

# Early Mobilization in the ICU: A Multicenter Survey of Clinicians' Knowledge, Attitude and Practices in Resource-Limited Hospital Settings

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## Abstract

**Background:** Prolonged stay in the Intensive Care Unit (ICU) is associated with impaired physical function, low quality of life and increased cost of care. Evidence suggests early mobilization (EM) in the ICU is safe, feasible and results in physiological and functional improvement in critically ill patients. Despite its benefits, EM in the ICU is not a common practice. Factors relating to healthcare provider, such as level of knowledge, attitude and practices may contribute to this trend. As a first step towards adopting routine EM in our ICU, we investigated the current level of knowledge, attitude and practices of care professional about EM. **Methods:** We conducted a cross-sectional survey to assess level of knowledge, attitude and practices of clinician towards early mobilization in four teaching hospitals in southwestern Nigeria, using a 20-item questionnaire adapted from previous studies. **Results:** A total of 131 health care providers comprising of 58 (44%) physicians, 34 (26%) physiotherapist and 39 (30%) nurses participated in the study. Most (89%) clinician indicated knowledge about benefits of EM, but only 30% showed adequate knowledge about what constitute EM. 5% of the participants had knowledge about EM guidelines. 45 (80%) reported that the risk associated with early mobilization of patients on mechanical ventilator (MV) outweighs its benefits. While 75% of the respondents indicated they will not ambulate patient on mechanical ventilator or on vasopressor agents, 65% agreed that critically ill patient could be mobilized in the ICU. Most (83%) of the participants did not train or work at an institution where patients are mobilized in the ICU and consequently feel they are not competent to implement EM. More physiotherapist indicated willingness to ambulate patient on mechanical ventilator, while more physicians reported unwillingness to ambulate patients on vasopressor agents ( $p < 0.05$ ). **Conclusion:** There is good level of knowledge about early mobilization of intensive care patients among participants, but current level of practice are low as most perceive the risks associated with EM outweigh its benefits.

**Keywords:** Early mobilization; Intensive Care Unit; Critical illness

## Introduction

Early mobilization has been shown to have beneficial effects on clinical and functional outcomes in critically ill patients. Observational studies on point prevalence of early mobilization in the ICU in developed countries have suggested low practices. <sup>[1,2]</sup> Even when implemented, the level of mobilization delivered in the ICU is often influenced by the professional education and perception of the service provider. <sup>[3]</sup> Attitude and knowledge-related barriers could influence early mobilization practices in the ICU. <sup>[4,5]</sup> A recent retrospective study reported low utilization of rehabilitation services in a resource-limited ICU in southwestern Nigeria. <sup>[6]</sup> Over a two-year period, 16% of patients admitted into the Intensive Care received any form of rehabilitation care while in the ICU. They further showed that passive exercise was the most common form of mobilization in the ICU. Preliminary data from study environment suggests that gap in knowledge may be a significant barrier to implementing early mobilization protocols in resource-limited hospital. <sup>[7]</sup>

Little is known about knowledge, current practices and attitudes of clinicians in middle- and low-income countries about early mobilization in the ICU. We therefore designed a survey to assess clinicians' level of knowledge, attitude and current practices of early mobilization of ICU patients, as a first step to influence early mobilization practices.

## Methods

### Design

We conducted a multicenter cross-sectional survey to assess

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**How to Cite this Article:** Akinremi AA, et al. Early Mobilization in the ICU: A Multicenter Survey of Clinicians' Knowledge, Attitude and Practices in Resource-Limited Hospital Settings. *Ann Med Health Sci Res.* 2020;10: 778-784.

clinicians' level of knowledge, attitude and current practice about early mobilization in the general ICUs in four teaching hospitals in southwestern Nigeria between November 2014 and February 2015.

## Participants

Prospective participants were identified through a list of clinicians working in the ICU. All clinician who spend at least 60% of their daily work providing care to patients in the ICU were approached and 68% of eligible clinicians consented to participate in the study.

## Measurement

Data on knowledge, attitude and current practice were collected using a 20-item questionnaire. Items in the questionnaire were adapted from several sources. A systematic review of published literature on the topic from January 2000 to June 2014 was conducted using MeSH search terms: Early mobilization, Ambulation, Mobility, Rehabilitation, Physiotherapy 'AND' ICU, Critical Care, Critical Illness, Intensive Care 'AND' knowledge, attitude and practices via electronic databases. Relevant themes and questions were identified from the literatures and a focused group comprising of content experts, physicians, rehabilitation specialists and nurses reviewed the questionnaire for relevance and appropriateness of the questions. The questionnaire was then pretested during a pilot.

The questionnaire comprises of 4 sections: Section A contained questions on respondents parameters such as gender, age, occupation, highest professional qualification, current position, number of years since professional qualification, number of years of ICU work experience, percentage of work time spent in the ICU; Section B contains a question and list of possible barriers to implementing early mobilization protocols in the ICU; Section C contained 5 question item on current practice and attitude to early mobilization in the ICU; and Section D contains 14-question items on familiarity with protocol and literature on early mobilization, components of early mobilization, prior experience and benefits of early mobilization. Responses to question items on knowledge and attitude were selected by ticking one of the three options of 'Yes' 'No' or 'I don't know'.

General level of knowledge of overall participant and by clinical profession was considered good if more than 80% answered a question correctly; fair level of knowledge if between 51-80% of the participants answered a question correctly and poor knowledge, if less than 51% of the participants answered a question correctly. Individual level of knowledge was rated high if the individual correctly answered at least 6 out of the 8-knowledge question, while those who indicated correct answers to less than 6 questions were considered as having low knowledge.<sup>[8]</sup>

Attitude was assessed by participant's perception about whether the benefits of early mobilization outweigh its risks, while current mobilization practice was assessed by recommending or implementing early mobilization in the last 3 months. Attitude of respondents were considered good if more than 80% indicated

benefits of EM outweigh its risks; fair if between 51 - 80% of the participants indicated benefits of EM outweighs its risks and poor attitude if less than 51% of the participants indicated benefits of EM outweigh its risks. Practice of early mobilization was considered good if more than 80% of participants reported to have mobilized patients in the last 3 months; fair if between 51 - 80% had mobilized patients in the last 3 months and poor attitude if less than 51% of the participants had mobilized patients in the last 3 months.

For the purpose of this study, early mobilization (EM) was defined as range of bodily movements carried out by care provider as part of care for a critically ill patients admitted into the ICU, which may include active or passive movement in bed, sitting up in bed, sitting by edge of bed, early transfer out of bed, sitting and standing out of bed, ambulation.<sup>[9]</sup> Familiarity with literature/clinical studies/protocol guideline on EM in the ICU was defined as having received a lecture, read literature or clinical studies on EM in the last 3 months, while prior EM experience was defined as having worked or trained in institution with early EM protocol implementation.

Correct responses were predetermined before administration of the questionnaire. Indicating "True" for question items: EM is associated with improve functional status;<sup>[10-12]</sup> EM is associated with reduced ICU-related mortality;<sup>[13]</sup> EM is associated with decrease incidence of deep vein thrombosis,<sup>[14]</sup> EM is associated with reduced stay on mechanical ventilator<sup>[15]</sup> were considered correct, while indicating 'False' for question items Critically ill patients should not be mobilized in the ICU;<sup>[16-18]</sup> EM is associated with worsened physiological status;<sup>[19,20]</sup> EM is associated with increased incidence of delirium<sup>[21]</sup> and Passive range of motion is sufficient to maintain muscle strength in the ICU.<sup>[10]</sup>

## Procedure

Ethics: Study was conducted in line with the Declaration of Helsinki. Participants were informed about the purpose of the study and voluntary informed consent was sought and obtained before commencement of the study. Participants were informed of their right to voluntary participation and right to withdraw same at any time during the study period. Data collection tools were anonymized. Confidentiality of data was ensured by coding and securing same in a safe location with restricted access. Questionnaires were distributed and checked for completeness by trained research assistants.

## Data management and analysis

Data were double-entered and cleaned before analysis. Age and years of ICU work experience were summarized using mean and standard deviation, while responses on knowledge, attitude and current practice were summarized as frequencies and proportions. Chi square test was performed to check for significant differences in response between genders, while Fischer exact test was performed to test for significant difference in response across profession by years of ICU experience, qualification and prior experience with EM. Poisson regression model was used to test for association between clinicians'

professional parameter and individual total score. High individual knowledge score was used as a dependent variable while academic qualification, clinical experience, familiarity with EM literature/clinical studies, prior EM experience, current practice, (ambulated patient in the last 3 months) and attitude (EM risk outweighs benefits, willingness to ambulate patients on mechanical ventilator, willingness to ambulate patients on vasopressor) as independent variables.

## Results

Table 1 shows characteristics of participants in this study. Participants comprised of ICU physicians (44%), nurses (30%) and physiotherapists (26%) who spend at least 60% of their daily work providing care for patients in the ICU. A total of 193 eligible participants were approached and 131(47%M; 53%F) participated in the study with mean age of 40.1±7.1. ICU Physicians comprised of Residents and Trainee in Anaesthesia and Internal Medicine (36) and Consultants/Faculty Anaesthetists (22). ICU Physicians had more work experience in the ICU than the nurse or physiotherapists. More than a third (34%) of the participants had advanced qualification, while more than half (56%) had more at least five years of working experience in the ICU.

Overall, participants' familiarity with early mobilization is low (33.8%); with 16% conversant with EM protocols, 28% familiar with clinical trials on early mobilization of ICU

patients, 40% had prior experience with mobilizing patients in the ICU. About half of the participants correctly identified activities that comprises early mobilization [Table 2]. Twenty (58%) of the Physiotherapists, 18(46%) of nurses and 14 (24%) of the physicians reported having prior experience with early mobilization in the ICU.

Responses to knowledge questions and level of knowledge are shown in Table 3. Overall knowledge pattern by clinical profession showed fair level of knowledge across the 3 clinical professions: ICU Physicians (66%), Physiotherapists (69.8%) and Nurses (62.5%). Level of knowledge did not differ statistically across professional disciplines. Participants showed good level of knowledge (82%) only on one question item: "EM is associated with improved functional status". Response did not differ by profession.

Participants showed fair level of knowledge in six question items as shown in Table 3. Sixty-seven percent of participants agreed that critically ill patients should be mobilized in the ICU. Physiotherapists (82%) were more likely than physicians (59%) and nurses (66%) to indicate that critically ill patients should be mobilized. Participants demonstrated fair level of knowledge about early mobilization is: not associated with worsened physiological status (62%); associated with reduced incidence of delirium and ICU-related mortality (70%). Response on whether EM is associated with reduced stay on mechanical ventilator differed by profession, with ICU physicians (76%)

**Table 1: Characteristics of participants.**

Variables	ICU Physicians (n = 58 )	Physiotherapists (n = 34)	Nurses (n = 39)	Total (n =131)
Age (yrs)	41.8 ± 7.1	38.6 ± 6.4	40.9 ± 10.5	40.1 ± 7.1
Sex	37(M), 21(F)	22(M), 12(F)	3(M), 36(F)	62(M), 69(F)
Experience in ICU (yrs)	13.4 ± 3.0	7.7 ± 2.9	10.2 ± 3.5	10.4 ± 3.1
Highest degree				
Diploma	0	0	11(28%)	11 (8%)
Bachelor	32 (55%)	23 (68%)	20 (52%)	75 (57%)
PG Degree	26(45%)	11(32%)	8(21%)	45 (34%)
Working experience in ICU				
<5 (yrs)	28(48%)	15(44%)	14(36%)	57(44%)
≥ 5 (yrs)	30(52%)	19(56%)	25(64%)	74(56%)

**Table 2: Familiarity of respondents with early mobilization in ICU.**

Knowledge item	ICU Physicians (n = 58)	Physiotherapists (n = 34)	Nurses (n = 39)	Total (n = 31)
Prior experience with early mobilization in ICU				
Yes	14 (10.7%)	20 (15.3%)	18 (13.7%)	52 (39.7%)
No	44 (33.6%)	14 (10.7%)	21 (16%)	79 (60.3%)
Familiar with EM protocol/guideline				
Yes	8 (6.1%)	10 (7.6%)	3 (2.3%)	21 (16%)
No	50 (38.2%)	24 (18.3%)	36 (27.5%)	110 (84%)
Familiar with literature/clinical studies on EM in the ICU				
Yes	16 (12.2%)	12 (9.2%)	8 (6.1%)	36 (27.5%)
No	42 (32%)	22 (16.8%)	31 (23.7%)	95 (72.5%)
Components of EM				
Yes	25 (19.1%)	24 (18.3%)	19 (14.5%)	68 (51.9%)
No	33 (25.2%)	10 (7.6%)	20 (15.3%)	63 (48.1%)
<b>Overall</b>	<b>12%</b>	<b>12.60%</b>	<b>9.10%</b>	<b>33.8%</b>

EM: Early Mobilization

**Table 3: Participants' response to questions on knowledge about early mobilization in ICU.**

Question	Correct Answer	ICU Physicians (N=58) n (%)	PT (N=34) n (%)	Nurses (N=39) n (%)	Total (N=131) n (%)	p value
Critically ill patients should not be mobilized	False	34 (58.6%)	28 (82%)	26 (66.7%)	84 (67.2%)	0.018*
EM is associated with functional status	True	48 (82.7%)	30 (88.2%)	29 (74.3%)	107 (81.7%)	0.211
EM is associated with worsened physiological status	False	33 (56.9%)	24 (70.6%)	25 (64.1%)	82 (62.6%)	0.501
EM is associated with ICU-related mortality	True	40 (69%)	25 (73.5%)	31 (79.5%)	96 (73.3%)	0.41
EM is associated with increased incidence of delirium	False	41 (71%)	24 (71%)	28 (72%)	93 (71%)	0.19
EM is associated with decrease incidence of deep vein thrombosis	True	28 (48.3%)	17 (50%)	15 (38.5%)	60 (45.8%)	0.09
EM is associated with on mechanical ventilator	True	44 (75.8%)	19 (55.9%)	23 (59%)	86 (65.6%)	0.010*
Passive range of motion is sufficient to maintain muscle strength in the ICU	False	39 (67.2%)	23 (67.6%)	18 (46.1%)	80 (60.1%)	0.048*
<b>Overall level of knowledge</b>		<b>66%</b>	<b>69.80%</b>	<b>62.50%</b>	<b>66%</b>	<b>0.061</b>

N: Number of respondents in each professional category

n: Number of people that got the correct answer for each profession

%: Percentage of clinician who got correct answer as per their profession

Poor Knowledge: if ≤ 50% of students answered the question correctly; fair knowledge: if 51-80% of students answered the question correctly

Good Knowledge: If between 81-100% of students answered the question correctly.

being more likely to answer the question correctly than Physiotherapists (56%) and Nurses (59%). ICU Physicians (67%) and Physiotherapists (67%) are more likely to indicate passive range of motion is not sufficient to maintain muscle strength in the ICU patients.

Participants were least knowledgeable about effect of EM on incidence of deep vein thrombosis. Less than half (46%) of the study participants correctly indicated that EM is associated with decrease incidence of deep vein thrombosis. Across the professions, level of knowledge about this question item was poor: physicians (48.3%), Physiotherapists (50%) and Nurses (38.5%).

Responses to questions on attitude and current practice about early mobilization in the ICU are shown in Figure 1. Results suggest that participants have poor attitude towards mobilizing mechanically ventilated patients or patients on vasopressor. About 85% of the participants would not be willing to mobilize a patient on vasopressor, while 70% will not be willing to mobilize mechanical ventilator. More than half of the respondents indicated that early mobilization is likely to be more harmful to critically ill patients. About 70% of the participants are not confident in implementing early mobilization guideline. Attitude towards early mobilization of critically ill patients in the ICU is very low across the three professional categories.

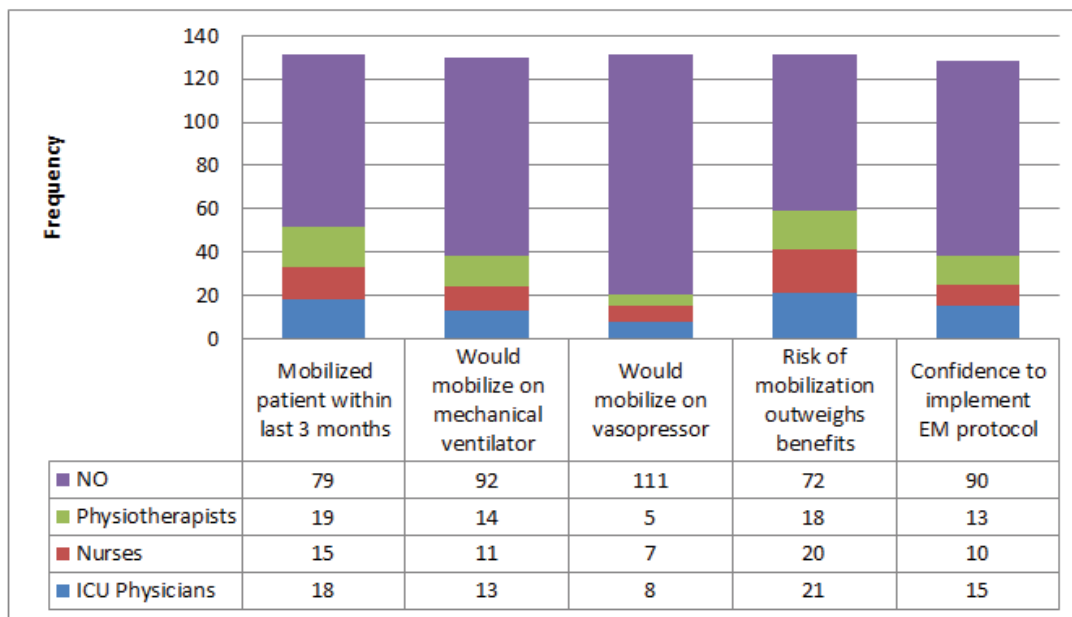
Practice of early mobilization among study participants within the last three months is low. Less than half of the clinicians (40%) had recommended or mobilized a patient in the ICU within the last 3 months: 14% of ICU Physicians, 11.5% of Nurses and 14% of Physiotherapists.

Association between individual's knowledge and selected parameters are shown in Table 4. About a third of total

participants (46) correctly answered 6 out of the 8 knowledge questions, indicating good level of knowledge. Gender, profession, years of ICU clinical experience and perceived level of competence to implement EM protocol were not associated with high level of knowledge. Higher academic qualification, prior EM experience, willingness to ambulate patients on mechanical ventilator or vasopressor, having ambulated patients in the last 3 months and familiarity with EM literature were positively associated with high knowledge. Participants who perceive EM as potentially harmful are less likely to score high on knowledge.

Table 5 shows regression of total knowledge score on academic qualification, prior EM experience, ambulated patients in the last 3 months, willingness to ambulate mechanically ventilated patients or patient on vasopressor, familiarity with EM literature/studies and negative attitude towards EM (perception that EM is potentially harmful). Higher academic qualification, prior EM experience, willingness to ambulate patients on MV, having ambulated patients in the last 3 months and familiarity with EM literature were positively associated with high knowledge score, while poor attitude was inversely associated with high knowledge score.

Controlling for covariates, the odds of odds of having high knowledge score was 10% higher among participants with higher academic qualifications compared to those without (p=0.011), while participants with prior EM experience had 28% higher odds of having good knowledge (p=0.020). Clinicians who ambulated patients within the last 3 months had 35% higher odds of having good knowledge (p=0.019), and those familiar with EM literature/studies also had 22% higher odds of having good knowledge (p=0.010). Participants who perceive EM as being potentially harmful had 33% less odds of having



	ICU Physicians	Nurses	Physiotherapists	NO
Mobilized patient within last 3 months	18 (14%)	15 (11.5%)	19 (14.5%)	79 (60%)
Would mobilize on mechanical ventilator	13 (10%)	11 (9%)	14 (11%)	92 (70%)
Would mobilize on vasopressor	8 (6%)	7 (5%)	5 (4%)	111 (85%)
Risk of mobilization outweighs benefits	21 (16%)	20 (15%)	18 (14%)	72 (55%)

Figure 1: Participants' attitude and current practice to early mobilization in the ICU.

Table 4: Association between participants' parameters and level of knowledge.

Factors		Knowledge		p-value
		High (n=46)	Low (n=85)	
Gender	Female (n=69)	28 (41%)	41 (59%)	0.06
	Male (n=62)	27 (44%)	35 (56%)	
Profession	Nurses (n=39)	12 (31%)	27 (69%)	0.079
	Physiotherapist (n=34)	11 (32%)	23 (68%)	
	Physician (n=58)	21 (36%)	37 (64%)	
Academic qualification	Basic qualification (n=89)	23 (26%)	66 (74%)	0.003
	Higher degree (n=42)	28 (67%)	14 (33%)	
ICU Clinical experience	<5years (n=79)	13 (16.5%)	66 (83.5%)	0.13
	≥ 5years (n=52)	23 (44%)	29 (56%)	
Prior EM experience	Yes (n=32)	18 (56%)	14 (44%)	0.001
	No (n=99)	12 (12%)	87 (88%)	
Ambulated patient in the last 3 months	Yes (n=52)	37 (71%)	15 (29%)	0.001
	No (n=79)	14 (18%)	65 (82%)	
Would ambulate patients on MV	Yes (n=38)	23 (60.5%)	15 (39.5%)	0.001
	No (n=92)	19 (21%)	73 (79%)	
Would ambulate patients on vasopressor	Yes (n=20)	15 (75%)	5 (5%)	0.001
	No (n=111)	21 (19%)	90 (81%)	
EM risk outweighs benefits	Yes (n=59)	1 (2%)	58 (98%)	0.001
	No (n=72)	34 (47%)	38 (53%)	
Adequate skill/competence to implement EM protocol	Yes (n=47)	12 (26%)	35 (74%)	0.056
	No (n=84)	19 (23%)	65 (77%)	
Familiarity with the EM literature/clinical studies	Yes (n=23)	14 (61%)	9 (39%)	0.001
	No (n=108)	27 (33%)	81 (67%)	

High knowledge: Participants who indicated correct answers to at least 6 out of the 8-knowledge question in Table 3

Low knowledge: Participants who indicated correct answers to at less than 6 out of the 8-knowledge question in Table 3

**Table 5: Poisson regression model on total score.**

Associated factors	OR	p value
Academic qualification (Higher degree)	1.10	0.011
Prior EM experience	1.28	0.020
Ambulated patient in the last 3 months	1.35	0.019
Would ambulate patients on mechanical ventilator	1.11	0.030
Would ambulate patients on vasopressor	1.09	0.055
EM risk outweighs benefits	0.67	0.024
Familiarity with EM literature/clinical studies	1.22	0.010

good knowledge compared to those who perceive EM has been beneficial ( $p=0.024$ ).

## Discussion

In this study we assessed clinicians' level of knowledge, attitude and current practices of early mobilization of critically ill patients in four general ICUs of southwestern Nigeria. We assessed knowledge at two different levels: firstly, familiarity with early mobilization procedure or resources and secondly knowledge on benefits of early mobilization. Our results show that the level of knowledge about EM in the ICU among study participants is fair, but attitude is poor and level of current practice is low. Findings suggest that most of the participants were not familiar with early mobilization in the ICU. Though about half of the participants were knowledgeable about the components of EM, most have little experience about early mobilization. Only few participants reported having read a guideline or research literature on early mobilization in the last 3 months. This trend is similar across professional disciplines.

Secondly, we observed that participants were fairly knowledgeable about the benefits of early mobilization of ICU patients. Participants were most knowledgeable about the fact that early mobilization is associated with functional improvement. While more physiotherapists agreed that critically ill patients should be mobilized in the ICU, more physicians agreed that early mobilization is associated with reduced stay on MV. Participants across all clinical disciplines were least knowledgeable about early mobilization being associated with reduced incidence of deep vein thrombosis in critically ill patients. Less than half of the nurses correctly indicated that passive mobilization is insufficient to maintain muscle strength in critically ill patients.

We also noted that level of EM practice is low and that attitude of participants towards EM is poor. More than half of the participants perceive early mobilization as being potentially risky for critically ill patients and less than half had mobilized a patient in the last 3 months. Negative perception seems to influence practice of early mobilization among study participants. About 30% of clinicians who indicated that EM is beneficial would not mobilize a critically ill on a vasopressor, and 15% of them would not mobilize a patient on MV. It is possible that patients on vasopressor or mechanical ventilator are being viewed as physiologically unstable, hence may not benefit from early mobilization or could even be at risk of harm. Non-familiarity with early mobilization guidelines or literature might contribute this misconception.

Though participants were fairly knowledgeable about the benefits of early mobilization, results suggest that the current practice is much lower. While most of the participants agreed that early mobilization is associated with reduced stay on mechanical ventilator, 70% indicated unwillingness to ambulate patients on mechanical ventilator. Participants (70%) indicated lack of confidence to implement EM compared with 60% who reported not having prior experience. Possibility of not having confidence to implement EM irrespective of years of ICU work experience might contribute to this observation.

Most participants agree that passive mobilization is not sufficient to maintain muscle strength and that ICU patients should be mobilized; few have actually mobilized patients in the last three months. Non-familiarity with relevant guidelines and lack of prior experience of EM may influence low practice of EM observed in this study.

A third of the participants had high individual total score of knowledge. Gender, profession, years of ICU clinical experience and confidence to implement EM does not seem to influence individual score. Univariate analysis showed advanced academic training, prior training or experience in EM, willingness to ambulate patients on mechanical ventilation or vasopressor, practice EM in the last 3 months and familiarity with EM literature were positively associated with high level of knowledge. Participants who perceive EM as potentially harmful are less likely to score high on knowledge, suggesting that poor attitude towards EM is associated with poor knowledge. We showed that higher academic qualifications, prior EM experience, EM practice and familiarity with EM literature/guidelines were independently associated with good knowledge about early mobilization in the ICU.

We observed the overall level of knowledge by profession to be highest among Physiotherapists (70%) compared with ICU Physicians (66%) and Nurses (62.5%). We also noted that Physiotherapists (82%) were significantly more likely than physicians (59%) and nurses (66%) to indicate that critically ill patients should be mobilized. This finding was similar to report of Jolly et al. [22] who investigated the knowledge about benefits of EM and attitude of physician, nurses and physiotherapists in a medical intensive care. They reported that overall clinicians had fair knowledge and poor attitude about EM in ICU and that significantly more physiotherapists demonstrated good knowledge (average overall knowledge of PT – 84%) about benefits of EM in the ICU compared with physicians (69%) and nurses (67%).

They also reported a similar finding that physiotherapists and nurses were more likely to indicate that early mobilization is not associated with worsened physiological status and that 60% of their participants correctly indicated that passive range of motion is not sufficient to maintain muscle strength in the ICU. Contrary to their findings that PTs were more likely to agree that EM associated with reduced stay on mechanical ventilator, in this study we found that more ICU physicians were more likely to answer the question correctly. This might be due to the fact that we had more (38%) faculty ICU physicians compared with (13%) their study, as faculties with advanced training are likely to be more knowledgeable.

Very few studies have been published on knowledge of clinicians about early mobilization in resource-limited ICU settings. This study contributes to the growing body of evidence on knowledge, attitude and practice of clinicians about mobilizing ICU patients. We acknowledge that our findings may be limited by recall bias. Also, sample consists of clinicians who volunteered to participate in the study. Hence, there is a possibility of over-estimation as it is likely that those with more experience and consequently more 'comfortable' with early mobilization are more likely to enroll in the study. But since years of experience of participants were similar to that of all eligible participants, we are not sure whether the effect of this selection bias might significantly change the findings of the study. These findings highlight the gap in knowledge about early mobilization in eh ICU in resource-limited settings. It may also inform education/training programmes to improve knowledge as well as organizational culture and attitudinal shift towards making early mobilization a routine practice in the ICU.

## Conclusion

Knowledge about early mobilization in ICU among study participants is fair. Familiarity with and knowledge about guidelines and benefits of early mobilization for critically ill patients varies between different professions. Findings suggest that poor attitude rather than knowledge reflects low practice of early mobilization in this study.

## Competing Interests

The authors declare that they have no competing interests.

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