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NOTE PREVIEW ARTICLE

TRANSCULTURAL ADAPTATION AND VALIDATION OF THE NATIONAL EARLY WARNING SCORE 2 FOR BRAZIL
ADAPTAÇÃO TRANSCULTURAL E VALIDAÇÃO DA *NATIONAL EARLY WARNING SCORE 2* PARA O BRASIL
ADAPTACIÓN TRANSCULTURAL Y VALIDACIÓN DE LA NATIONAL EARLY WARNING SCORE 2 PARA BRASIL

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ABSTRACT

Objective: to perform translation and cross-cultural adaptation of the National Early Warning Score 2 (NEWS2) and to validate the use in Brazil of clinical deterioration of patients. *Method:* this is a methodological study. The process will be based on the model of Beaton and collaborators following six steps: initial translation, synthesis of translations, reverse translation, committee of experts, final version test and process audit. The final version will be tested in a university hospital in the South of Brazil, with a sample of 40 nurses, who will apply the scale to three case studies proposed by the researchers. Transcripts will be transcribed and analyzed using the Kappa coefficient and the agreement of the observers will be evaluated. A cohort study will be performed for the validation of the Nursing records of patients admitted to the emergency room in May 2018, and the outcomes of death or unscheduled transfer to intensive care in 24 hours, 48 hours and 72 hours. The ethical aspects will be respected by the study, obtaining as an educational product the NEWS2 scale translated and adapted to Brazilian Portuguese. *Expected results:* we intend to translate, adapt and validate NEWS producing a valuable product for patient care. *Descriptors*: Patients; Clinical Evolution; Evaluation; Translating; Validation Studies; Safety.

RESUMO

Objetivo: realizar a tradução e a adaptação transcultural da *National Early Warning Score 2* (*NEWS2*) e validar o uso, no Brasil, para a deterioração clínica de pacientes. *Método:* trata-se de estudo metodológico. Fundamentar-se-á o processo no modelo de Beaton e colaboradores seguindo-se seis etapas: tradução inicial, síntese das traduções, tradução reversa, comitê de especialistas, teste de versão final e auditoria do processo. Realizar-se-á o teste de versão final em um hospital universitário do Sul do Brasil, com amostra de 40 enfermeiros, que aplicarão a escala a três estudos de caso propostos pelas pesquisadoras. Transcrever-se-ão e analisar-se-ão as respostas por meio do coeficiente de *Kappa* avaliando-se a concordância dos observadores. Realizar-se-á, para a validação, um estudo de coorte avaliando-se os registros de Enfermagem dos pacientes admitidos na emergência, em maio de 2018, e os desfechos óbito ou transferência não programada para a terapia intensiva em 24h, 48h e 72h. Respeitar-se-ão, pelo estudo, os aspectos éticos obtendo-se, como produto educativo, a escala *NEWS*2 traduzida e adaptada ao português brasileiro. *Resultados esperados:* pretende-se traduzir, adaptar e validar a *NEWS* produzindo-se um produto de valia para a assistência aos pacientes. *Descritores:* Pacientes; Evolução Clínica; Avaliação; Tradução; Estudos de Validação; Segurança.

RESUMEN

Objetivo: realizar la traducción y la adaptación transcultural de la National Early Warning Score 2 (NEWS2) y validar el uso, en Brasil, para el deterioro clínico de pacientes. *Método:* se trata de un estudio metodológico. Se fundamenta el proceso en el modelo de Beaton y colaboradores siguiendo seis etapas: traducción inicial, síntesis de las traducciones, traducción inversa, comité de expertos, prueba de versión final y auditoría del proceso. Se realizará la prueba de versión final en un hospital universitario del sur de Brasil, con muestra de 40 enfermeros, que aplicarán la escala a tres estudios de caso propuestos por las investigadoras. Se transcriben y se analizarán las respuestas a través del coeficiente de Kappa evaluando la concordancia de los observadores. Se realizará, para la validación, un estudio de cohorte evaluando los registros de Enfermería de los pacientes admitidos en la emergencia, en mayo de 2018, y los resultados óbito o transferencia no programada para la terapia intensiva en 24h, 48h y 72h. El respeto será, por el estudio, los aspectos éticos de obtener, como un producto educativo, la escala News2 traducido y adaptado al portugués de Brasil. *Resultados esperados:* se pretende traducir, adaptar y validar la NEWS produciéndose un producto de valor para la asistencia a los pacientes. *Descriptores*: Pacientes; Evolución Clínica; Evaluación; Traducción; Estudios de Validación; Seguridad.

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INTRODUCTION

The concept of Early Warning Scores (EWS) by Morgan and his colleagues is proposed in 1997, based on the alteration of vital signs as an alert for risk of deterioration of the patient's health status[1]. These scores are those of simple access tools that evaluate physiological patterns and can be used at the bedside by evaluating the risk of clinical deterioration and alerting oneself to the need for greater attention to the patient's health status.[1-3]

National Early Warning Score 2 (NEWS2) is cited as one of the most current scores in the literature. NEWS2 was published in 2012 and updated in 2017 by the name of NEWS2 in the United Kingdom in the English language, with the objective of standardizing the evaluation carried out in that country, being able to use it in the admission, during hospitalization and also in the prehospital period.[4-5]

The following vital signs are evaluated: Systolic Blood Pressure (SBP) in mmHg; Heart rate in beats per minute (HR); Respiratory rate in respiratory movements per minute (RF); Axillary temperature in ° C (Tax); level of consciousness, by means of an ACVPU scale, with initials that represent "A-alert, C-confusion, V-voice, P-pain (reaction to pain stimulus) and U - unresponsive (irresponsive); use of auxiliary oxygen and Oxygen Saturation (SPO2).[4-5] It is also counted in the updated version, with a specific evaluation for patients with Chronic Obstructive Pulmonary Disease (COPD).[5]

The vital signs of patients hospitalized in the units once a shift (6 / 6h) are measured in the routine routine of most Brazilian hospitals and, if there is no request for evaluation, this patient is not evaluated until the next shift. There is often a need to transfer this patient to the Intensive Care Unit (ICU), and this is only assessed when the deterioration is installed, necessitating urgent intervention. Associated normality evidenced by physiological signals directly to adverse events and, thus, to potentially preventable deaths.[6]

Studies are conducted demonstrating the effectiveness of the National Early Warning Score on many fronts: prehospital; emergency; in the discrimination of patients with risk of cardiorespiratory arrest; in association with sepsis and septic shock; in ICU admission and death. The association of high NEWS scores with unfavorable outcomes related to the clinical deterioration of patients is described in all the studies.[3,7-13]

NEWS was created in the United Kingdom and to date only Sweden has translated and adapted this scale into their language and culture.[14] A study was conducted between 2014 and 2015 and published the following year. In the process, the translation, through the method of Translation and Cultural Adaptation by Wilde and his collaborators, involved the adaptation and evaluation of its efficacy in relation to the admission of patients to the ICU.[14] The Swedish translation of the NEWS was considered appropriate for use in the country, without risk of linguistic misinterpretation, and it could be used to discriminate patients at high risk of intensive care.[14] It is revealed that studies related to the validation of NEWS2 are still scarce and the academic community is mobilizing for this result, with the support of the National Health Service (NHS) strategic planning [15] and ongoing studies for validation related to the prediction of hospital death in patients with type 2[16] respiratory insufficiency and validation for the screening of septic patients, [17-8] for example.

OBJECTIVE

● To carry out the translation and cross-cultural adaptation of the National Early Warning Score 2 (NEWS2) and validate the use in Brazil for the clinical deterioration of patients.

METHOD

This is a methodological study that proposes to carry out the translation and cross-cultural adaptation of the National Early Warning Score 2 into the Portuguese language of Brazil. The model will be followed by the model proposed by Beaton and his collaborators, published in 2000[19] and reformulated in 2007.[20] carried out in six stages:

● Stage I - Initial translation: translation of the instruments, in an individual way, by two translators, bilingual, with Portuguese mother tongue, one of them with knowledge in health and other lay. T1 and T2 versions will be produced.

● Stage II - Synthesis of translations: production of a synthesis of the translations carried out, forming text T-12.

● Stage III - Reverse translation: from the T-12 version, two new English mother tongue translators will perform the reverse translation of the product in isolation, creating versions B1 and B2. These translators are treated in the health area and they will not participate in any previous stage of the process.

● Stage IV - Expert Committee: will be composed of translators involved and scholars

from the health care area in order to produce the pre-final version of the product.

- Stage V - Pre-final version test: pilot test, with sample of 40 nurses, workers from non-critical care areas. Nurses from a university hospital in southern Brazil will be invited to apply the translated scale to three case studies. Their responses will be evaluated using the Kappa Coefficient - level of agreement for the validation of the scale.

- Stage VI - Audit of the process: the process audit will be carried out by following the processes guided by the proposed methodology and by the analysis of the statistical results of the data generated by the test of the final version.

The validation stage will be composed by a cohort study applying the instrument translated and adapted transculturally to the real context. In this case, the scores of the NEWS 2 - Brazilian version and its relation to death outcomes and unplanned transfer to the intensive care unit will be evaluated, leading also to a university hospital in Porto Alegre (RS), in the sector of emergency. The sample will be composed by medical records, for convenience, of patients admitted to a specific month during the course of this study. As inclusion criteria, patients aged ≥ 18 years and emergency admission will be included as criteria for inclusion in the mentioned period, and the follow-up period for evaluation of the outcomes will be 24, 48 and 72 hours.

The data collected through the Statistical Package for the Social Sciences (SPSS 18.0) will be analyzed by means of absolute and relative frequencies, position measurements, variability measures and association tests (chi-square and Fisher), with significance of 5%. The area under the ROC (Receiver Operating Characteristic Curve) curve will be estimated for the prediction analysis of the death and unplanned outcomes for the intensive care unit. Reliability will be assessed by the Cronbach's Alpha test to verify whether the scale items have an independent profile or not. The validity of the construct will be tested by factorial analysis (FA) and discriminant analysis (DA): the first to verify the validity of the factorial structure of the original instrument in the Brazilian version and the second to verify which items of NEWS2 - Brazilian version that better discriminate patients with death outcome and unplanned transfer to the intensive care unit.

E-mail was contacted with the Royal College of Physicians for authorization of the proposed study, and approval was received for follow-up. The ethical aspects, based on the provisions of Resolution 466/2012 of the Ministry of Health, will be followed by the study, and the Free and Informed Consent Form will be offered and signed to the participants and approved by the Ethics Committee of both the proposing institution, and of the co-participant, through the No. 69013917.1.0000.5345 and 69013917.1.3001.5336, respectively.

EXPECTED RESULTS

It is hoped that NEWS2 will be adapted to the Brazilian healthcare reality, and may be incorporated into the care routine. This measure will allow early identification of patients at risk of clinical deterioration and early intervention to these patients, reducing the incidence of unfavorable outcomes and impacting the health of the population, occupation of intensive beds and hospital costs.

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