), and high expectations for humanized treatment (family companionship, goal-oriented rehabilitation). These findings provide a key entry point for optimizing EAM clinical practice.

Combining Activity Adjustment, Tube Management and Non-pharmacological Therapies to Reduce Physical Discomfort During Early Mobilization in Ventilated Patients

Analysis of interview data revealed that ICU patients undergoing MV during EAM frequently experience physical discomfort, with weakness, foreign body sensation, pain, and fatigue being the most prevalent symptoms. These findings align with Corner et al's report.[9] While weakness and fatigue are inevitable during the early stages of rehabilitation, adjustments to the activity plan can mitigate these issues, such as shortening the duration of individual activities, reducing high-intensity activities, incorporating low-intensity activities, and extending rest periods.

Proactive measures before initiating activities are equally critical. Adjusting the positioning of ventilator tubes can prevent localized pressure-induced pain, while securing tubes using the elevated platform method minimizes traction-related discomfort during movement.[20] Additionally, complementary non-pharmacological interventions, such as music therapy and guided imagery, have demonstrated efficacy in reducing foreign body sensations and pain perception.[21,22]

Emphasize Patients' Inner Experience and Give Psychological Counseling in Time

While patients recognize the theoretical benefits of EAM, disease-related physiological function decline and activity-induced physical discomfort often trigger negative self-perception. They feel unable to complete EAM and have insufficient initiative to

participate in, they also have negative psychology of fear and worry during the activities, which is similar to the findings of Söderberg et al.[23] To address these barriers, evidence-based psychological interventions are warranted. Cognitive Behavioral Therapy (CBT) plays an important role in treating patients' negative cognition and negative emotions,[24] which can reduce patients' anxiety, depression, worry, fear and other adverse emotions, and enhance the confidence and determination of treatment for critically ill patients.[25-27] Healthcare professionals should fully explain the benefits of EAM, share successful cases of early rehabilitation to change patients' irrational cognitions, thus reconstructing their perception of EAM.

Use Non-verbal Communication to Give Patients Support

Patients on MV often encounter significant challenges in expressing their needs and thoughts, as intubation or tracheotomy compromises their ability to speak. This communication barrier can increase their uncertainty about their condition, potentially leading to anxiety and fear. Furthermore, the task-centered communication style of ICU nurses, often influenced by shift work patterns, tends to limit patient interaction and exacerbate these difficulties, thereby worsening these difficulties and ultimately impacting the quality of care.[28] Research has shown that ICU patients are highly responsive to non-verbal communication, which significantly enhances patient and nurse satisfaction.[29] To better understand the subjective needs of mechanically ventilated patients, healthcare professionals should fully utilize non-verbal communication strategies. This includes observing and responding to patients' facial expressions and eye contact, interpreting gestures and body postures, and employing tools such as writing pads to facilitate bidirectional communication. For example, when a patient resists treatment, caregivers can use an inquiring gesture (eg, pointing to a potential source of discomfort) to ask, "Are you in pain?" Conversely, a thumbs-up gesture can provide immediate positive reinforcement when the patient cooperates, fostering psychological reassurance and motivation. For patients with higher literacy levels or complex needs, a writing pad enables them to articulate specific requests or concerns in writing, allowing healthcare professionals to address these promptly. Such tailored approaches not only enhance trust but also empower patients to actively engage in their care.[30,31] By prioritizing these adaptive techniques, healthcare teams can bridge communication gaps, reduce anxiety, and align care with patients' individualized needs.

Encourage Families to Participate in Early Active Mobilization

As primary caregivers and decision makers, family members serve as pivotal stakeholders in facilitating EAM for ICU patients. The Society of Critical Care Medicine (SCCM) updated its family-centered care guidelines in 2017, advocating for family involvement in the treatment and care of ICU patients.[32] Incorporating family perspectives into multidisciplinary care teams enables the co-creation of individualized rehabilitation strategies that address both physiological and psychological needs. This collaborative approach has demonstrated efficacy in mitigating ICU-related complications including anxiety episodes, delirium incidence, and acquired frailty syndrome, while concurrently optimizing resource allocation through enhanced recovery trajectories.

In addition to, educating families about early rehabilitation is essential, as their knowledge and behavior significantly impact patient outcomes.[33] A lack of early rehabilitation awareness among families can hinder the initiation of early activities.[34] Healthcare providers should offer comprehensive education and training programs to equip families with the necessary skills to support EAM, enhancing communication and shared decision-making within the care team.

However, it is worth noting that despite the many benefits of family participation, there are still many challenges in practice. For example, due to infection control concerns, China's ICU generally has a restricted visitation policy, a limited number of fixed family members, and relatively short daily visiting hours, which often makes it difficult to meet the emotional needs of patients and their families. This was vividly reflected in Participant 5′s interview, where he/she stressed the importance of having family around to provide support and encouragement.[35,36]

Therefore, to more effectively address the emotional and spiritual needs of ICU patients for family companionship, healthcare institutions and professionals should adopt a dual approach: relaxing ICU visitation policies and integrating innovative technologies. First, visitation restrictions (eg, frequency, duration, and number of visitors) should be flexibly adjusted to align with the individualized needs of patients and families, provided such adjustments do not infringe on patient rights, compromise safety, or interfere with treatment.[37] Second, technologies such as video calling can bridge physical barriers by establishing dedicated communication zones with high-quality equipment and secure platforms, thereby overcoming the limitations of traditional visitation.[38] These strategies collectively enhance the humanization of ICU care and create favorable conditions for patient recovery.

Continuously Improving the Quality of EAM Implementation

This study underscores the critical importance of continuous quality improvement in EAM implementation, particularly through structured goal setting, multidisciplinary collaboration, and patient-centered care.

According to the National Institute for Health and Care Excellence (NICE) guidelines, rehabilitation goals should be

established within 4 days of hospital admission, with consensus from both the patient and their family.[39] Personalized goals help align the expectations of patients and their families with the treatment plan, promoting a collaborative approach to recovery. Setting such goals not only motivates patients and their families but also empowers healthcare professionals to improve the delivery of care.[18] These goals should be adaptable and refined based on the patient's evolving condition, ensuring continuous engagement and progress. Ongoing collaboration between the multidisciplinary team and patients and their families is essential to adapt and refine these goals based on the patient's evolving condition.[32] Multidisciplinary team members, such as physiotherapists, respiratory therapists, and other specialists, contribute to the effectiveness of multidisciplinary teams. Appropriate staffing in these teams ensures that the needs of patients and their families are fully met through the combined knowledge, skills, and abilities of all healthcare professionals, including nursing staff. A multidisciplinary teamwork approach is essential for the implementation of an effective EAM programs.[40]

Moreover, there is a strong call from patients for more humanized care. ICU nurses, who are often primarily focused on emergency resuscitation and monitoring, may sometimes inadvertently neglect patients' physical comfort and emotional needs. Research has shown that implementing humanized care models can effectively reduce patients' negative emotions and enhance their satisfaction with the care provided.[41,42] Before initiating EAM, nurses should create a comfortable rehabilitation environment by keeping the ward clean and providing adequate space for activities. They should fully explain the benefits and procedures of EAM to patients, and conduct activities with gentleness and patience. During activities, it is crucial to closely observe patients for any signs of discomfort, identify triggers, and promptly address them while ensuring patient privacy. This necessitates that healthcare professionals not only possess professional competencies but also embrace the principle of humanized care. Understanding and respecting patients' customs and beliefs, and addressing their physical, emotional, and spiritual needs, are essential components of humanized care.

Limitations

Our findings may have limited generalizability to other ICU settings, particularly in regions with differing healthcare resources, cultural contexts, or EAM implementation protocols. Selection bias could distort our results, as patients and their families willing to participate in our study may have had more positive experiences or perceptions of EAM. Additionally, although interviews were conducted shortly after weaning, some recall bias may persist, as patients' recollections of EAM experiences could be influenced by their recovery trajectory or psychological state.

To overcome the limitations of the current research and enhance the breadth and reliability of the findings, future studies should aim to broaden the geographic and institutional scope, increase sample size and diversity, employ random sampling, and utilize multi-source data collection methods to minimize selection bias. Researchers should also consider integrating the perspectives of non-participants to gain a more comprehensive understanding of the subjective experiences of ICU patients undergoing EAM during mechanical ventilation. To validate qualitative findings, triangulation approaches (eg, combining patient narratives with caregiver perspectives and clinical outcome data) should be employed.

Conclusion

ICU mechanically ventilated patients have obvious physical discomfort during early active activities, and although they can perceive the benefits of early activities, they still have complex psychological experiences and desire more physiological and psychological humanized care. This suggests that healthcare professionals should pay attention to both the physiological and psychological aspects of patients' experiences during EMA, and implement targeted medical and nursing interventions to enhance their overall activity experience, improve patient adherence, and facilitate early recovery.

Author Note

All authors have approved the final article, agree to be accountable for all aspects of the work and acknowledge that all those entitled to authorship are listed as authors. The lead author may sign this document on behalf of the authorship team.

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Ethical Considerations

This study has been approved by the Ethics Committee of the School of Nursing, Lanzhou University in March 2021 (Approval number: LZUHLXY20210021). After receiving written approval for the study, participants were contacted.

Consent to Participate

The people who were asked to participate were given verbal and written information about the study and those interested in participating signed a written request for informed consent. They were also informed that they could cancel their participation at any time and that their decisions would not affect their care.

Author Contributions

Xiaomeng Han and Qian Wang: Design, Methodology, Investigation, Writing-Original Draft, Writing—review & editing, Visualization. Hengyang Wang: Data validation and analysis. Donghui Jia: Data validation and analysis. Jie Cheng: Methodology,

Data curation. Rui Wang: Methodology, Data curation. Jiajia Kong and Zhigang Zhang: Supervision, Project administration. All authors have participated sufficiently in the work and agreed to be accountable for all aspects of the work.

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Data Availability Statement

The corresponding author can be contacted for access if necessary.

Supplemental Material

Supplemental material for this article is available online.

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