REVISTA PORTUGUESA DE
ENFERMAGEM DE
REABILITAÇÃO

VOL. 7, Nº 1

Original article reporting clinical or basic research
DOI - 10.33194/rper.2024.363 | Electronic identifier – e363
Submission date: 29-08-2023; Acceptance date: 02-02-2024; Publication date: 05-02-2024

TRADUÇÃO, ADAPTAÇÃO E VALIDAÇÃO PARA A LÍNGUA PORTUGUESA DO INSTRUMENTO *CHELSEA CRÍTICAL CARE PHYSICAL ASSESSMENT*

TRANSLATION, ADAPTATION AND VALIDATION OF THE CHELSEA CRITICAL CARE PHYSICAL ASSESSMENT TOOL INTO PORTUGUESE

TRADUCCIÓN, ADAPTACIÓN Y VALIDACIÓN DEL INSTRUMENTO CHELSEA CRITICAL CARE PHYSICAL ASSESSMENT AL PORTUGUÉS

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How to Cite: Ferreira M de FAP, Pinto M do RP. Tradução, adaptação e validação para a língua portuguesa da escala Chelsea Crítical Care Physical Assessment . Rev Port Enf Reab [Internet]. 5 de Fevereiro de 2024 [citado 25 de Fevereiro de 2024];7(1):e363. Available in: https://rper.aper.pt/index.php/rper/article/view/363

TECHNICAL FILE
eISSN: 2184-3023 pISSN: 2184-965X
www.rper.pt

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www.aper.pt

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The journal's review team can be consulted on https://rper.aper.pt/index.php/rper/revisores

RESUMO

Introdução: As sequelas associadas a internamentos prolongados nas Unidades de Cuidados Intensivos (UCI) têm um impacto negativo sobre a capacidade funcional e a qualidade de vida da pessoa. É crucial a utilização de um instrumento adequado, que permita medir/avaliar as limitações e a evolução da capacidade funcional da pessoa em situação crítica durante o seu internamento.

Objetivos: Traduzir e validar para a língua portuguesa (europeu) o instrumento *Chelsea Critical Care Physical Assessment* (CPAx).

Metodologia: Estudo de tradução, adaptação cultural e análise psicométrica do instrumento CPAx para avaliação da capacidade funcional das pessoas em situação crítica internadas em UCI portuguesas.

Resultados/Discussão: A versão portuguesa do instrumento CPAx, apresentou excelente concordância e confiabilidade para os domínios avaliados (**κ** > 0,8 e **α** >0,9). O instrumento apresenta um Índice de Validade de Conteúdo de 1, fiabilidade interobservadores de 0.821 e uma consistência interna de 0.934.

Conclusão: Considera-se que o instrumento CPAx pelas suas propriedades psicométricas poderá ser adequado para a utilização na prática clínica e na investigação.

Descritores: Reabilitação, Doença Crítica; CPAx; Instrumento de medida; Capacidade funcional.

ABSTRACT

Introduction: The complications associated with long-term hospitalizations in Intensive Care Units (ICU) have a negative impact on the functional capacity and quality of life of critical patients. It is crucial to use an adequate instrument, that allows measuring/assessing the limitations and the evolution of functional capacity in critical patients during their hospitalization.

Objectives: To translate and validate the Chelsea Critical Care Physical Assessment (CPAx) to the European Portuguese language.

Methodology: Translation, cultural adaptation, and psychometric analysis of the CPAx instrument to assess the functional capacity of critical patients in Portuguese ICU.

Results/Discussion: The Portuguese version of the CPAx tool, showed excellent agreement and reliability for the domains evaluated (κ > 0.8 and α >0.9). The instrument has a content validity Index of 1, inter-rater reliability of 0,821 and an internal consistency of 0,934.

Conclusion: The CPAx tool due to its psychometric properties, may be suitable for use in clinical practice and research.

Descriptors: Rehabilitation; Critical illness; CPAx; Measurement instrument; Functional capacity

RESUMEN

Introducción: Las secuelas asociadas a hospitalizaciones prolongadas en Unidades de Cuidados Intensivos (UCI) tienen un impacto negativo en la capacidad funcional y calidad de vida de la persona. Es fundamental utilizar un instrumento adecuado, que permita medir/evaluar las limitaciones y la evolución de la capacidad funcional de la persona en situación crítica durante su hospitalización.

Objetivos: traducir y validar el Chelsea Critical Care Physical Assessment (CPAx) en portugués.

Metodología: Estudio de traducción, adaptación cultural y análisis psicométrico del instrumento CPAx para evaluar la funcionalidad de personas en estado crítico hospitalizadas en UCI portuguesas.

Resultados/ Discusión: La versión portuguesa del CPAx mostró excelente concordancia y confiabilidad para los dominios evaluados (κ > 0,8 y α >0,9). El instrumento tiene un índice de validez de contenido de 1, confiabilidad interevaluadores de 0,821 y consistencia interna de 0,934.

Conclusión: Se considera que el instrumentoCPAx, por sus propiedades psicométricas puede ser adecuado para su uso en la práctica clínica y en la investigación.

Descriptores: Rehabilitación; enfermedad crítica; CPAx; Instrumento de medición; capacidad funcional.

INTRODUCTION

Intensive Care Units (ICU) serve people in complex situations in a highly technological and differentiated environment, in which expertise and high competence are fundamental and decisive for the quality of care, and in which nursing practice requires the application of combinations complexes of knowledge, skills, capabilities, values and attitudes [1]. The Specialist Nurse in Rehabilitation Nursing (SNRN) as a differentiated professional, with decision-making capacity and with mobilization of multiplicities of knowledge, emerges as a central element in the creation, development and application of rehabilitation plans for these patients [2].

The sequelae associated with prolonged ICU stays have a negative impact on the person's functional capacity and quality of life and are related to: neuromuscular and osteoarticular changes (muscle atrophy, contractures, heterotopic ossification), injuries secondary to mechanical ventilation, central deconditioning (cardiopulmonary) and peripheral (neuromuscular) and psycho-emotional changes (delirium, cognitive deterioration, depression,

among others) [3]. Early intervention with a multidimensional rehabilitation program promotes the functional optimization of people in critical situations at the most diverse levels (cognitive, neuromuscular, osteoarticular and respiratory) with a reduction in the sequelae associated with sedation, immobility and mechanical ventilation and, consequently, the periods of ventilatory weaning and hospitalization [4].

In this context, it becomes extremely important to use an appropriate instrument, which allows measuring/evaluating the limitations and evolution of the functional capacity of the person in a critical situation during their hospitalization.

Due to the unavailability of standardized and validated instruments for Portugal, to assess the functionality of the person admitted to intensive care, the need arose to select the instrument that was complete and appropriate to the reality of the Portuguese ICU for subsequent validation and application. In this sense, the Chelsea Critical Care Physical Assessment (CPAx) was chosen because it has well-identified psychometric properties (reliability, reproducibility and validity) [5].

The aim of this study is to translate, to adapt and to validate the Chelsea Critical Care Physical Assessment (CPAx) [5,6] into Portuguese (European) in a Portuguese ICU.

BACKGROUND

The implementation of early mobilization (EM) in people in critical situations has been supported by scientific evidence, an example of which is the ABCDEF Bundle. This implies a more interactive, safe, comfortable participation (pain management) of patients in rehabilitation/mobilization, with a positive impact on physical function, cognitive function, reduction in the duration of delirium, favoring ventilatory weaning and reduction of hospitalization time in UCI [7].

The effectiveness of the EM may be doomed if its basic principle is not the construction of an individualized rehabilitation plan, properly structured and designed by a multidisciplinary team that is duly trained and sensitive to the issue of immobility. Furthermore, the lack of uniformity in the development of protocols and guidelines, the existence of cultural barriers to the practice of early mobilization, the lack of human and material resources and the preparation of multidisciplinary teams were recognized as the main factors impeding implementation. of EM protocols [8, 9]

Currently, scientific evidence is not consensual regarding what constitutes EM in mechanically ventilated patients and the beginning of its implementation. Likewise, it is known that weakness acquired in the ICU (myopathy/polyneuromyopathy of critically ill patients) can begin within the first 48 hours of hospitalization, with immobility being a risk factor [10, 11].

The Clinical practice guidelines for the prevention and management of pain, agitation/sedation, delirium, immobility, and sleep disruption in adult patients in the ICU (PADIS) recommended EM for critically ill patients, but do not offer suggestions on the appropriate timing or regimen [7]. More recent studies recommend that this should occur within the first 48 to 72 hours [12].

The implementation of a progressive, early, safe and dynamic mobilization program must be continuously adapted to the patient's clinical evolution, as well as their ability to tolerate activity/movement and aimed at preventing complications associated with immobility [13, 14]. The program consists of progressive therapeutic activities, in the first phase, in posture and positioning care (source of sensorimotor stimulation and prevention of harmful sequelae associated with immobilization), polysegmental passive mobilization (maintenance of joint mobility), neuromuscular electrostimulation and, of according to the person's tolerance, progressing to active/active resisted mobilization for muscle reactivation and strengthening (maintenance of muscle tissue length), and self-mobilization in bed, transfer training, balance training (static and dynamic: sitting and standing), walking and other activities of daily living [15, 16].

When we analyze the safety of implementing and executing a rehabilitation/mobilization program, the prior assessment of safety criteria (cardiovascular, respiratory, neurological, and other relevant criteria) and monitoring during and after mobilization is crucial in clinical judgment and should a global assessment of the risks and benefits of the procedure must be considered [8, 17]. Studies indicate that adverse events are infrequent, transient and benign (<3%) [18].

Although EM is physiologically logical, safe and some studies demonstrate its benefits, implementing this practice in the ICU is still difficult due to several barriers, including the use of instruments that can measure the limitations and evolution of the physical function of the person in the situation. critical during his hospitalization [6]. Measurements of physical function can identify physical limitations, especially in the areas of: mobility; muscle function and strength; walking and self-care. Of the numerous scales that propose to evaluate the functionality of patients admitted to hospital, only six were developed specifically for ICU and with published psychometric evaluation, translating within their limitations the effects of rehabilitation on the results in people in critical situations (outcome measures) [19].

The CPAx scale has important components for assessing the functionality of people in critical situations, being the only instrument that allows the assessment of respiratory function and handgrip strength (HGS). HGS has already been associated with global peripheral muscle strength (evaluated by the Medical Research Council) and other outcomes such as mortality [5]. The CPAx instrument is composed of ten items related to motor function (graded on the six-point Guttman scale), which progress from complete dependence to independence (0-5). The total score ranges from 0 to 50, where 50 represents complete independence. The psychometric properties of the instrument have already been published and with good results, with internal consistency of α=0.798 and inter-rater reliability of κ=0.988 (among five raters) [6]. It is a numerical and pictorial instrument that evaluates the following categories: respiratory function; cough; movement in bed; sit down; sitting balance; standing balance; stand up; transfer; walking and grip strength. The score is also plotted on a "radar" chart, providing a quick visual impression of the person's functions in a critical situation, highlighting problem areas. HGS is assessed using a manual dynamometer (Baseline/Jamar hydraulic dynamometer) [5].

METHODOLOGY

Study of translation, cultural adaptation and psychometric analysis of the Chelsea Critical Care Physical Assessment (CPAx) instrument into Portuguese (European) to assess the functionality of people in critical situations admitted to Portuguese ICUs, following the Guidelines for the Cross-Cultural Adaptation Process by authors Beaton et al. [20].

Permission to develop this study was requested and granted, electronically, by the authors Corner et al. [5,6], responsible for developing and validating the instrument in the country of origin. Request for assessment to the Health Ethics Committee of a Hospital and University Center having obtained a favorable opinion (Nº 020/CES). Request for authorization from a level III multipurpose UCI, in the central region, for the entire validation process of the CPAx instrument.

As well as, authorization was requested from users/responsible family members admitted to the ICU, to apply the instrument, to whom the objectives of the study were explained, and the anonymity and confidentiality of the data were guaranteed.

According to Beaton et al. [20], the translation and cultural adaptation of the research instrument followed the following steps:

Stage I – translation of the CPAx instrument from the source language (English) to the final language (European Portuguese), by two independent translators, proficient in the English language and whose mother tongue is Portuguese;

Stage II – synthesis of translations carried out by the initial translators by an external observer;

Stage III – carrying out two back-translations by two independent translators (native speakers of English) into the original language of the instrument (English);

Stage IV – meeting of a committee of experts, of a multidisciplinary nature, made up of health professionals with extensive clinical experience in ICU (3 EEER, 2 of which are researchers and the other element is the translator participating in stage II, with command of the English language) and Professors from a Higher School of Nursing with mastery of scientific methodology (a total of 4, 2 of whom are PhD Professors from the Scientific Pedagogical Unit of Rehabilitation Nursing and the other 2 from the Scientific Pedagogical Unit of Medical-Surgical Nursing). The experts evaluated the clarity, relevance, coherence and meanings of the items. With content assessment (semantic, idiomatic, cultural and conceptual agreement) between all items of the instrument in relation to the original. After discussion to reach consensus and resolve discrepancies, the pre-final version of the instrument was generated.

Stage V – At this stage, the translated version of the instrument (pre-final version) was tested after evaluation by the Committee of experts. Each nurse specializing in rehabilitation nursing, previously trained on the instrument, was instructed to fill out a form in which they recorded their understanding of the name of the topics, questions, answer options and suggestions to improve understanding of the instrument.

Stage VI – After the pre-test and the necessary adjustments made, according to the evaluation of the professionals who applied the instrument, the final version of the CPAx was prepared. As well as submission to the expert committee of a document with the systematization of all written reports produced during the process of translation and cultural adaptation for the Portuguese population of CPAx.

To evaluate the psychometric properties of the instrument, the Portuguese (European) version, previously translated and adapted, was used and the population considered were patients admitted to an ICU in the central region. The study sample consisted of 91 patients. The data collection process for validation took place between July 2020 and October 2021. The inclusion criteria were: patients over 18 years old; subjected to mechanical ventilation; hospitalization period of more than 48 hours and Richmond Agitation-Sedation Scale (RASS) between +2 and -2. Exclusion criteria include: hospitalized patients with previous functional deficit; patients whose etiology that led to hospitalization causes a

functional deficit, which does not result from the hospitalization process; hospitalization period of less than 48 hours and pregnant women [6].

The psychometric properties of the CPAx instrument were evaluated according to the following steps: Inter-rater reliability and Internal consistency.

To assess inter-rater reliability, the Kappa coefficient was used. At this stage, rehabilitation specialist nurses with a total of nine members (with previous training on the instrument) evaluated the same group of patients (n=30), using the final version of the CPAx. Each patient was blindly assessed on the same day by 2 nurses. A first assessment was carried out for each patient as soon as the criteria were met, the following at 48-hour intervals and the last assessment on the day of discharge from the SMI.

Internal consistency was obtained by calculating the alpha or Cronbach's alpha coefficient (n=91). The data were processed using the IBM SPSS Statistics program, version 23.0. and Microsoft Excel.

RESULTS

The cultural adaptation of the CPAx scale to Portuguese (European) followed all the steps described by Beaton et al. [20]. For the quantitative analysis of content validation, the CVI (Content Validity Index) was used. This measures the percentage of agreement on certain aspects of the instrument and its items and allows analyzing each item individually and the instrument as a whole. This method uses a Likert scale with a score from one to four: 1 = not relevant or not representative; 2 = item needs major revision to be representative; 3 = item needs minor revision to be representative; 4 = relevant or representative item. The calculation is performed by adding responses 3 and 4 divided by the total responses [21, 22].

For this stage, all versions of the instrument (original, translations and back-translations) were provided to the expert committee to assess clarity, pertinence, coherence and meanings, as well as equivalences (semantic, idiomatic, cultural and conceptual) between all items of the instrument in relation to the original. The value obtained was 1 (100%), since the answers to 71 items evaluated were always "4", except for 16 of the items where there was only one answer of "3". These small disagreements affected semantic and conceptual equivalences.

To assess internal consistency, the instrument was applied to a sample consisting of 91 patients aged between 19 and 88, with the average age being 59.17% and the standard deviation 15.39%. The majority were male with 73.63% (67), with 26.37% (24) female. The most representative admission diagnoses were traumatology (25.2%), respiratory (23.1%) and surgery (21.9%).

To evaluate the internal consistency of the scale, Cronbach's Alpha was used, with the total value obtained being 0.934. The values obtained for each item on the scale, if it were excluded, varied between 0.919 and 0.942. All item-total correlations were positive. The items with the lowest item-total correlation were respiratory function, followed by cough (table 1).

Table 1: Analysis of item consistency

	Corrected item-total correlation	Cronbach alpha if item is deleted
Respiratory Function	0.443	0.942
Cough	0.617	0.933
Movement in bed (e.g. rolling over)	0.792	0.925
Sitting (supine position to sitting position in bed with feet dangling)	0.852	0.922
Sitting balance (e.g. maintaining balance while sitting on the bed with feet dangling/sitting without support)	0.874	0.920
Standing balance	0.900	0.919
Standing (standing from a sitting position, starting position: ≤ 90 degrees of hip flexion)	0.907	0.919
Transfer (transfer from bed to chair)	0.881	0.920

	Corrected item-total correlation	Cronbach alpha if item is deleted
To walk	0.732	0.928
Palmar Grip Strength (FPP)	0.373	0.942
Alfa Cronbach total – 0.934 (10 items)		

Inter-rater reliability was determined by the Kappa coefficient, with a value of 0.821 (table 2).

Table 2: Inter-rater reliability analysis

	Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate significance
Kappa Agreement Measure Respiratory Function	1.000	0.000	10.239	0.000
Kappa Agreement Measure Cough	0.953	0.046	9.466	0.000
Kappa agreement measure Movement in bed	0.951	0.048	8.262	0.000
Kappa Agreement Measure Sitting	0.945	0.054	7.171	0.000
Kappa Agreement Measure Sitting balance	0.842	0.080	8.205	0.000
Kappa Agreement measure Standing balance	1.000	0.000	7.053	0.000
Kappa Agreement Measure Standing up	1.000	0.000	8.210	0.000
Kappa Agreement Measure Moving	0.861	0.087	7.225	0.000
Kappa Agreement Measure Walking	1.000	0.000	7.000	0.000
Kappa Agreement Measure FPP	1.000	0.000	6.150	0.000
Kappa Agreement Measure Total	0.821	0.071	17.359	0.000
Number of valid cases	**30**			

Subtitle:

a. Not assuming the null hypothesis

b. Use of asymptotic standard error considering the null hypothesis.

DISCUSSION

Only the process of translating the instrument is not sufficient for its application in the country, and it is necessary to adapt it to Portuguese culture to obtain equivalence in relation to the language, between the original and translated versions. This process involves a rigorous methodology, and it is more efficient and less complex when it's compared to developing a new tool [20,23].

In the present study, in the evaluation of the CVI, despite showing the maximum level of agreement, 100% and fully complying with literature recommendations, which refer to satisfactory values between 80% and 90% of agreement [22] and preferably, greater than 0.90 [24], in the results where this did not fully occur and where there were responses with a value of "3", a discussion was held so that equivalences could be achieved, with changes in grammatical order and replacement of some terms with synonyms. The CVI achieved in this study was identical to that of the original version, also 1.00 [6] and higher than that achieved in the Brazilian version in which the score was 0.91 [25].

Even after cultural adaptation of the instrument, it cannot be guaranteed that it maintains the psychometric properties of the original instrument, due to the cultural differences that populations present. Therefore, it is essential for the process to evaluate the consistency and validity of the instrument [22,26].

Internal consistency analyzes the degree to which the different items of the instrument are related to each other and measure the same characteristic. Internal consistency is assessed by calculating the alpha coefficient (or Cronbach's alpha). It is considered that the higher the coefficient, the more precise the measurement, values above 0.70 are considered satisfactory and values equal to or greater than 0.80 are considered excellent [22]. The results of this study show a high degree of reliability for the domains evaluated, with $\alpha > 0.9$, higher than the values obtained in the original version $\alpha = 0.798$ [6], in the German version with $\alpha > 0.7$ [27] and similar to the values obtained in the Brazilian version, also with $\alpha > 0.9$ [25]. The different domains presented similar Cronbach's α, the average correlation values between the items were greater than 0.3, which suggests that they measure the same construct, and no significant difference was observed in the instrument's Cronbach's α results if the item was excluded, which reveals that the items are related to each other and measure the same characteristic. Therefore, none of the instrument items were excluded [28].

Inter-examiner reliability consists of verifying the agreement of measurements carried out by different examiners, blindly, on the same group of individuals. When there is a high degree of agreement, it means that measurement errors, which may occur, have been minimized, revealing that the results obtained are accurate and safe [22]. In this study, the CPAx Instrument also showed excellent reliability, with $\kappa > 0.8$. Although these values are slightly lower than those obtained in the original version, with k=0.988 [6] and in the Brazilian version, with $\kappa > 0.9$ [25], they are within what scientific evidence recommends, where good reliability is considered. at values greater than 0.8[22].

A good functional capacity assessment instrument must present a relevant scoring scale, ease of application and interpretation, adequate reliability and validity, clinical utility, practicality and low cost [6, 29,30], characteristics presented by CPAx.

CONCLUSION

With the translation and validation for the Portuguese population of the Chelsea Critical Care Physical Assessment (CPAx), the CPAx instrument is available to the SNRN clinical and scientific community. Considering the impact that hospitalization in intensive care has on the functional capacity of patients and the limited availability of specific instruments for this population in Portugal, the results demonstrate that this is a valid, reliable and highly useful assessment instrument in guiding and monitoring the patient's health. rehabilitation process, namely in supporting decision-making and evaluating outcomes. Due to the scope of the domains assessed, which include respiratory function and HGS, CPAx allows a more detailed characterization of the level of functional capacity that the patient presents.

The instrument revealed good psychometric properties, presenting a Content Validity Index of 1, inter-rater reliability of 0.821 and an internal consistency of 0.934. Therefore, it demonstrates usefulness for application in clinical practice and in subsequent investigations.

However, the study was carried out with a non-probabilistic sample of 91 patients from a level III multipurpose ICU, as such the sample does not meet national representation, which can be considered a methodological weakness and a limitation to the validation of the scale.

In future studies, it is suggested to use a larger and representative sample of the Portuguese population, in order to confirm the psychometric properties of the instrument, allowing the generalization of the results to the entire Portuguese population.

BIBLIOGRAPHIC REFERENCES

1. Amaral AF, Ferreira PL. Adaptation and validation of the clinical nursing expertise survey to the Portuguese nursing population. Escola Anna Nery - Revista de Enfermagem. 2014;18(3). doi:10.5935/1414-8145.20140070

2. Ordem dos Enfermeiros. Guia Orientador de Boa Prática – Reabilitação Respiratória.2018. Lisboa, Portugal: Conselho de Enfermagem e Mesa do Colégio de Enfermagem de Reabilitação. https://www.ordemenfermeiros.pt/media/5441/gobp_reabilita%C3%A7%C3%A3o-respirat%C3%B3ria_mceer_final-para-divulga%C3%A7%C3%A3o-site.pdf

3. Doiron KA, Hoffmann TC, Beller EM. Early intervention (mobilization or active exercise) for critically ill adults in the intensive care unit. Cochrane Database Syst Rev. 2018; 27(3):CD010754. pmid:29582429

4. Marra, Annachiara, et al. "The ABCDEF Bundle in Critical Care." *Critical Care Clinics*, vol. 33, no. 2, Apr. 2017, pp. 225–243, www.ncbi.nlm.nih.gov/pmc/articles/PMC5351776/, https://doi.org/10.1016/j.ccc.2016.12.005.

5. Corner, Evelyn J, et al. "Construct Validity of the Chelsea Critical Care Physical Assessment Tool: An Observational Study of Recovery from Critical Illness." *Critical Care*, vol. 18, no. 2, 2014, p. R55, https://doi.org/10.1186/cc13801.

6. Corner, E., Wood, H., Englebretsen, C., Thomas, A., Grant, R., Nikoletou, D., & Soni, N. (2013). The Chelsea Critical Care Physical Assessment Tool (CPAx): validation of an innovative new tool to measure physical morbidity in the general adult critical care population; an observational proof-of-concept pilot study. *Physiotherapy*, vol. *99*, no.1 Mar. 2013, pp. 33-41, https://doi.org/10.1016/j.physio.2012.01.003

7. Devlin, John W., et al. "Clinical Practice Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU." *Critical Care Medicine*, vol. 46, no. 9, Sept. 2018, pp. 825–873, journals.lww.com/ccmjournal/pages/articleviewer.aspx?year=2018&issue=09000&article=00029&type=Fulltext, https://doi.org/10.1097/ccm.0000000000003299.

8. Nydahl, Peter, et al. "Safety of Patient Mobilization and Rehabilitation in the Intensive Care Unit. Systematic Review with Meta-Analysis." *Annals of the American Thoracic Society*, vol. 14, no. 5, May 2017, pp. 766–777, https://doi.org/10.1513/annalsats.201611-843sr.

9. Lang JK, Paykel MS, Haines KJ, Hodgson CL. Clinical practice guidelines for early mobilization in the ICU: A systematic review. Critical Care Medicine. 2020;48(11). doi:10.1097/ccm.0000000000004574

10. Cameron S, Ball I, Cepinskas G, Choong K, Doherty TJ, Ellis CG, et al. Early mobilization in the Critical Care Unit: A review of Adult and pediatric literature. Journal of Critical Care. 2015;30(4):664–72. doi:10.1016/j.jcrc.2015.03.032

11. Clarissa C, Salisbury L, Rodgers S, Kean S. Early mobilisation in mechanically ventilated patients: A systematic integrative review of definitions and activities. Journal of Intensive Care. 2019;7(1). doi:10.1186/s40560-018-0355-z

12. Ding N, Zhang Z, Zhang C, Yao L, Yang L, Jiang B, et al. What is the optimum time for initiation of early mobilization in mechanically ventilated patients? A network meta-analysis. PLOS ONE. 2019;14(10). doi:10.1371/journal.pone.0223151

13. Hodgson CL, Stiller K, Needham DM, Tipping CJ, Harrold M, Baldwin CE, et al. Expert consensus and recommendations on safety criteria for active mobilization of mechanically ventilated critically ill adults. Critical Care. 2014;18(6). doi:10.1186/s13054-014-0658-y

14.Aquim EE, Bernardo WM, Buzzini RF, Azeredo NS, Cunha LS, Damasceno MC, et al. Brazilian guidelines for early mobilization in Intensive Care Unit. Revista Brasileira de Terapia Intensiva. 2019;31(4). doi:10.5935/0103-507x.20190084

15. Gosselink R, Bott J, Johnson M, Dean E, Nava S, Norrenberg M, et al. Physiotherapy for adult patients with critical illness: Recommendations of the European Respiratory Society and european society of intensive care medicine task force on physiotherapy for critically ill patients. Intensive Care Medicine. 2008;34(7):1188–99. doi:10.1007/s00134-008-1026-7

16. Zhang L, Hu W, Cai Z, Liu J, Wu J, et al. (2019) Early mobilization of critically ill patients in the intensive care unit: A systematic review and meta-analysis. PLOS ONE 14(10): e0223185. https://doi.org/10.1371/journal.pone.0223185

17. Hodgson CL, Capell E, Tipping CJ. Early mobilization of patients in Intensive Care: Organization, communication and safety factors that influence translation into clinical practice. Critical Care. 2018;22(1). doi:10.1186/s13054-018-1998-9

18. Yang R, Zheng Q, Zuo D, Zhang C, Gan X. Safety assessment criteria for early active mobilization in mechanically ventilated ICU subjects. Respiratory Care. 2020;66(2):307–15. doi:10.4187/respcare.07888

19. Denehy, Linda, et al. "A Physical Function Test for Use in the Intensive Care Unit: Validity, Responsiveness, and Predictive Utility of the Physical Function ICU Test (Scored)." *Physical Therapy*, vol. 93, no. 12, 1 Dec. 2013, pp. 1636–1645, academic.oup.com/ptj/article/93/12/1636/2735343, https://doi.org/10.2522/ptj.20120310.

20. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. Spine. 2000;25(24):3186–91. doi:10.1097/00007632-200012150-00014

21. DeVon HA, Block ME, Moyle-Wright P, Ernst DM, Hayden SJ, Lazzara DJ, et al. A Psychometric Toolbox for testing validity and Reliability. Journal of Nursing Scholarship. 2007;39(2):155–64. doi:10.1111/j.1547-5069.2007.00161.x

22. Polit DF, Beck CT. The content validity index: are you sure you know what's being reported? Critique and recomendationas. *Res Nurs Health* 2006; 29:489-497

23. Maher C, Latimer J, Costa L. The relevance of cross-cultural adaptation and Clinimetrics for physical therapy instruments. Revista Brasileira de Fisioterapia.2007;11(4). doi:10.1590/s1413-35552007000400002

24. Yusoff MS. ABC of content validation and content validity index calculation. Education in Medicine Journal. 2019;11(2):49–54. doi:10.21315/eimj2019.11.2.6

25. Faria, Luiza. Adaptação Transcultural e Validação do Instrumento *Chelsea Critical Care Physical Assessment* (CPAx) para língua portuguesa. 2018. Universidade Federal de Santa Catarina Centro de Ciências da Saúde Programa de Pós-Graduação em Enfermagem

26. Streiner D. Clinimetrics vs. Psychometrics: An unnecessary distinction. Journal of Clinical Epidemiology. 2003;56(12):1142–5. doi:10.1016/j.jclinepi.2003.08.011

27. Eggmann S, Verra ML, Stefanicki V, Kindler A, Seyler D, Hilfiker R, et al. German version of the Chelsea Critical Care Physical Assessment Tool (cpax-GE): Translation, cross-cultural adaptation, validity, and Reliability. Disability and Rehabilitation. 2021;44(16):4509–18. doi:10.1080/09638288.2021.1909152

28. Souza AC, Alexandre NM, Guirardello E de, Souza AC, Alexandre NM, Guirardello E de. Propriedades Psicométricas na Avaliação de instrumentos: Avaliação da Confiabilidade e da Validade. Epidemiologia e Serviços de Saúde. 2017;26(3):649–59. doi:10.5123/s1679-49742017000300022

29. Christakou, A., Papadopoulos, E., Patsaki, E., Sidiras, G., Nanas, S.N. Functional Assessment Scales in a general intensive care unit. A review. *Hospital Chronicles., 2013, vol. 8*, no. 4, pp. 164-70.

30. Needham, Dale M., et al. "Core Outcome Measures for Clinical Research in Acute Respiratory Failure Survivors. An International Modified Delphi Consensus Study." *American Journal of Respiratory and Critical Care Medicine*, vol. 196, no. 9, Nov. 2017, pp. 1122–1130, https://doi.org/10.1164/rccm.201702-0372oc.

ETHICAL DISCLOSURES

Contribution of the author(s):

Conceptualization: MFAPF; MRPP

Data treatment: MFAPF; MRPP

Formal analysis: MRPP

Investigation: MFAPF; MRPP

Methodology: MFAPF; MRPP

Project administration: MFAPF; MRPP

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Supervision: MFAPF; MRPP

Validation: MFAPF; MRPP

Visualization: MFAPF; MRPP

Original draft writing: MFAPF; MRPP

Writing - review and editing: MFAPF; MRPP

All authors read and agreed to the published version of the manuscript.

Financing:

This work did not receive any financial contribution or grant

Ethics Committee:

Study authorized by the CHUC Ethics Committee, document No. 020/CES

Declaration of informed consent:

Written informed consent to publish this work was obtained from participants

Interest conflicts:

The authors declare no conflict of interest.

Provenance and peer review:

It's not commissioned; externally peer reviewed.