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ORIGINAL ARTICLE

APPLICATION OF THE NURSING ACTIVITIES SCORE IN SPECIALIZED SEMI-INTENSIVE UNIT: CONSTRUCTION AND VALIDATION OF A TUTORIAL APLICAÇÃO DO NURSING ACTIVITIES SCORE EM UNIDADE SEMI-INTENSIVA ESPECIALIZADA: CONSTRUÇÃO E VALIDAÇÃO DE UM TUTORIAL LA APLICACIÓN DEL NURSING ACITIVITIES SCORE EN UNIDAD SEMI-INTENSIVA ESPECIALIZADA: CONSTRUCCIÓN Y VALIDACIÓN DE UN TUTORIAL

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ABSTRACT

Objective: to present the validation of a tutorial on the application of the Nursing Activities Score (NAS) in specialized Semi-Intensive Care Unit. **Method:** a descriptive study, of validation, conducted by judges through the Delphi Technique regarding the comprehensiveness, clarity and relevance. For evaluating the agreement among the judges, a 90% Content Validity Index was used. **Results:** seven judges participated and the tutorial validation comprised two cycles. Regarding the assessment of the items, the Content Validity Indices relating to the scope, clarity and relevance were respectively: first assessment - 0.78, 0.79 and 0.89; second evaluation - 0.98, 0.97 and 1.00. The percentage of agreement was 82% in the first evaluation and 98% in the second evaluation. **Conclusion:** the tutorial construction and validation contributed to standardize and facilitate the implementation of the instrument, making it more reliable to measure the nursing workload. **Descriptors:** Nursing; Workload; Semi Intensive Care; Validation Studies; Delphi Technique.

RESUMO

Objetivo: apresentar a validação de um tutorial referente à aplicação do *Nursing Activities Score* (NAS) em Unidade de Cuidado Semi-intensivo especializada. **Método:** estudo descritivo, de validação, realizado por juízes por meio da Técnica Delphi quanto à abrangência, clareza e pertinência. Para avaliar a concordância entre os juízes foi utilizado o Índice de Validade de Conteúdo de 90%. **Resultados:** participaram sete juízes e a validação do tutorial compreendeu dois ciclos. Em relação à avaliação dos itens, os Índices de Validade de Conteúdo referentes à abrangência, clareza e pertinência foram respectivamente de: primeira avaliação - 0,78; 0,79 e 0,89; segunda avaliação - 0,98; 0,97 e 1,00. O percentual de concordância foi de 82% na primeira avaliação e 98% na segunda avaliação. **Conclusão:** a construção e validação do tutorial contribuíram para uniformizar e facilitar a aplicação do instrumento, tornando mais fidedigna à mensuração da carga de trabalho de enfermagem. **Descritores:** Enfermagem; Carga de Trabalho; Cuidados Semi-Intensivos; Estudos de Validação; Técnica Delphi.

RESUMEN

Objetivo: presentar la validación de un tutorial sobre la aplicación del *Nursing Activities Score* (NAS) en la Unidad de Cuidado Semi-Intensivo especializada. **Método:** estudio descriptivo, de validación, llevado a cabo por los jueces a través de la técnica Delphi cuanto al alcance, claridad y relevancia. Para evaluar el acuerdo entre los jueces se utilizó el Índice de Validez de Contenido de 90%. **Resultados:** participaron siete jueces y la validación del tutorial fue compuesto por dos ciclos. En cuanto a la evaluación de los artículos, los índices de validez de contenido relacionados con el alcance, claridad y relevancia fueron, respectivamente: primera evaluación - 0,78, 0,79 y 0,89; segunda evaluación - 0,98, 0,97 y 1,00. El porcentaje de acuerdo fue del 82% en la primera evaluación y el 98% en la segunda evaluación. **Conclusión:** la construcción y validación del tutorial contribuyeron a normalizar y facilitar la aplicación del instrumento, por lo que es más fiable para medir la carga de trabajo de enfermería. **Descriptores:** Enfermería; Carga de Trabajo; Cuidados Semi-intensivos; Estudios de Validación; Técnica Delphi.

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INTRODUCTION

The evaluation of nursing workload (NW) has been frequent object of research, mainly for it relates to the quality of care, patient safety, to the optimization of human resources and reduction of costs¹. In this context, nurses have sought methods to promote quality of care, without necessarily increasing costs.¹⁻²

Over time, there has been need to develop specific instruments to measure the NW, specifically in critical care units. The Therapeutic Intervention Scoring System (TISS) was developed for this purpose, being the pioneer in order to measure the severity of the patient according to the complexity, besides inferring the calculation of the required NW³⁻⁴. Nevertheless, with the development of physiological-based severity scores, TISS, after several versions, has been restructured and more targeted to assess care needs and NW in the Intensive Care Unit (ICU), becoming the Nursing Activities Score (NAS)⁵. The availability of NAS, translated and validated for the Brazilian reality, enabled its practical application in our midst.⁶

Although the NAS was designed to assess the NW in the ICU, its result bases on the activities performed by the nursing despite the complexity of features presented by the patient, which allows it to be tested in other units. However, it is noteworthy the need for validation studies of its effectiveness in this use perspective.^{3,7}

There is evidence of the effectiveness of the NAS in different areas, including in semi-intensive care units.⁸⁻⁹ Although the NAS is widely used and its benefits are proven, some limitations have been identified, including lack of uniformity regarding its application.¹⁰

Among the anomalies that affect the skull and face, cleft lip and palate are the most common. It may be alone or in combination with clinical and/or genetic syndromes. It can denote multiple problems, including functional, aesthetic and psychosocial.¹¹

The rehabilitation process starts early and extends for several years. Children must receive special attention related to breathing and feeding, particularly in cases where there is an association with syndromes.¹² The family should take place in the context of care, since they will provide most of the care.¹³

In more complex cases, or in which there is association between cleft lip and palate and syndromes, hospitalization is required, often taking place in semi-intensive care units. Variable range of nursing care is necessary,

not only to the patient but also to his/her families and caregivers, certainly influencing the NW.⁹

In this context, the study aims to present the validation of a tutorial on the application of the Nursing Activities Score (NAS) in a specialized Semi-Intensive Care Unit.

METHOD

Exploratory and descriptive study, conducted between February and October 2014 at a hospital specialized in the treatment of craniofacial anomalies and related syndromes, specifically in the Semi-Intensive Care Unit. This unit consists of eight beds for the care of children ranging in age from one day old to two years old.

Through Delphi¹⁴ technique, aimed at uniformity¹⁵ regarding the application of NAS in that unit, there was a decision to build a tutorial, validated according to the content.

The development of the construction of the NAS tutorial for application in specialized Semi-Intensive Care Unit occurred in an attempt to provide a more detailed guidance about what may or may not be included with each item, keeping, however, the logical relationship with the instrument structure.

An instrument is valid "when its construction and applicability allow the true measurement of what you want to measure".^{16:23} Therefore, the content validation was chosen, which means "to verify that the instrument meets the research needs in study"^{17:34}.

In this study, the validation comprised two distinct phases. The first phase consisted of drawing up the amendments, based on evidence from the literature and the researchers' experience in clinical practice. The second phase was the evaluation by judges through the Delphi Technique.¹⁴

The Delphi technique is a systematic method of trial of information, useful to obtain consensus of experts on a particular issue through articulated validations in phases or cycles. The specialists, also called experts or judges, conduct it collectively.¹⁴

The choice of the judges was in accordance with the following inclusion criteria: minimal clinical experience of five years, publish and research about the subject, and having methodological knowledge of the construction of questionnaires and scales.¹⁸⁻¹⁹

The construction of the questionnaires occurred by sequential cycles. The first cycle sought to characterize judges according to the inclusion criteria for this validation, in addition to presenting the study objectives

and providing instructions for completion and handover. This questionnaire was built in order to formulate a list of items that would compose the subsequent questionnaires.

Each judge described in specific fields the modifications considered appropriate. Later, researchers assessed whether the changes were plausible, respecting or not the changes. The subsequent cycle presented the proposals of the previous cycle and the changes made. The questionnaire circulated through the group of judges until the final consensus.²⁰ This methodology followed literature guidelines.²¹⁻²²

The group kept contact through e-mails. For this validation, the specification was made by the Likert-type scaling method, with consensus level of 80% and statistical descriptive analysis.²³

The tutorial was evaluated regarding its range, clarity and relevance. The assessment of the range sought to consider if there was inclusion of all the dimensions. The clarity sought to evaluate if the items were written so that the concept was understood and properly expressed the expected measure. The relevance or representativeness sought to observe if the items actually reflected the concepts involved, and whether they were suitable to achieve the goals.¹⁹

Different methods have been presented aiming to quantify the degree of agreement among experts in the process of assessing the validity of the content of an instrument.²⁴ This study chose to use the Content Validity Index (CVI) to assess the items separately. The CVI aims to measure the proportion or percentage of judges who agree on certain aspects of the instrument and its items. A Likert-type scale is used scale with a score of one to four, for example: 1 - not comprehensive; 2 - needs a major review to be comprehensive; 3 - needs small review to be comprehensive; 4 -

presents comprehensiveness or is comprehensive.²²

The index score is calculated by the sum of agreement of the items that were marked by "three" or "four" by the experts.¹⁹ Thus, the CVI can also be defined as "the number of items that receive a score of three or four by judges".²⁵ A minimum correlation of 0.90 was considered.¹⁷

For evaluating the tutorial as a whole, the "percentage of agreement" criterion was used, which is obtained by dividing the total number of items considered relevant by the judges by the total number of items. A minimum agreement rate of 90% was considered.¹⁷

The search began after the approval of the Research Ethics Committee involving human beings of the Institution, through the opinion number 512,376 and CAAE: 25895513900005441.

RESULTS

Seven judges participated in the tutorial validation, with an average graduation time of 18 years (± 4.24) and average performance time in nursing area of 18 years (± 3.53). As for the academic qualification, 86% had Specialization and Master Degree, and 29% had a PhD; 71% reported owning publications in nursing management area and/or cleft lip and palate. Regarding professional experience, 57% said they work in nursing education (graduate and postgraduate courses) and 86% worked in nursing care and research.

The tutorial validation comprised two cycles. Figures 1 and 2 show the proposed changes.

NAS ITEMS AND SUB-ITEMS	MODIFICATIONS
Monitoring and controls: 1a. Vital signs, schedules, calculations and regular record of the water balance. (4,5)	- Application to the child being monitored and records vital signs and/or water balance calculation, at least twice per shift (6 hours). The stable child will be scored from a clinical point of view.
Monitoring and controls: 1b. Presence at the bedside and observation or continuous activity for 2 hours or more in any shift (6 hours), for safety, severity or therapy reasons. (12.1)	- In oxygen therapy when there is need to reposition the device more frequently than 3 times per shift (6 hours); - Monitoring during examinations in bed; - Care with gastric or enteral tubes or gastrostomy (ex.: fixation, positioning confirmation, gastric residue monitoring, etc.); - Monitoring of children with hyperemesis (greater than 2 episodes in 6-hour shift).
Laboratory investigations: Biochemical and microbiological. (4,3)	- Included: 24-hour urine collection.
Hygiene procedures: 4a. Performance of hygiene procedures, which added or continuous last less than 2 hours per shift (6 hours). (4,1)	- Fixing exchange of orogastric, nasogastric and enteral tube.
Support and care for family members: 7b. Support and care for family members who require exclusive dedication over 1 hour, continuously or discontinuously. (32.0)	- Included: death.
Administrative and managerial tasks: 8a. Performance of routine tasks. (4,2)	- Schedules of examinations; conducting calls for clinical case discussion, social issues and scheduling of tests and returns.
Administrative and managerial tasks: 8c. Performance of administrative and managerial tasks that require full dedication over two hours in any shift (6 hours), continuous or fractioned. (30,0)	- Removed: Monitoring in external referrals; - Monitoring in external diagnostic tests.
Specific interventions: 23. Specific interventions outside the unit. (1,9)	- Diagnostic tests (ex.: nasofibroscopy, swallowing video fluoroscopy, swallowing endoscopy, EED-ray, polysomnography, tomography, magnetic resonance); - Included: electroencephalogram.

Figure 1. Presentation of the changes proposed by the judges during the first cycle of tutorial content validation related to the NAS for application in specialized Semi-intensive Care Unit. Bauru (SP), Brazil, 2015.

NAS ITEMS AND SUB-ITEMS	MODIFICATIONS
Monitoring and controls: 1b. Presence at the bedside and observation or continuous activity for 2 hours or more in any shift (6 hours), for safety, severity or therapy reasons. (12,1)	- Inclusion: oxygen weaning and measurement of irradiance of phototherapy.
Mobilization and positioning: 6a. Performance of procedures, positioning and mobilization of 3 to 6 times per shift (6 hours), requiring only 1 nursing professional. (5,5)	- Inclusion: positioning for improved respiratory pattern.
Administrative and managerial tasks: 8a. Performance of routine tasks. (4,2)	- Inclusion: participation and meeting with families to discuss management and prognosis of communication.

Figure 2. Presentation of the changes proposed by the judges during the second cycle of tutorial content validation related to the NAS for application in specialized Semi-intensive Care Unit. Bauru (SP), Brazil, 2015.

For logistical reasons, this journal does not include the final version of the tutorial regarding the NAS for application in specialized Semi-Intensive Care Unit. However, it is available to readers through the authors.

Regarding the assessment of the items, the CVI related to the range, clarity and relevance were, respectively: first cycle - 0.78, 0.79 and 0.89; second cycle - 0.98, 0.97 and 1.00. The agreement percentage was 82% in the first cycle and 98%, in the second cycle (Table 1).

Table 1. Distribution of the judges' assessment of the items of the tutorial regarding the NAS for application in specialized semi-intensive care unit. Bauru (SP), Brazil, 2015.

Average CVI	Range	Clarity	Relevance	Agreement Percentage
First cycle	0.78	0.79	0.89	82%
Second cycle	0.98	0.97	1.00	98%

DISCUSSION

Although the NAS has been developed primarily to measure the NW in ICU, it may be applied in different contexts. However, some authors point out the need to validate the effectiveness in relation to its application in other units.^{3,7,26}

In this context, there was choice of building and validating a tutorial about its application in the unit contemplated in this study, in order to standardize data collection and denote fidelity to what is going to be measured.¹⁵

A multicenter study involving seven countries proposed guidelines on the application of NAS in different ICUs of adult patients in order to answer their questions.²⁷ Another study presented guidelines on the implementation of NAS in ICU.²⁸ Another one presented guidelines for the application of NAS in the evaluation of patients with high nursing dependency, reinforcing the importance of this methodology so that the results are representative.²⁶ They demonstrated the benefits to facilitate and standardize the application of NAS in different realities.

Validation methods are indispensable for researches that intend to use rigorous methodologies. It is noteworthy that, in the manufacturing and validation process of a tutorial, the logical relationship with the instrument structure remains intact.¹⁶⁻⁷

The tutorial validation occurred through the Delphi Technique. Studies using this methodology certify its efficacy.^{16,18-9}

Seven judges participated in the tutorial validation process, who fully contemplated the recommendations mentioned in the literature, including: having clinical and methodological experience, Latu and Stricto Sense specializations, publications in nursing management area, among others. These data reinforce the reliability of the validation process. Regarding the profile of the judges, similar results were found in other investigations.^{16,18-9}

The tutorial validation comprised two cycles, which, beyond compliance among judges, sought to evaluate the instrument comprehensiveness, clarity and relevance.²¹⁻² The agreement percentage was in accordance with the recommendation of literature.^{19,22,25}

The judges proposed changes that contemplated the items: monitoring and control, laboratory investigations, hygiene procedures, mobilization and positioning, support and care for family members and administrative and managerial tasks, according to the semi-intensive patient profile, considering that other NAS items are specific to critical patients. There was evidence of this relationship in the prevalence of these items related to the measurement of nursing workload in different semi-intensive care units.⁸⁻⁹

It is noteworthy that the nursing care of patients with craniofacial anomalies, particularly children, included respiratory and feeding problems, with specific care that includes: maintaining high and ventral decubitus position, oxygen therapy by unconventional methods, maintaining airway patency, facilitating techniques for nutrition with frequent use of feeding tube and, in specific cases, use of ostomy, among others.⁹

Another significant aspect related to nursing care for patients with craniofacial anomalies and related syndromes refers to the training of caregivers to maintain care with the child at home, after hospital discharge, which demonstrably affects the NW.^{9, 12-3}

Still, the nursing interventions and activities related to administrative tasks should be considered, including scheduling specific tests, clinical case discussions with the interdisciplinary team and family.^{9,12}

Proper dimensioning of the nursing staff and the use of technologies have been identified as important factors in reducing the nursing workload.²⁹ In this context, this study contributes to fabricate and validate a tutorial that will be used for training nurses, especially regarding the uniformity in data collection related to the measurement of NW. Still, considering the principle of SUS concerning the decentralization of services, the tutorial manufacture and validation will enable its use and replication reliably in other institutions.

CONCLUSION

The tutorial validation contributed to standardize and facilitate the implementation of the instrument, making it more reliable to measure the NW in specialized Semi-Intensive Care Unit.

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