

Knowledge, Attitudes, and Perceived Barriers of Healthcare Providers toward Early Mobilization of Adult Critically Ill Patients in Intensive Care Unit

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ABSTRACT

Background: Early mobilization (EM) of critically ill adult patients in intensive care units (ICUs) is a newer concept. It is known to improve overall outcomes, but little is known regarding the attitude and knowledge of healthcare providers (HCPs) and multidisciplinary barriers to its use in the Indian scenario.

Aims and objectives: To study the knowledge and attitude of HCPs in ICU about the EM of adult patients who are critically ill and identify perceived barriers to the application of EM.

Materials and methods: In a cross-sectional survey conducted in a tertiary care academic institute, the HCPs, namely, physicians, anesthetists, surgeons, nursing staff, and physiotherapists working in ICU were interviewed using a self-structured questionnaire. The data were presented as descriptive statistics.

Results: There was 80% response rate. The benefits of EM as shortened length of mechanical ventilation (MV) were acknowledged by 78% respondents and 54% believed that it maintains muscle strength. It was considered crucial by 44% respondents, who opined that it should be started as the patient's cardiorespiratory status stabilizes. The favorable attitudes observed were recognition of benefits for patients under MV exceeded the risks and readiness by physicians to reduce sedation levels and change the parameters of MV. The main barriers identified were the absence of written guidelines or protocols for EM, limited staff to mobilize patients, inadequate training of HCP to facilitate EM, excessive sedation, and medical instability.

Conclusion: There exists an awareness of the benefits of EM and favorable attitudes to its application. However, the actual performance of EM was perceived as a challenge due to barriers identified in the study.

Keywords: Attitudes, Early mobilization, ICU-acquired weakness, Intensive care units, Mechanical ventilation, Perceived barriers, Physiotherapists, Range of motion.

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INTRODUCTION

Early mobilization (EM) is defined as any activity beyond the range of motion (ROM) performed within 48 hours of the onset of mechanical ventilation (MV).¹ It involves timely progression during critical illness through a series of activities from active ROM to full ambulation.² In spite of knowledge of potential benefits, effective EM is not widely performed in critically ill patients on MV and so is out-of-bed mobilization.

An EM is a complex intervention requiring a duly trained interdisciplinary team carefully assessing and managing the patient.³ It has consistently been reported as safe and feasible in critically ill patients, and there are several International Practice Guidelines for its execution.⁴ The benefits of EM reported are reduced intensive care unit (ICU)—acquired weakness, improved functional recovery within hospitals, improved walking distance at hospital discharge, and reduced hospital length of stay.⁵

With growing evidence in the literature reporting improvements in long-term outcomes, very few studies explain why EM is not effectively performed in ICU clinical practice.¹ Attitudes and knowledge of healthcare providers (HCPs) and barriers to EM to actual performance are reported in the literature.⁶⁻⁸ It was found that personal/patient safety and lack of clinical comprehension as potential relevant barriers to the performance of EM.¹ Studies also identified various interdisciplinary barriers, patient-related barriers, and institutional barriers that are being perceived by various HCPs.

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A panel of clinical or research experts from four countries formed an international multidisciplinary expert consensus group and put forth recommendations for mobilization of patients in ICU receiving MV.^{4,9} This quality improvement project has attempted to understand whether clinician's attitude and education about EM served as a barrier to its delivery.^{6,7} There is a paucity of the literature about knowledge, attitudes, and perceived barriers of HCP toward EM in the Indian scenario; hence, this was the rationale

for carrying out the present study in the Indian populace as the barriers could change with changing healthcare facilities across different geographies.

MATERIALS AND METHODS

A cross sectional survey was conducted at a Tertiary Healthcare Academic Institute of Central India with an aim to study the awareness of HCPs regarding the concept of EM and its benefits, their attitude toward EM and to identify perceived barriers to delivery of early mobility in ICU. Physicians, anesthetists, and surgeons who work in medical ICU (MICU) and surgical ICU (SICU), all rotating residents, senior residents, nurses, and physical therapists working in the MICU and SICU were enrolled as subjects. A self-administered structured questionnaire consisting of items assessing knowledge, attitude toward the provision of therapy in ICU, and perceived barriers to delivery of EM on a voluntary basis was completed by the respondents. Responses of knowledge and attitude were indicated using a 5-point Likert scale: strongly agree, agree, neutral, disagree, and strongly disagree. A prepopulated list of potential barriers to ICU mobility was provided based on the current known literature. Barriers were divided into institutional level barriers, patient-related barriers, and provider-level barriers. Participants could check all answers that applied and an optional write-in section was provided for barriers not covered in the questionnaire. Four separate questions probing personal view and general awareness of the participants about EM, namely, personal view of EM in the ICU that best describes their view, time to initiate EM in ICU, knowledge about the definition of EM, and incidence of ICU-acquired weakness(ICU-AW) were some of the study factors in the questionnaire.

Data Analysis was carried out using Microsoft Excel STATA version 10.0. Descriptive statistics were used to describe responses in frequencies, proportions, tables, and diagrams. The study had ethical approval from the Institutional Ethics Committee of the hospital.

OBSERVATION AND RESULTS

The response rate to questionnaire administration was 80%. A total of 100 ICU HCPs completed the questionnaire; of them,

22 were physicians (clinicians and residents working in MICU), 36 were surgeons (M.S Surgery consultants and residents), 20 physiotherapists (PTs), and 22 ICU nurses. The responses received are as follows:

Knowledge

An overall personal view about EM in ICU was enquired and all 100% knew its importance; of them, 44% of the respondents said that EM is crucial and should be the top priority in the care of ICU patients whereas 34% and 22% viewed it as very important and important, respectively.

When enquired about their view as to when do they think mobilization should be initiated in the ICU, 74% responded it as soon as the patient’s cardiorespiratory status stabilizes (i.e., no escalation in hemodynamic or ventilatory support). Seventy percent of the respondents said as soon as the patient is conscious and can cooperate. Forty-four percent reported it as soon as the patient is off all vasoactive infusions. These responses are not mutually exclusive.

Out of 100 HCPs, only 30% of the respondents knew the correct definition of EM (EM is defined as any activity beyond ROM performed by a care provider within 48 hours of initiation of MV) and similar proportion of respondents (30%) knew the approximate incidence of ICU-AW in the population of general medical–surgical ICU patients.

The two common questions that were asked specifically to assess the knowledge-related domain and answers were obtained on a 5-point Likert scale.

Question 1: Role of ROM in maintaining muscle strength.

On enquiring whether ROM is sufficient to maintain muscle strength in ICU patients, 38 clinicians (65.5%) and 16 paramedics (38.09%) agreed to it. Most of the nurses and PTs believed that ROM was insufficient to maintain muscle strength in ICU (Fig. 1).

Question 2: Role of EM on duration required on MV.

Sixty-five percent (38) clinicians and 95.23% (40) paramedics agreed that EM reduces the duration of MV and includes faster weaning. A very negligible proportion of HCPs disagreed on this aspect (Fig. 2).

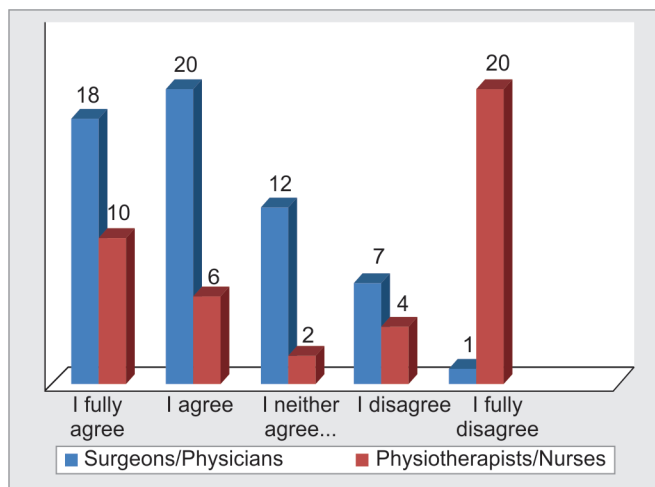


Fig. 1: Q.1. ROM is sufficient to maintain muscle strength in ICU

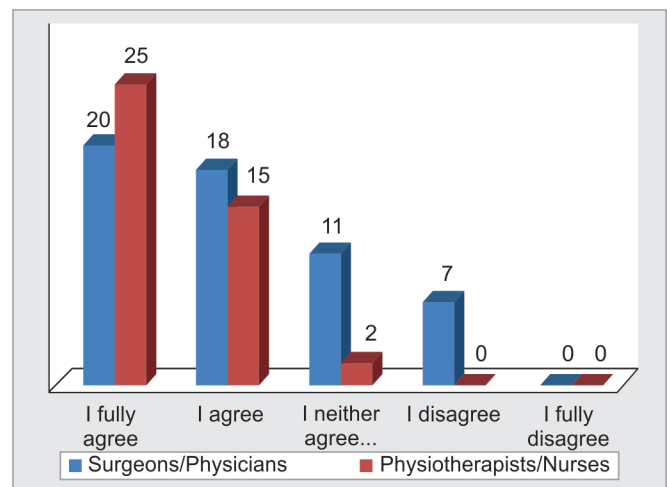


Fig. 2: Q.2. EM reduces the duration of MV and includes faster ventilator weaning

Attitudes toward Early Mobilization

One common question and three separate questions were administered to the clinicians and paramedic group.

Common Question 1: Risk of EM versus potential benefits.

More than half of the HCP, i.e., 65.5% clinicians and 52.38% paramedics, reported that the risk of EM outweighs the potential benefits of EM (Fig. 3).

Attitudes of Clinicians

Total 58 clinicians, 20 physicians and 38 surgeons, working in ICU setup completed the questionnaire.

Question 2: EM should be carried out via nursing/PT protocols.

A total of 41 out of 58 (70.68%) clinicians surveyed indicated that EM should occur automatically via nursing/PT protocols, unless the clinicians specifically order otherwise (Fig. 4).

Question 3: EM for patients on MV.

Most of the clinicians 51.72% (n = 30) surveyed indicated that they would allow EM for patients on MV (Fig. 5).

Question 4: EM in patients with hemodynamic instability.

Of 58 clinicians, 33 (56.89%) agreed with EM of patients on vasopressor agents (Fig. 6).

Attitudes of Paramedics

Total of 42 paramedics, 22 nurses and 20 PTs, working in ICU setup completed the questionnaire.

Question 5: Adequate staffing to carry out EM for patients on MV.

Only 22 paramedics (52.38%) believed that staffing was adequate to mobilize patients receiving MV in ICU (Fig. 7).

Question 6: Availability of time for EM.

Majority (61.9%, n = 26) believed that they had enough time to help mobilize patients receiving MV per day (Fig. 8).

Question 7: Risk to staff during EM.

Half of the paramedic staff reported that the risk to staff of mobilizing mechanically ventilated ICU patients outweigh the benefits to the patients (Fig. 9).

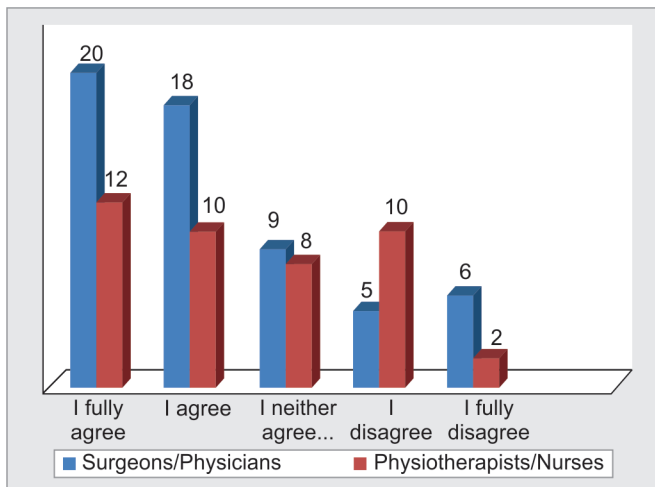


Fig. 3: Q.1. Patient risk associated with mobilizing ventilated patients outweighs the benefits

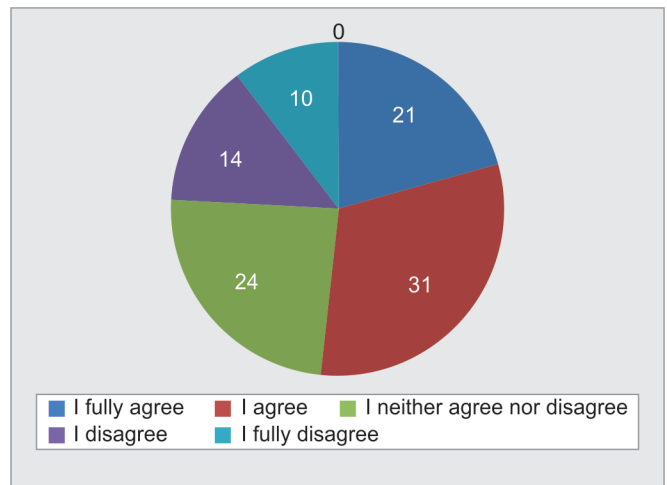


Fig. 5: Q.3. I agree to mobilization of a patient on MV

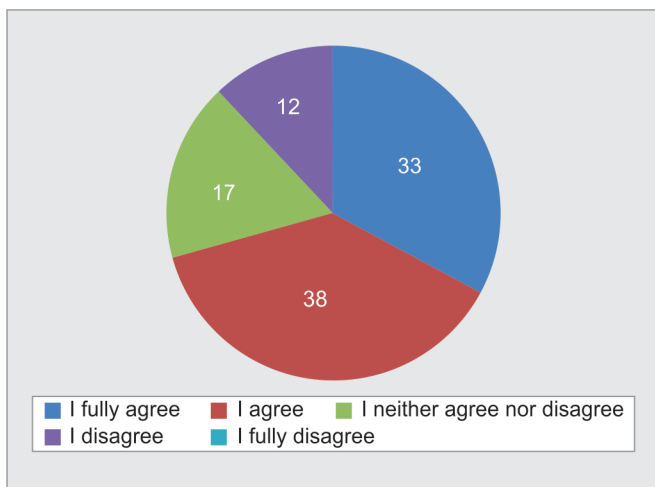


Fig. 4: Q.2. Mobilization of ICU patients should occur automatically via a nursing and PT protocol

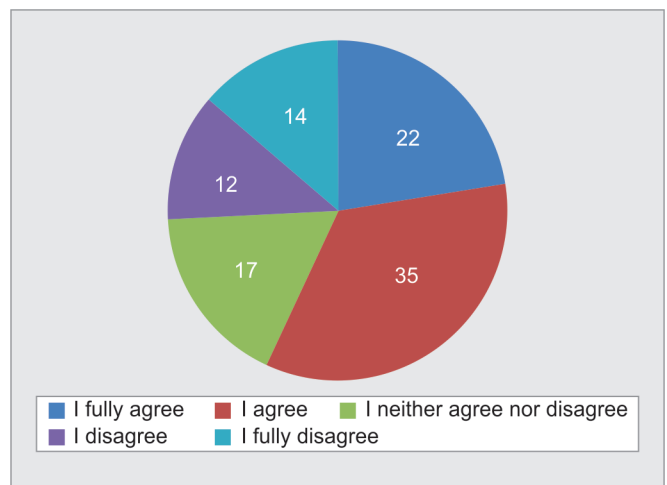


Fig. 6: Q.4. I would agree to mobilization of a patient on vasopressors



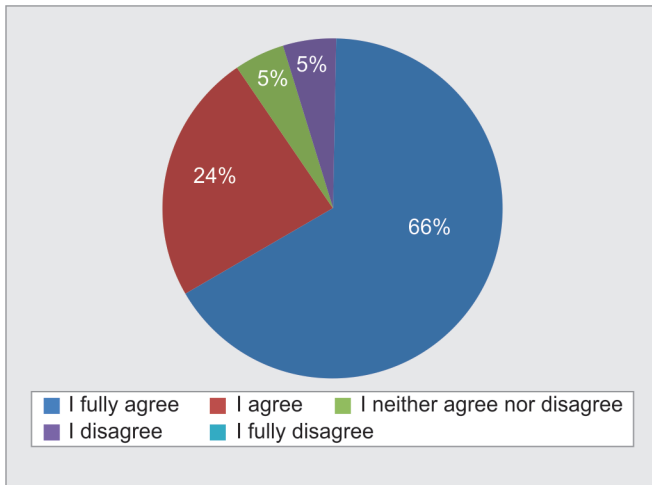


Fig. 7: Q.5. Staffing is adequate to mobilize patients receiving MV in ICU

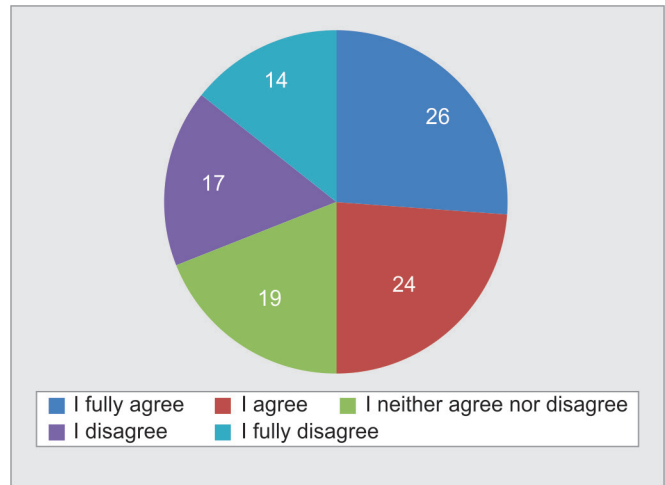


Fig. 9: Q.7. Risks to staff of mobilizing mechanically ventilated ICU patients outweighs the benefits to the patients

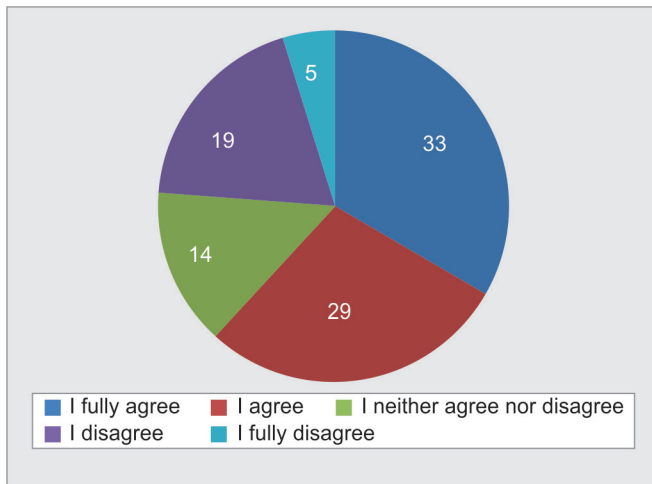


Fig. 8: Q.6. I have enough time to help mobilize patients receiving MV once per day

Behaviors of Clinicians

Most clinicians (41.37%, n = 24) indicated that they would be willing to alter their ventilator settings to facilitate mobilization, and half of them reported that they would be willing to decrease sedation levels of ICU patients.

Behaviors of Physiotherapists and Nurses

A majority of paramedics 71.42% (n = 30/42) indicated that the use of EM placed the staff at risk of developing musculoskeletal injuries and added to overall work stress. Half of them agreed that EM contributed to prolonged workdays and the need to stay late in order to “catch-up.”

Perceived Barriers

The perceived barriers were analyzed at three levels, viz, institutional-level, patient-level, and provider-level barriers. The populated lists of barriers were administered to all the 100 HCPs.

- The most common perceived institutional barrier reported by 76 HCP was lack of written guidelines or protocols. The other

Table 1: The provider-level barriers and contributors responsible for the same are listed below

Sr. No.	Provider level barrier	Contributors
1.	Limited staffing	Primarily nurses/ physiotherapists
2.	Lack of decision-making authority	Primarily resident doctors
3.	Lack of communication during bedside rounds	Primarily among resident doctors, physiotherapist, and nurses
4.	Safety concerns about early mobilization	Primarily among nurses
5.	Inadequate training to facilitate early mobilization	Primarily among nurses and physiotherapists
6.	Delayed recognition of suitable patients to mobilize	Primarily resident doctors

barriers reported were insufficient equipment’s required for EM by 66%, need for physicians’ orders before mobilization by 58%, and no clinical champion or advocate to promote EM by 46% (Fig. 10).

- The most important patient-level perceived barriers as reported by HCPs were medical instability by 76%, presence of endotracheal tube (ETT) by 72%, excessive sedation by 62%, and risk of accidental removal of devices or catheters by 58% (Fig. 11).
- The most frequent provider-level barriers to EM in our ICU setup and the providers who contributed to the existence of that barrier are listed in Table 1.

The provider-level barriers reported were limited staffing, lack of decision-making authority, lack of communication during bedside rounds, safety concerns about EM, and inadequate training to facilitate it.

DISCUSSION

The present study found that the HCP team in ICU managing critically ill patients had knowledge about EM with its potential benefits. It maintains muscle strength and leads to a shorter

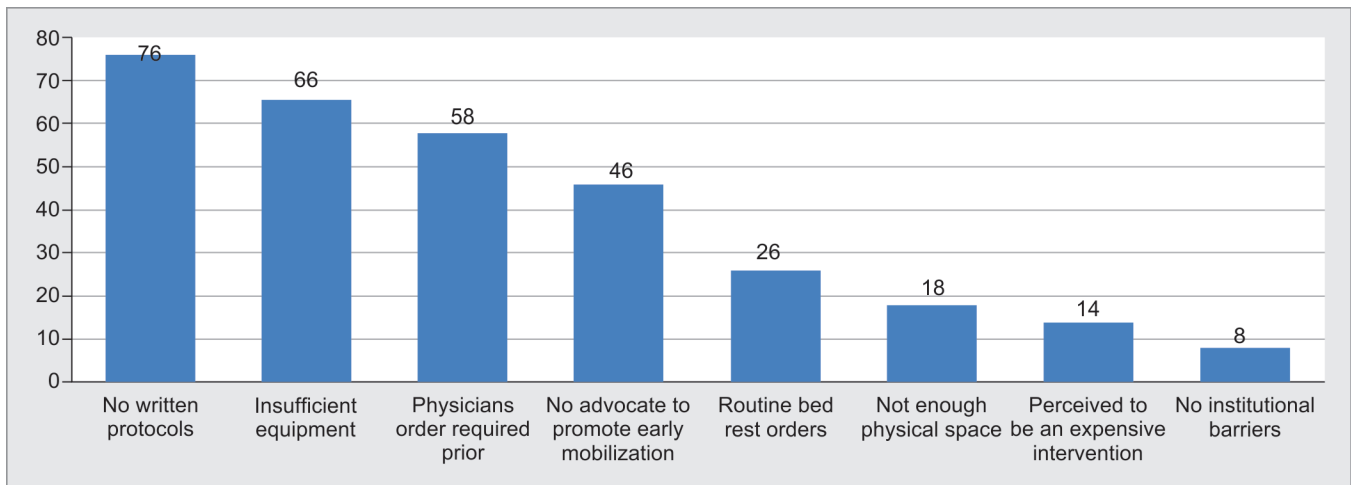


Fig. 10: Frequency of respondents pertaining to institutional-level barriers

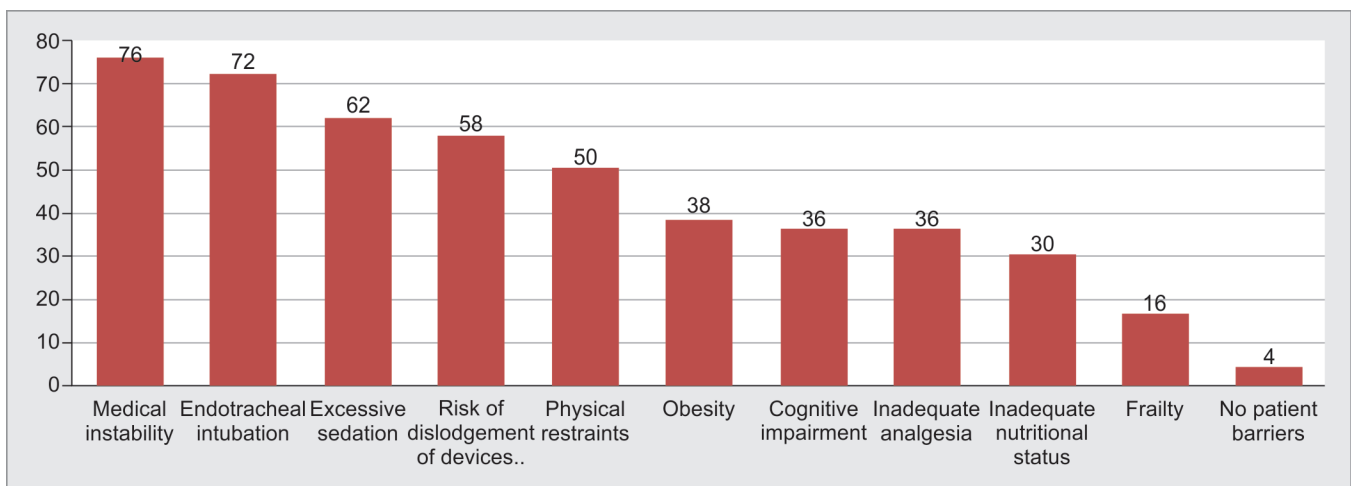


Fig. 11: Frequency of respondents pertaining to patient-level barriers

duration of MV. Most participants agreed that the benefits of EM exceed the risks to the patient under MV and these results are consistent with study reported in the literature.¹

In the present study, more than half of the clinicians agreed on the EM of patients under MV and also those receiving vasoactive drugs. They were willing to change the MV parameters and reduce sedation to enable the EM. These results are consistent with Jolley.¹⁰ EM studies in the literature demonstrate a link between reducing levels of sedation in critically ill patients and subsequent increase in ICU mobility.^{6,7} The key ICU contextual factors including safety culture and knowledge deficits contribute to reduced implementation of coordinated awakening and mobility sessions.^{11,12}

Half of the paramedical professionals working in ICU believed that the staffing is inadequate and they had no sufficient time for EM and there is no supporting evidence in the literature as these could be due to human resource issue typically observed in Indian scenario where academic institute in order to save cost restrict the number of staff in ICU. Trained ICU staffing and time management needs to be addressed, if EM culture has to be developed in the Indian scenario. Almost half of them believed that risk to staff mobilizing mechanically ventilated ICU patients outweighs the

benefits to the patients. Musculoskeletal injuries, fatigue added work stress, need to stay late in order to catch up were some of the reported risks. Similar findings were reported by Dubb et al.¹³ This barrier may be overcome by having dedicated trained staff with salary incentives. Although studies demonstrated that EM is safe and feasible for patients, work-related musculoskeletal injuries to nurses/therapists are underexplored and may represent an important occupational health barrier to delivery of EM.^{14,15}

Acceptance and implementation of mobility protocols and confidence among paramedical staff to mobilize critically ill patients have been shown to directly correlate with the degree of ownership and responsibility they feel over mobility as an intervention.¹⁶

Coordination and cooperation between nursing and physical therapy staff under the supervision of treating clinicians may help enhance the overall implementation of EM. And in order to reduce the perceived work stress associated with mobility, discussing the feasibility aspects and developing algorithms to incorporate EM into usual care is advocated. Further studies are needed that aim to better understand the burden of EM staff-related adverse events, including staff injury and the impact of mobility on clinician work stress.¹⁰

Like other investigators, the most important patient-level barriers frequently cited by HCP were medical instability,^{17,18} presence of ETT, excessive sedation,^{17,18} and risk of dislodgement of devices.^{2,19} No written protocols,²⁰ insufficient equipment,^{17,21} prior requirement of physicians orders,²⁰ and no advocates to promote EM^{17,20,22} were cited as some of institutional-level barriers perceived by the HCP. These findings are consistent with the literature. Limited staffing,^{17,23} lack of decision-making authority, lack of communication during bedside rounds, and safety concerns about EM were the most important provider-level barriers to EM reported in our ICU setup. The findings of the present study confirm the hypothesis that there is a research gap between evidence-based knowledge and its application in clinical practice. The HCP in the present study had adequate knowledge and showed a favorable attitude toward EM in the ICU but identified several barriers to its actual application in clinical practice. The findings of multiple barriers detected in the present study are consistent with Dubb et al.¹³

More than half of the clinicians reported that EM should be routinely performed via nursing and physical therapy protocols. Nursing- and PT-oriented mobility protocols are well implemented in our institute; however, the ICU nursing and PT team showed concerns regarding their safety and musculoskeletal hazards that they could face due to nonavailability of equipment. Although most nursing professionals and physical therapists reported that lack of decision-making authority, lack of communication during bedside rounds, and delayed recognition of suitable patients fit for EM were the main provider-level barriers reported. On the other hand, the clinicians believed that limited staffing, safety concerns, and inadequate training of staff to facilitate EM were the barriers related to physiotherapy/nursing staff in our institute.

There is a need for defining the ideal ICU care team and delivery systems for EM in form of approved protocols, which need to be evidence-based demonstrating the clear benefit of EM over other risks. In order to refine the above task, more targeted surveys of attitudes and behaviors are needed that may influence implementation and adherence to EM programs.²⁴⁻²⁶ Education regarding appropriateness, safety, and promotion of EM of critically ill patients among clinicians and paramedics will help in improving the acceptance of EM in critically ill patients.

Limitations and Strengths of the Study

This is single-institution study lacking an overall generalization of results, and there is a need for multicentric study for improving external validity. There could be selection bias as only specialty clinicians were enrolled and super-specialty clinicians were not enrolled as subjects. There is a need for multicentric cross-sectional survey including all specialties to assess the overall knowledge, attitudes, and practice of a larger population of clinicians. The study did not survey administrative leaders whose knowledge and attitudes toward EM are necessary when addressing hospital-level barriers including resource allocation and staffing. The present study could be one of the first to initiate future studies probing barriers to EM and finding solutions helping in popularizing the benefits of EM in the Indian scenario.

CONCLUSION

The knowledge, attitudes, and practices (barriers) of HCP about the EM in intensive care units of critically ill patients showed some positive attitudinal traits and willingness to carry out EM and also brought out the various barriers which could be addressed by

increasing the awareness among HCP and administrators. These barriers will be taken up with concerned authorities for advancing EM in our institute.

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