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Risk of pressure injury in the ICU: transcultural adaptation and reliability of EVARUCI

Risco de lesão por pressão em UTI: adaptação transcultural e confiabilidade da EVARUCI

Riesgo de lesión por presión en UTI: adaptación transcultural y confiabilidad de la EVARUCI

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Keywords
Translating; Validation studies; Reproducibility of results; Pressure ulcer; Risk assessment; Intensive care unit

Descritores
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Descriptores
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Abstract
Objective: Perform a transcultural adaptation of the current risk assessment scale for pressure injuries in intensive care (*Escala de Valoración Actual del riesgo de desarrollar Úlceras por presión en Cuidados Intensivos* – EVARUCI) to Brazilian Portuguese and analyze its reliability among intensive care unit (ICU) patients.
Methods: Methodological study for transcultural adaptation and reliability analysis of the EVARUCI. Internal consistency was verified using Cronbach's alpha coefficient. Inter-rater agreement was verified using the simultaneous application of the final version of the EVARUCI by 3 nurses and analyzed by the intraclass correlation coefficient (ICC).
Results: In the translation and back-translation processes, disagreements were related to the use of synonyms and writing style. In the evaluation of the expert committee, the terms 'conscious,' 'supine decubitus,' and 'shift' did not reach a 90.0% agreement. The internal consistency of the EVARUCI was acceptable (α=0.782). Inter-rater agreement was excellent (ICC=0.980).
Conclusion: The transcultural adaptation of the EVARUCI to Brazilian Portuguese was satisfactory in terms of internal consistency and inter-rater agreement, indicating that it is a specific instrument for ICUs that can be easily and quickly used in the evaluation of risk for pressure injuries in critically ill patients.

Resumo
Objetivo: Realizar a adaptação transcultural da *Escala de Valoración Actual del riesgo de desarrollar Úlceras por presión en Cuidados Intensivos* (EVARUCI) para a língua portuguesa do Brasil e analisar sua confiabilidade em pacientes de Unidade de Terapia Intensiva (UTI).
Métodos: Pesquisa metodológica para adaptação transcultural e análise da confiabilidade da EVARUCI. A consistência interna foi verificada utilizando-se o Coeficiente Alfa de Cronbach. A concordância interobservadores foi verificada pela aplicação simultânea da versão final da EVARUCI por 3 enfermeiros e analisada pelo Coeficiente de Correlação Intraclasse (CCI).
Resultados: Na tradução e retrotradução, as discordâncias relacionaram-se ao uso de sinônimos e estilo de redação. Na avaliação do comitê de especialistas os termos, consciente, decúbito supino e turno não alcançaram a concordância de 90,0%. A consistência interna da EVARUCI mostrou-se aceitável (α=0,782). A concordância interobservadores foi excelente entre os avaliadores (CCI=0,980).
Conclusão: A adaptação transcultural da EVARUCI para o português do Brasil foi satisfatória quanto à consistência interna e à concordância interobservadores, indicando ser um instrumento específico para UTI, de fácil e rápida aplicação para avaliação de risco para lesão por pressão em pacientes críticos.

Resumen
Objetivo: Realizar la adaptación transcultural de la Escala de Valoración Actual del Riesgo de Desarrollar Úlceras por Presión en Cuidados Intensivos (EVARUCI) al portugués brasileño y analizar su confiabilidad en pacientes de Unidad de Terapia Intensiva (UTI).
Métodos: Investigación metodológica para adaptación transcultural y análisis de confiabilidad de la EVARUCI. Consistencia interna verificada utilizando el Coeficiente Alfa de Cronbach. Concordancia interobservadores verificada por aplicación simultánea de versión final de la EVARUCI por 3 enfermeros, y analizada por Coeficiente de Correlación Intraclase (CCI).
Resultados: En la traducción y retrotraducción, las discordancias se relacionaron al uso de sinónimos y estilo de redacción. En la evaluación del comité de especialistas, los términos: consciente, decúbito supino y turno no alcanzaron la concordancia de 90,0%. La consistencia interna de la EVARUCI se mostró aceptable (=0,782). La concordancia interobservadores fue excelente entre los evaluadores (CCI=0,980).
Conclusión: La adaptación transcultural de la EVARUCI al portugués brasileño fue satisfactoria respecto de consistencia interna y concordancia interobservadores, indicando ser un instrumento específico para UTI, de fácil y rápida aplicación para evaluación de riesgo de lesión por presión en pacientes críticos.

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Introduction

The incidence of pressure injuries in intensive care unit (ICU) patients is variable among different hospitals, since the development of pressure injuries depends on the characteristics and clinical conditions of every patient, associated with the characteristics of the unit itself; therefore, it is a multifactorial issue.[1]

Critically ill patients, due to their hemodynamic and/or respiratory instability, are sedated, in mechanical ventilation or taking vasopressor agents. Such clinical therapies predispose patients to the development of pressure injuries as they increase dependence for bed mobilization and, in the case of vasopressors, reduce peripheral perfusion, favoring the onset of ischemic tissue injury.[2]

Considering the environmental, psychobiological and therapeutic limitations of patients in ICUs, it is very important to evaluate the risk for the development of pressure injuries, seeking early detection of patients at potential risk for this type of injury. After risk detection, specific prevention measures and targeted nursing interventions should be implemented.

Clinical judgment of nurses, based on scientific knowledge and clinical experience, combined with instruments to objectively measure the risk of pressure injuries, can make the evaluation process more effective and efficient.[3]

Several scales have been developed to assess the risk of pressure injury, most of them resulting from the consensus of experts or adaptations of existing instruments. However, some of these instruments do not present the weights attributed to risk factors, and sometimes the statistical techniques that are adequate for validation were not declared by the developers.[4]

Over the years, scales such as Norton, Waterlow and Braden have been evaluated separately, in pairs and all together,[5,6] but they have not shown to be the most appropriate for critically ill patients.[6,7] ICU patients are exposed to certain specific risk factors[2,8] and, when applying the generic scales, almost all patients present a risk for pressure injury, demonstrating therefore that these instruments have low specificity and questionable clinical application to these patients.[6,9-13] Thus, the development of a specific instrument that can measure the risk of critically ill patients for pressure injury has been discussed.

In 2001, a group of experts in pressure injury in ICUs and burn patients of the University Hospital of Getafe in Spain proposed a risk assessment scale for pressure injuries in intensive care the *Escala de Valoración Actual del Riesgo de desarrollar Úlceras por presión en Cuidados Intensivos* (EVARUCI). For this development, they considered the knowledge of the most frequent risk factors to which critically ill patients are exposed[8] and the opinion of health professionals about the most frequent risk factors in ICU patients.[14] This scale obtained better results regarding the sensitivity and specificity for critically ill patients when compared to the most used scales in Brazil.[10]

Considering the above, the objective of this study was to perform a transcultural adaptation of the EVARUCI to Brazilian Portuguese and analyze its internal consistency and inter-rater agreement in ICU patients.

Methods

A methodological study that provides a transcultural adaptation of the EVARUCI to evaluate the risk of pressure injury in ICU patients. This study project was approved by the Research Ethics Committee of the Universidade Federal de São Paulo (CAAE 36679514.2.0000.5505). The authorization for translation and adaptation of the EVARUCI into Brazilian Portuguese was granted by the author of the instrument, and all study participants signed an informed consent form.

Data were collected in two general ICUs and a neurological ICU of the University Hospital of Unifesp, located in São Paulo, Brazil. The three ICUs had 35 beds for adult clinical and surgical patients.

EVARUCI is an instrument that evaluates the risk of pressure injury in adult patients in intensive care units. The scale has four items: consciousness, hemodynamics, respiratory status, and mobility,

and their scores range from 1 to 4, with one point added if axillary temperature > 38° C, oxygen saturation <90%, systolic blood pressure <100 mmHg, presence of skin maceration, moisture, edema, cyanosis and/or prone position. The length of ICU stay is also considered, with a 0.5 added to the total score for every week the patient is in the ICU, up to two points. The final score ranges from 4 to 23 points, with low scores indicating lower risk and higher scores, greater risk for pressure injury. The scale has use guidelines, which detail the scoring criteria for each item.[14]

The transcultural adaptation was performed considering the stages of translation, synthesis, back translation, review by a committee of judges, and pretest.[15] The translation was performed by two Brazilian women with fluency in the Spanish language, one was not from the health sector. The original and translated versions were compared and analyzed concomitantly by translators and researchers who reached a consensus on the translated version (TV).

The TV was submitted to two native speakers of Castilian-speaking countries living in Brazil for back translation. After a consensus, the back-translated version (BTV) was sent to the author of the original scale, who checked the coherence of the version and expressed his opinion on the items.

To consolidate the TV, the equivalence of the translated scale in relation to the original scale was analyzed, and a committee of five nurses (judges) was created: two nurses with experience in intensive care, one with experience in intensive care and transcultural adaptation process, one stoma care nurse, and one nurse with experience in transcultural adaptation processes.

The committee members considered the following equivalences: semantic (grammar and vocabulary), idiomatic (colloquial expressions), cultural (coherence between the cultural context where the instrument is to be applied and the culture of the place of origin), and conceptual (words/expressions that may have different meanings, depending on the language and culture where they are inserted). The process consists of the validation of content that indicates required adaptations of the instrument and whether the content represents the concept.[15]

After the transcultural adaptation process, the reliability of the EVARUCI scale in Brazilian Portuguese was analyzed, considering the internal consistency and inter-rater agreement evaluation. To analyze the internal consistency of the EVARUCI in Brazilian Portuguese, a prospective data collection was conducted. For this purpose, the sample size was calculated considering a score 10 of the original EVARUCI as the risk cutoff point for pressure injury,[10] 80% of test power, 95% confidence interval and standard deviation of 2.58 (from the cutoff point), with a difference of at least 3 points plus or minus on the scale. In addition, based on the 15% incidence of pressure injury in the service, the calculation indicated that at least 12 patients with pressure injury were required, with a sampling of 80 patients. To ensure greater power of the sample, the investigators decided to evaluate a greater number of patients, performing data collection in the period of six months.

The inclusion criteria were: age ≥18 years and no pressure injury at ICU admission. An informed consent form was signed by the patients who accepted to participate in the study and, when not possible, the signature was obtained from those responsible for them or their guardians. Patients diagnosed with brain death at ICU admission were not included.

The analysis of internal consistency of all EVARUCI items used the scores from the first evaluation of the patients, that is, the analysis conducted in the first 24 hours after admission, believing that it is an important score in the evaluation of the risk for pressure injury for the implementation of preventive measures.

The analysis of inter-rater agreement was conducted with data from 30 patients based on the adopted reference.[15] In this stage, the final version of the EVARUCI was applied simultaneously and independently, without communication among the three nurses. The participant selection criterion was at least one year of ICU work. The time of EVARUCI application by the nurses was also measured.

Data were inserted into a Microsoft Excel 2003 spreadsheet and analyzed using the Statistical Package for the Social Sciences (SPSS), version 20.0.

To analyze the degree of agreement among the judges, the agreement rate was calculated by dividing the total number of concordants by the total number of participants multiplied by 100. The agreement rate considered acceptable was 90.0%.[16] Cronbach's alpha coefficient was used to verify the internal consistency of the EVARUCI, considering >0.90 as an excellent value, 0.80 to 0.89 as good, 0.70 to 0.79 as acceptable, 0.60 to 0.69 as questionable, 0.50 to 0.59 as insufficient, and <0.5 as unacceptable values.[17] The inter-rater agreement analysis used the intraclass correlation coefficient (ICC), which ranged from 0 to 1, with 0 indicating no agreement, insufficient agreement from 0.1 to 0.19, reasonable agreement from 0.2 to 0.39, moderate agreement from 0.4 to 0.59, substantial agreement from 0.6 to 0.79, and excellent agreement from 0.8 to 1; p values of <0.05 were considered statistically significant.

Results

The results were described according to the stages proposed for a transcultural adaptation and reliability analysis.

In the two EVARUCI translations into Brazilian Portuguese, from the total 107 items, 12 presented disagreement among the translators. The differences were considered as minimal, observing the use of synonyms and different writing styles that did not change the text meaning; for example the phrase: *Dependente pero móvil*, was translated as *Dependente porém móvel* (Dependent, but mobile) by one translator and as *Dependente mas se movimenta* (Dependent, but moving) by the other translator; after the consensus, the second phrase was used.

The versions presented by back translators had 5 discordant words, but also with similar meanings. The TV and BTV were sent to the scale author, who agreed with the versions and sent suggestions for a better understanding of the meaning of words of patient conditions.

In the analysis of the judges, two items had an agreement rate below 90%, and these items belong to the scale use guidelines. In one of the items, the word 'conscious' was replaced with 'alert,' because the same word was used in the explanation of the term definition. In the second item, the acronym DS (*decúbito supino* - supine decubitus) was changed to HDD (*decúbito dorsal horizontal* - horizontal dorsal decubitus) and the word *turno* was changed to *plantão* (both "shift", in English), which implied the change of all items that contained these terms. To standardize the tense of the sentences in the scale use guidelines, the judges suggested the use of infinitive, since these are instructions for use.

After the transcultural adaptation of the EVARUCI, the Portuguese name of this instrument was defined as *Escala de Avaliação do Risco de desenvolvimento de Lesão por Pressão em Cuidados Intensivos*, but in order to keep the scale originality, the acronym EVARUCI remained in Spanish.

Charts 1 and 2 show the final version of the EVARUCI and the guidelines for the Portuguese scale use.

An internal consistency analysis was conducted in a sample of 324 patients, mean age 58 years (min=18, max=95, median=60, SD=19.25), 50.6% of male patients and 53.7% surgical patients. The

Chart 1. Final version of current risk assessment scale for pressure injuries in intensive care (EVARUCI) translated and adapted into Brazilian Portuguese

Score	Consciousness	Hemodynamic status	Respiratory status	Mobility	Other
1	Conscious	No support	Low demand for O2	Independent	1- Temperature ≥38° C
2	Collaborative	With expansion	High demand for O2	Dependent, but moving	1- O2 saturation < 90%
3	Reactive	With dopamine or dobutamine	With respiratory support	Poor mobility	1- Systolic blood pressure < 100 mmHg
4	Unreactive	With adrenalin or noradrenalin	With invasive mechanical ventilation	No mobility	1- Skin condition
Add 0.5 to total score for every week in the ICU, up to 2 points.					1- Patient in prone position
Minimum score of the scale: 4 points (minimum risk)					
Maximum score of the scale: 23 points (maximum risk)					

Chart 2. Guidelines for the correct use of the EVARUCI

Evaluation of consciousness level
Conscious When a patient is alert and aware of space. A patient is conscious when: - He/she can say his/her name and last name. - He/she can say his/her age (±2 years) or birth date (month and year). A patient is aware of space when: - He/she knows he/she is in the hospital. - He/she knows the current month. If the patient does not clearly meet these four requirements, he/she cannot be considered conscious. If the patient is intubated and/or cannot speak or write, go to the next item.
Collaborative A patient will be considered collaborative if he/she fulfills at least two simple orders of the following type: - Open and close eyes. - Hold and release the hand. - Move the head or extremities. If the professional is not sure the patient's movements are a response to the request (check the patient's auditory perception), go to the next item.
Reactive A patient is reactive when his/her response to a painful stimulus is: localizes pain, removes pain, flexion or extension. If the flexion or extension is very tenuous and dubious, go to the next item.
Unreactive Patients whose response to pain is very dubious and mild or nonexistent. This item also includes patients who perform decerebration or decortication movements.
Evaluation of hemodynamic status
No support Patients without infusion of vasoactive drugs, without expansion with serum or red cells (not including platelets and plasma) 6 hours before the evaluation. Vasoactive drugs are: dopamine, dobutamine, adrenaline, and noradrenaline.
With expansion Patients without infusion of vasoactive drugs, but with expansion with serum or red cells 6 hours before the evaluation.
With infusion of dopamine and dobutamine Patients who, regardless of receiving serum or red blood cells, maintain dose-independent dopamine or dobutamine intravenous infusion.
With infusion of adrenaline and noradrenaline Patients who, at the time of evaluation, maintain dose-independent adrenaline or norepinephrine infusion.
Evaluation of respiratory status
Low demand for oxygen Patients who remain with spontaneous breathing, extubated, without tracheostomy and in ambient air or with a nasal catheter.
High demand for oxygen Include in this section patients who: - are extubated, with an oxygen mask, with reservoir or venturi. - are intubated (oral or nasal) or has been submitted to tracheostomy using heat and moisture exchanger (filter), T-tube or any other type of simple oxygen support.
With respiratory support Patients who: - are intubated or have been submitted to tracheostomy and require CPAP (continuous positive airway pressure), pressure support (PS) or any other system that does not eliminate full effort of the patient. - are not intubated, but are submitted to any type of non-invasive ventilation.
With mechanical ventilation Patients who require any type of mechanical ventilation that fully replaces their respiratory function: CMV (controlled mandatory ventilation), VCPLV (volume-controlled, pressure-limited ventilation), PCV (pressure-controlled ventilation), IPPV (intermittent positive pressure ventilation), A/C (assisted/controlled), etc.
Mobility
Independent Patients who are able to move by themselves, adopting the desired position in bed.
Dependent, but moving Patients who: - cannot move alone, but tolerate all 3 positions (HDD, RLD, LLD). Consider at least the shift before the assessment. - can be placed in an armchair, even if no decubitus changes are made or the patient is unable to perform them alone. The assessment shift or the shift before should be considered.

Continue...

Continuation.

Poor mobility Patients who: - did not tolerate changes from decubitus in the previous shift, or who cannot be placed in all positions (due to atelectasis, fractures, etc.). - are changed from decubitus, even if returning to the previous position, and to the position of horizontal dorsal decubitus.
No mobility Patients who do not tolerate change from decubitus, or who have not been changed in the previous shift.
Other
Temperature Add one point to patients who have an axillary temperature of 38º C or higher.
Oxygen saturation Add one point to patients with capillary oxygen saturation below 90% at any moment during the evaluation.
Blood pressure Add one point to patients with systolic blood pressure below 100 mmHg during the evaluation. It can be an isolated measurement while monitoring non-invasive pressure. In case of continuous monitoring, consider recording low pressure during the evaluation.
Skin condition Add one point if the patient clearly presents any of the following skin alterations: - general edema (fovea sign, positive Godet or Cacifo sign in hands and feet). - peripheral and/or central cyanosis (evidence in the fingers and toes, lips or extremities). - very dehydrated or very delicate skin. - excessive skin moisture or maceration. - diarrhea (liquid and abundant evacuation, with more than 500 ml in the previous shift).
Patient in prone position Add one point if patient is in prone position at the time of evaluation.
F. Add in item "Other" 0.5 point to total score for every full week the patient spent in the ICU*. Max. 2 points.

*ICU – intensive care unit

incidence of pressure injury was 14.2% and the ICU discharge percentage was 85.8%.

In the analysis of the EVARUCI internal consistency, the following Cronbach's alpha values were observed: consciousness 0.668; hemodynamic status 0.751; respiratory status 0.686; mobility 0.768; and other 0.801. The items consciousness and respiratory status presented questionable values. The values indicate that when one item is withdrawn, it is not the only one responsible for the total score, the others also contribute to the final value. The total consistency reached the alpha value of 0.782, considered acceptable.

The inter-rater agreement of the EVARUCI was verified through its application by three nurses in a sample of 30 patients. Of the total, 53.3% were women, mean age 59.7 years (min=37, max=85, median=61.5, SD=14.18), 56.6% were clinical patients. The EVARUCI mean of raters 1, 2 and 3 were respectively 7.2, 7.0 and 7.1. Although rater 2 presented a lower mean than raters 1 and 3, there was an excellent correlation among them (ICC=0.980). The items related to variability were consciousness and mobility. The mean time of the

EVARUCI application of rater 1 was 4.5 minutes; rater 2, 3.6 minutes, and rater 3, 4.4 minutes.

Discussion

This study presented positive results for the application of the EVARUCI in Brazilian ICUs, considering it is a specific instrument with stability of internal consistency and easy application that will support the evaluation of risk for pressure injury and the consequent early implementation of preventive measures in critically ill patients.

In the translation process, few differences were found in the translated terms, and the divergences between the two translators, observed in 12 items, did not compromise the meaning of the text, as synonyms and different writing styles were used. In the back translation, it should be noted that the translators were native from South America (Argentina and Bolivia), which explains the differences in some terms used, which were understood and later confirmed in Castilian by the author.

In the committee of judges, the definition of conscious did not reach 90% agreement in the semantic equivalence, because its explanation should not contain the word itself, but synonyms that explain this condition, then 'conscious' was replaced with 'alert.' Cultural equivalence was not observed in the item that contained acronym DS and the word 'shift.' Considering that in Brazil, horizontal dorsal decubitus (HDD) is used instead of supine decubitus, and usually *plantão* is used in the place of *turno* (shift), these modifications were made after discussion and consensus among the committee members.

It is important to note that due to the similarity between the Brazilian and the Spanish languages, few differences were observed during the translation process of the scale and use guidelines.

The internal consistency analysis of the EVARUCI, checked with Cronbach's alpha coefficient, presented questionable values in two domains, consciousness (0.668) and respiratory status (0.685). However, the removal of these items would not produce a significant positive variation in the total coefficient.

The item consciousness presents sensory alterations that result in patient immobility in bed. ICU patients, according to their clinical condition, may be sedated for mechanical ventilation maintenance, intracranial hypertension control, invasive procedures, and even for pain or dangerous agitation (delirium) control; situations that result in reduced sensory perception and, consequently, reduced ability to relieve pressure on bony prominences.[1,2] Another fact to be considered is that patients with confusion are mostly restricted, and even when placed on redistribution surfaces, they usually end up assuming the dorsal position.

The item respiratory status considers the different ventilation types that are adequate to fulfill the clinical needs of patients. Respiratory failure, whether primary or secondary, is common in ICUs and often requires invasive ventilation. In addition to the sedation associated with mechanical ventilation already mentioned, hypoxemic patients present an important deficit in tissue oxygenation, which, among other harmful effects, favors the onset of ischemic injuries such as pressure injuries.[8] Thus, considering the relevance of the items consciousness and respiratory status as risk factors already studied and that are directly related to the development of pressure injury, the investigators decided to keep them in the scale.[1,2]

Regarding the Cronbach's alpha value of the total scale, the result obtained was classified as acceptable (0.782), indicating good stability of the EVARUCI. Studies performed with the EVARUCI did not verify its internal consistency through this coefficient, so it was not possible to compare the results obtained in this study.[10,18]

Inter-rater agreement is an important step during the adaptation process because the translated instrument is expected to present the same result when applied by different professionals. In this study, EVARUCI was applied simultaneously by three nurses, observing an excellent correlation among the evaluations. The agreement among the raters indicated a good understanding of the instrument, as a result of the appropriate transcultural adaptation of the scale and the detailed description of its use guidelines. This result is similar to the

EVARUCI reliability study, which presented ICC = 0.976 when applied by seven raters simultaneously in 33 patients, with a mean time of application was 3.52 minutes.[19]

A small difference was found in the scores of consciousness and mobility of rater 2 in this study, whose values were lower than those of raters 1 and 3 for the same items, but with no statistically significant difference. This fact can be explained by the shorter scale application time of rater 2 when compared to the others, and also because this rater has a shorter time of professional experience when compared with the other two raters. However, due to the detailed description of the scale application rules, no difference was expected in the scores.

When evaluating an instrument, it is important to consider the time required for application and its applicability in practice. EVARUCI has shown to be easy to use and it comprises a few items which reflect the clinical conditions of critically ill patients and presents clearly described guidelines for the scale use. The EVARUCI application time was relatively small considering it was the first time the scale was used. In the context of intensive care, whose dynamic requires much time from nurses, the use of an easy and quick application instrument becomes a differentiation in patient care, optimizing the time of care management.

A good instrument to evaluate the risk of pressure injury is only one aspect to be considered in the prevention of these injuries. A bundle published in the American Journal of Critical Care shows important strategies for the implementation of protocols to reduce the incidence of pressure injuries in critically ill patients and reinforces the need for clinical judgment by nurses associated with an instrument to classify the risk for pressure injury.[20] EVARUCI considers in its scoring system the skin evaluation performed by the nurse, adding one point for patients with alterations such as edema, cyanosis, friable or dry skin, or skin with excessive moisture (maceration).

In addition to clinical judgment, a nutritional assessment of critically ill patients is an important aspect to be considered in combination with the risk of pressure injury. Malnutrition combined with catabolic stress and inflammation of severe disease affect cell replacement and consequently wound healing.[21]

One limitation of this study was the fact that it was conducted in only one center, requiring the application of the EVARUCI in ICUs with different care characteristics (cardiac ICUs, ICU of clinics and of private institutions, among others).

The contribution of this study was that it adapted to the Brazilian reality a specific instrument to assess the risk for pressure injury in critically ill patients. The clinical and therapeutic conditions that expose ICU patients to higher risk for pressure injury are not included in the generic scales that are often used in this context. EVARUCI fills this gap, allowing nurses to more accurately assess risk in critically ill patients, reducing the implementation of early preventive measures and the incidence of this type of injury.

Additional analyses of EVARUCI psychometric properties were also conducted after the transcultural adaptation process and these results will also be disclosed.

Conclusion

The Portuguese version of the EVARUCI showed acceptable performance in the analysis of internal consistency of total score and the inter-rater agreement showed an excellent correlation between the evaluations conducted simultaneously and independently by different nurses. Therefore, the transcultural adaptation of the EVARUCI to Brazilian Portuguese presented satisfactory results in terms of reliability, showing that it is an instrument of easy and fast application, specific for the evaluation of risk for pressure injury in critically ill patients.

Collaborations

Souza MFC, Zanei SSV and Whitaker IY contributed to the study conception, text writing, relevant critical review of its intellectual content, and approval of the final version to be published.

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