EVALUATION OF THE LEVEL OF KNOWLEDGE AND APPLICABILITY OF THE PERME SCORE OF MOBILITY IN THE INTENSIVE CARE UNIT AMONG PHYSICAL THERAPISTS WORKING IN THE AREA IN THE STATE OF PERNAMBUCO

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ABSTRACT

INTRODUCTION: Long-term inactivity in bed is closely related to complications that deteriorate the individual's functional capacity. Fortunately, the early mobilization of patients in the intensive care unit (ICU) has been shown to reduce complications associated with critical illness. Among the scales capable of assessing the functional level and mobilization of patients in the ICU, the *Perme Intensive Care Unit Mobility Score* (Perme Score) stands out for being a specific score capable of quantifying the improvement in mobility condition. Therefore, the present study aims to evaluate the level of knowledge and applicability of the Perme Score among physical therapists working in Intensive Care Units in the state of Pernambuco. **METHODS:** This is an exploratory cross-sectional study with a quantitative approach, carried out from March to October 2021, involving physiotherapists active in CREFITO-1 working in ICUs in the state of Pernambuco. Data collection was carried out through an online questionnaire, through the Google Forms tool, with a sample of 60 physiotherapists, of both sexes, working in Intensive Care Units in the state of Pernambuco. **RESULTS:** The sample of the present study was composed of 60 intensive care physiotherapists, among the participants, the female gender was more prevalent (66.7%), the majority of the sample (88.3%) did not have a specialization in intensive care, and worked as an on-call physician (73.3%). Regarding the participants knowing the Perme Score, most reported knowing it (56.7%), however, 22 (64.7%) stated that they did not use it, while 12 (35.3%) answered that they use it. **FINAL CONSIDERATIONS**: Regarding the knowledge and applicability of the Perme Score among physical therapists working in the state of Pernambuco, although most of them were aware of the scale, few reported using it in their professional practice. The results of the research suggest that this is due to the level of knowledge and safety in the application of the Perme Score, in addition to the high demands of ICUs that make professionals opt for less complex solutions.

Keywords: Early ambulation. Intensive Care Units. Physiotherapists.

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INTRODUCTION

Intensive Care Units (ICU) are environments intended for the care of critically ill patients, with the potential risk of death, who need uninterrupted care, thus being inactive at bedtime. Long-term inactivity in bed is closely related to complications that deteriorate the individual's functional capacity, including muscle fiber atrophy, pressure injury (PPL), atelectasis, and bone demineralization (TEIXEIRA et al., 2017; LEITE et al., 2020).

Among the most frequent complications, ICU-Acquired Muscle Weakness (FAUTI), popularly called Immobility Syndrome, stands out, due to prolonged bed rest that can lead to a rapid drop in physical fitness and generalized muscle atrophy, resulting in several metabolic disorders. Over the years, it has been observed that immobility syndrome is related to several losses in the health of critically ill patients, and can directly interfere with their recovery or rehabilitation. Its incidence occurs in 30% to 60% of patients admitted to the ICU. Several factors can contribute to the occurrence of this weakness, including multiple organ failure, prolonged mechanical ventilation, and length of ICU stay (HASHEM; NELLIOT; NEEDHAM, 2016; WOLFE et al., 2018).

Mobility decline is defined as the decrease or loss of the ability to perform daily tasks, such as transfers from bed to bed, and bed, ambulation, among others. Understanding these dysfunctions is of paramount importance for health professionals, due to the possible complications acquired with inactivity and the possibility of performing preventive interventions, such as early mobilization, which aims to mitigate their occurrence on human kinematics systems, especially when referring to patients admitted to the ICU (JESUS et al., 2016).

Fortunately, the early mobilization of patients in ICUs has shown a reduction in complications associated with critical illness. Some studies have associated the practice of early mobilization with a reduction in the duration of mechanical ventilation, and shorter length of stay in the ICU and ward, in addition to promoting functional improvement for survivors of ICU admission (KAWAGUCHI et al., 2016).

However, the practice of early mobilization encounters challenging barriers, both because of the professionals, such as the insufficient number of trained human resources, time for early mobilization in the midst of other conducts in the ICU, and excessive stress at work; as well as limitations arising from the patient's conditions, such as sedation, delirium, risk of musculoskeletal injury, endotracheal tube, accesses, electrodes connected to the individual, and others (FONTANELA, FORGIARINI JR., FRIEDMAN, 2018).

Some scales can be used to qualitatively and quantitatively assess the functional level and mobilization of patients in the ICU, one of which also evaluates the barriers to mobilization under these individuals, such as the Perme Score, other scales that specifically assess the mobility of these patients are: *Physical Function in Intensive care Test scored, Chelsea Critical Care Physical Assessment tool, Surgical intensive care unit Optimal Mobilization Score, ICU Mobility Scale* and *Functional Status Score for the ICU* (KAWAGUCHI et al., 2016).

Among all the functional assessment scales in ICUs, the *Perme Intensive Care Unit Mobility Score* (Perme Score) stands out for being a specific score capable of quantifying the improvement in mobility conditions and standardizing the assessment of patients in intensive care units. The Perme Score is the ideal instrument to assess the mobility situation of inmates and is fundamental for physical therapy in decision-making on appropriate mobilization techniques. (WILCHES LUNA et al., 2021).

The Perme Score is a scale that objectively measures the mobility condition of the patient admitted to the ICU, starting with the ability to respond to commands and culminating with the distance walked in two minutes. This mobility scale has a score ranging from 0 to 32 points, divided into 15 items, grouped into 7 categories: mental status, potential barriers to mobility, functional strength, mobility in bed, transfers, assistive devices for walking, and resistance measures. On this scale, a high score indicates high mobility and less need for assistance, so a low score indicates poor mobility and greater functional dependence (PERME et al., 2014).

Knowing the importance of the reported score and its particularity, making it unique compared to others and the low adherence of it by physical therapists in the area, the present study aims to evaluate the level of knowledge and applicability of the Perme Score among physical therapists working in an intensive care unit in the state of Pernambuco.

METHODOLOGY

This is an exploratory cross-sectional study with a quantitative approach, carried out from March to October 2021, involving physiotherapists active in CREFITO-1 working in ICUs in the state of Pernambuco. The study was approved by the Research Ethics Committee of the Faculty of Communication and Tourism of Olinda under CAAE 47113021.0.0000.0127, with opinion number: 4.863.954. Data collection was carried out through an online questionnaire, through the Google Forms tool, with a sample of 60

physiotherapists, of both sexes, working in Intensive Care Units in the state of Pernambuco.

The recruitment of participants was done through dissemination on social networks: WhatsApp, Instagram, and Facebook. The inclusion criteria were: Intensive Care Physical Therapists; both sexes; professionals duly regularized in CREFITO-1.

The exclusion criteria were: professionals who did not work in the state of Pernambuco; professionals who worked in ICUs only through academic internships; and professionals who did not accept the Informed Consent Form (ICF). After accepting the informed consent, the participants received an online questionnaire developed by the study researchers containing 25 questions (dichotomous and Likert), of which 10 were sociodemographic and 15 questions related to the Perme Score (APPENDIX A).

Soon after the volunteers had completely completed the questionnaire, the data obtained were tabulated through a spreadsheet prepared in Microsoft Excel 2013, which presented the descriptive statistics through frequency distribution and percentage. Next, Pearson's Chi-square test was applied using the Statistical Package For the Social Sciences (SPSS), version 22.0, to compare the results, taking into account the safety level <0.05.

RESULTS

The sample of the present study was composed of 60 intensive care physiotherapists, among the participants, the female gender was more prevalent (66.7%). Most of the professionals (63.3%) graduated from a private institution. Regarding the time since graduation, physical therapists between six and ten years after graduation were prevalent (25%), followed by those who had graduated between one and two years and more than ten years since graduation (23.6%). Regarding the level of education, there is a greater predominance (61.7%) of participants with a latu sensu postgraduate degree. The majority of the sample (88.3%) did not have a specialization in intensive care and worked as an on-call physician (73.3%) (Table 1).

Table 1: Sociodemographic characterization of all sample participants.

Variables	n (%)
Sex	
Fem	40 (66,7%)
Men	20 (33,3%)
Age	
20 to 25 years	15 (21,7%)
26 to 30 years old	19 (31,7%)
31 to 35 years old	18 (30%)
41 to 45 years old	2 (3,3%)
>45 years old	5 (8,3%)
Graduation time	
< 1 year	4 (6,7%)
From 1 to 2 years	14 (23,3%)
From 3 to 5 years old	13 (21,7%)
From 6 to 10 years old	15 (25%)
>10 years	14 (23,3%)
Type of Higher Education Institution where you graduated	
Public	22 (36,7%)
Private	38 (63,3%)
Region of the higher education institution	
Northeast	60 (100%)
Education level	
Graduation	7 (11,7%)
Specialization	7 (11,7%)
Postgraduate (latu sense)	37 (61,7%)
Masters	7 (11,7%)
Doctorate	2 (3,3%)
Time Working in Physiotherapy	
< 1 year	8 (13,3%)
From 1 to 3 years	18 (30%)
From 3 to 5 years old	11 (18,3%)
From 5 to 10 years old	11 (18,3%)
>10 years	12 (20%)
A work network that operates	
Private	8 (13,3%)
SUS	23 (38,3%)
Both	29 (48,3%
Do you have a specialization in intensive care from Assobrafir?	
Yes	7 (11,7%)
No	53 (88,3%)
How do you work?	
On-call	44 (73,3%)
Diarist	6 (10%)
Both	10 (16,7%)

Table source: Direct research (2021).

Regarding the participants knowing the Perme Score, most reported knowing it (56.7%), and of these, 61.8% stated that they had a regular level of knowledge. Regarding the use of the Perme Score in the work environment, among the professionals who know it, 22 (64.7%) stated that they do not use it, while 12 (35.3%) answered that they use it. Among those who did not use it in professional practice, 11 (45.9%) physiotherapists did

not report the reasons, followed by 8 (36.4%) participants who answered that they had insufficient knowledge of how to use it. 26 volunteers stated that they preferred another assessment scale, where 15 of them (57.7) preferred the *ICU Mobility Scale* over the Perme Score (Table 2)

Variables	n (%)
Do you know what Perme Score is?	
Yes	34 (56,7%)
No	26 (43,3%)
What is your level of knowledge about the Perme Score?	
Very High	2 (5,9%)
High	5 (14,7%)
Regular	21 (61,8%)
Low	5 (14,7%)
Very Low	1 (2,9%)
Through which information medium did you find out about Perme Escore?	
Books/Articles	12 (35,3%)
Assobrafir	1 (2,9%)
Lectures/Courses	3 (8,8%)
Academic Environment	13 (38,2%)
Internet	3 (8,8%)
Other	2 (5,9%)
Did you learn about the Perme Score in college?	
Yes	11 (32,4%)
No	23 (67,6%)
Do you use Perme Score in your work environment?	
Yes	12 (35,3%)
No	22 (64,7%)
If you don't use it, what is the possible reason?	
Lack of security	0 (0%)
Insufficient knowledge of how to use	8 (36,4%)
Difficulty in applying the Perme Score	1 (4,5%)
Do not believe they should use the Perme Score	0 (0%)
Prefer to use another scale	2 (9,1%)
Other reasons	11 (50%)
If you prefer, what other scale do you use to assess the patient's mobility barriers in the ICU?	
Functional Status Score for the ICU	3 (11,5%)
Physical Function in Intensive care Test score	0 (0%)
Chelsea Critical Care PhysicalAssessment too	0 (0%)
Surgical Intensive Care Unit OptimalMobilization Score	0 (0%)
ICU Mobility Scale	15 (57,7%)
Other	8 (30,8%)
Why do you prefer this scale over the Perme Score?	
Why I master more than the Perme Score	10 (38,5%)
I find it simpler to apply than the prime score	7 (26,9%)
I think it's more accurate than the prime score	0 (0%)
Other	9 (34,6%)
Do you think it is important to apply scales that assess the barriers to mobilization in the ICU?	
Yes	34 (100%)
No	0 (0%)

Source: Direct research, 2021.

Regarding the professionals who use the Perme Score in their work environment, 5 (4.1%) reported using it sometimes and 66.7% use it for evaluation purposes. Finally, among all those who know the Perme Score, 16 (47%) participants answered that they are prepared to use the resource, while 9 (26.5%) do not feel prepared and another 9 (26.5%) do not know how to say (Table 3).

By applying Pearson's Chi-Square Test, crossing the answers of those who knew the Perme Score with the characteristics of the sample, such as time since graduation, type of higher education institution where they graduated, level of education, areas of specialty, time working in physiotherapy, work network in which they work, work regime and whether they have specialization, no significant difference was presented (p>0.05).

There was also no significant difference when relating the responses of the use/applicability of the Perme Score with the characteristics of the sample mentioned above, as well as the environment in which the scale was met (p>0.05). However, the use of the Perme Score showed a statistically significant difference when crossed with the level of knowledge of the sample (p=0.019) and with the fact that the volunteer felt prepared to use it (p=0.048).

Table 3: Use of the *Perme Intensive Care Unit Mobility Score* (Perme Score) and associated factors.

Variables	n (%)
How often do you use the Perme Escore? – n (%)	
Always	3(25%)
Almost always	3(25%)
Sometimes	5(41,7%)
Rarely	1(8,3%)
What is your level of difficulty in applying the Perme Score? - n(%)	
Very easy	5(14,7%)
Easy	7(20,6%)
Medium	17(50%)
Difficult	3(8,8%)
Very difficult	2(5,9%)
Do you believe that you used the Perme Score correctly?	
Yes	9(75%)
No	1(8,3%)
I can't say	2(16,7%)
For what purpose do you use Perme Score? You can put more than (1) one option.	
Evaluation	8(66,7%)
Evolution	5(41,7%)
Diagnosis	2(16,7%)
Other	1(8,3%)
Do you think that to apply the Perme Score it is necessary to do a training/training beforehand?	
Yes	15(44,1%)
No	9(26,5%)
Perhaps	10(29,4%)

Do you feel prepared to apply the Perme Score in your work environment?	
Yes	16 (47,0%)
No	9 (26,5%)
I can't say	9 (26,5%)

Source: Direct research, 2021.

DISCUSSION

The Perme Score is a tool developed to measure the mobility status of critically ill patients, the validity of this tool is supported by the agreement between experts, its overall reliability is high, making its use acceptable (PERME et al., 2014). In the present study, the level of knowledge of the Perme Score was evaluated among physical therapists working in the state of Pernambuco, observing that most of the sample (56.7%) knows the scale in some way, however, of these, only 12 (35.3%) participants stated that they use it in professional practice, against 22 (64.7%) who do not.

De Almeida, Dias Chiavegato, and Kenji Nawa (2018) promoted a survey with 60 participants, of which only 7 (12%) had already applied the Perme Score previously. In a study carried out in the city of Campina Grande-PB, da Silva, de Souza, and Fernandes (2021), highlighted 36 physiotherapists who use functionality scales in ICUs, where 21 (58.3%) use the *ICU Mobility Score* (IMS), while 6 (16.7%) use the Perme Score and 9 (25%) use other scales. Since a large part of the sample (88.3%) of the present study does not have a specialization in intensive care and works as an on-call physician (73.3%), it is possible to state that low adherence may be interconnected with the fact that many of our professionals evaluated did not have complete specialization, making them unaware of the scale.

The current survey shows that among the 12 participants who apply the Perme Score, almost half (41.7%) use it only sometimes. The study also revealed that among the 34 volunteers who know it, 26 (76.5%) reported a preference for other scales, where of these, the DMI obtained the prevalence with 15 (57.7%) participants, pointing it out as the first choice. Among the participants who prefer the DMI, 5 (33.3%) did not allege the reason, while 5 (33.3%) stated that they had a greater command of the DMI and 5 (33.3%) answered that the application of the DMI is simpler compared to the Perme Score.

The preference for the IMS can be explained by the simplicity and efficiency of the scale, since, according to Hodgson (2014), the IMS consists of a score that varies between 0 and 10 in only one domain, where the score 0 translates into the lowest degree of mobility and 10 represents the highest degree of mobility (unaided ambulation). Kawaguchi

et al (2016) translated and validated the IMS and the Perme Score for Brazil, concluding that both have excellent levels of agreement and reliability among the research evaluators.

Although the SMI is a simple to apply and highly reliable scale, the Perme Score is more complete, being able to score the extrinsic barriers (orotracheal tube, accesses, electrodes, etc.) imposed on patient mobilization. Andrade et al (2019), surveyed 73 patients admitted to the ICU, to analyze the functional level and barriers to mobilization at the time of admission and discharge from intensive care using the Perme Score. The study showed that the patient's level of functionality has a strong correlation with the score of barriers imposed to mobilization, both at the time of admission and at the patient's discharge from the ICU.

In the present study, it was observed that, among the professionals who know the Perme Score, 21 (61.8%) have a regular level of knowledge, 17 (50%) reported a medium level of difficulty with its application, and 16 (47%) feel prepared to apply it. The research showed that the level of knowledge and confidence of the professional to apply the scale had a significant correlation with its use, suggesting that training is an important obstacle to the application of the score.

Da Silva, de Souza, and Fernandes (2021), obtained reports from 27 physiotherapists who pointed out some possible barriers to the application of functionality scales in the ICU, where the patient's clinical status was reported by 21 (81.3%), the lack of team training was cited by 14 (43.8%) participants and 7 (21%) professionals reported the ICU infrastructure where they work as an obstacle.

The barriers to the application of the ICU functionality scales, mentioned above, are very close to the barriers commonly reported regarding early mobilization (PM). Dubb et al (2016) divided these barriers to PM into 4 categories, namely: patient-related barriers (hemodynamic instability, delirium, connected accesses, mechanical ventilation, etc.); structural barriers (lack of human resources, inadequate staff training, lack of protocol, etc.); cultural barriers in the ICU (MP is not a priority, lack of support or adherence from the team, etc.); barriers related to the process (lack of planning and coordination, risks for MP professionals such as stress and injuries, etc.).

When asked about the purpose of using the Perme Score, the participants of the current research could check more than one option, therefore, it was seen that the evaluation was mentioned eight times, followed by evolution and diagnosis with 5 and 2 answers, respectively. Studies suggest that the scale can be used as a powerful

assessment tool. Pereira et al (2018) evaluated the Perme Score as a predictor of functionality in patients undergoing liver transplantation and it was noticed that the Perme Score score was correlated with the duration of mechanical ventilation, length of stay in the ICU, and amount of physical therapy care.

Perme et al (2020), evaluated 250 patients when they were admitted to the ICU, using the Perme Score and the *Medical Research Council Sum Score* (MRC-SS). At the end of the study, it was seen that those patients who performed better on both scales in the initial approach to physiotherapy were more likely to be discharged from the hospital home, while those with lower scores tended to have a worse prognosis such as care after the acute condition or mortality.

CONCLUSION

Regarding the knowledge and applicability of the Perme Score among physical therapists working in the state of Pernambuco, although most of them were aware of the scale, few reported using it in their professional practice. The results of the survey suggest that this is due to the level of knowledge and safety in the application of the Perme Score, in addition to the high demands of ICUs that make professionals opt for less complex solutions.

Further studies with more robust samples throughout the Brazilian territory are necessary to obtain more information on the level of knowledge and use of the Perme Score among physical therapists, since the literature still lacks research for this purpose, in addition to being applied to specific audiences, such as patients in the postoperative period of cardiovascular surgery, since, in most of these individuals, they need some post-approach devices that make mobilization difficult.

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