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ORIGINAL ARTICLE

Medication administration safety assessment tool: Construction and validation

Instrumento para avaliação da segurança na administração de medicamentos: construção e validação

Instrumento de evaluación de la seguridad en la administración de medicamentos: Construcción y validación

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ABSTRACT

Objective: To build and validate the Patient Safety Assessment in Medication Administration (ASPAM - *Avaliação da Segurança do Paciente na Administração de Medicamentos*) tool. **Method:** Methodological study in which the construction, Content Validation Index (CVI), construct validation (factorial analysis) and reliability were performed in terms of homogeneity (Cronbach's Alpha). **Results:** The ASPAM reached CVI of 0.77 for simplicity, 0.76 for clarity and 0.93 for relevance. The exploratory factorial analysis was adequate for the tool (Kaiser-Meyer-Olkim of 0.66 and Bartlett's sphericity with p <0.001). The Cronbach's Alpha end of the scale with 28 items was 0.85. **Conclusion:** The ASPAM tool was valid and reliable for the identification of risk-generating conditions for the occurrence of Adverse Drug Events.

Descriptors: Patient Safety; Drug Utilization; Validation Studies; Medication Errors; Nursing Care.

RESUMO

Objetivo: Construir e validar o instrumento Avaliação da Segurança do Paciente na Administração de Medicamentos (ASPAM). **Método:** Estudo metodológico em que se procederam a construção, o Índice de Validação de Conteúdo (IVC), a validação de construto (análise fatorial) e a confiabilidade, em termos de homogeneidade (Alfa de Cronbach). **Resultados:** A ASPAM alcançou IVC de 0,77 para simplicidade, 0,76 para clareza e 0,93 para relevância. A análise fatorial exploratória mostrou-se adequada para o instrumento (Kaiser- Meyer-Olkim de 0,66 e a esfericidade de Bartlett com p<0,001). O Alfa de Cronbach final da escala com 28 itens foi de 0,85. **Conclusão:** O instrumento ASPAM mostrou-se válido e confiável para a identificação de condições geradoras de risco para ocorrência de eventos adversos aos medicamentos.

Descritores: Segurança do Paciente; Uso de Medicamentos; Estudos de Validação; Erros de Medicação; Cuidados de Enfermagem.

RESUMEN

Objetivo: Construir y validar el instrumento Evaluación de la Seguridad del Paciente en la Administración de Medicamentos (ASPAM - *Avaliação da Segurança do Paciente na Administração de Medicamentos*). **Método:** El estudio metodológico en que se procedió a la construcción, el Índice de Validación de Contenido (IVC), la validación de constructo (análisis factorial) y la confiabilidad, en términos de homogeneidad (Alfa de Cronbach). **Resultados:** La ASPAM alcanzó IVC de 0,77 para simplicidad, 0,76 para claridad y 0,93 para relevancia. El análisis factorial exploratorio se mostró adecuado para el instrumento (Kaiser-Meyer-Olkim de 0,66 y la esfericidad de Bartlett con p <0,001). El Alfa de Cronbach final de la escala con 28 ítems fue de 0,85. **Conclusión:** El instrumento ASPAM se mostró válido y confiable para la identificación de condiciones generadoras de riesgo para ocurrencia de eventos adversos a los medicamentos.

Descriptores: Seguridad del Paciente; Utilización de Medicamentos; Estudios de Validación; Errores de Medicación; Cuidados de Enfermería.

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INTRODUCTION

Medication error is defined as any avoidable event that may cause or induce the inappropriate use of medication or harm the patient and may be considered an Adverse Drug Event (ADE) when the event generates harm to the patient[1].

A retrospective study, developed in a Brazilian university hospital based on the analysis of 263 medical records, identified that 58 patients had at least one ADE during their hospitalization period, which led to an incidence of 22.1%, with 83 distinct ADEs identified, resulting in a rate of 31.5 ADE per 100 patients[2].

Another retrospective study, conducted in a quaternary hospital in São Paulo countryside, found a record of 16,753 medication errors during the period 2007 to 2013, which corresponds to an incidence of 1.4%[3].

The Ministry of Health (MoH) and the Brazilian National Health Surveillance Agency (ANVISA - *Agência Nacional de Vigilância Sanitária*), in order to prevent and reduce the incidence of such adverse events in health services, published in 2013, the Safety, Prescription, Use and Administration of Medication Protocol, to be applied in all establishments providing health care at all levels of complexity where medications are used for prophylaxis, diagnostic tests, treatment and palliative measures[4].

The role of the nurse as the professional responsible for the medication administration process is recognized as being the leader of the nursing team[5] and as the last barrier in the medication system to identify and intercept the errors[6].

Therefore, it is necessary to incorporate a tool that can identify the risk-generating conditions for the occurrence of Adverse Drug Events in nursing care practice.

OBJECTIVE

This study aims to build and validate the Patient Safety Assessment in Medication Administration (ASPAM) tool.

METHOD

Ethical aspects

In compliance with the recommendations of Resolution 466/2012 of the National Health Council (*Conselho Nacional de Saúde*), which governs the research process with human beings, the study was submitted, evaluated and approved by the Ethics and Research Committee of the *Universidade Federal do Ceará*. The collection of data began with the signing of a Free and Informed Consent Term by the nursing professionals, leaving a copy with them.

Design, place of study and period

Methodological study of the construction and validation of the Patient Safety Assessment in Medication Administration (ASPAM) tool, performed with nursing professionals working in hospitalization units of two pediatric hospitals in Fortaleza, Ceará, Brazil, from January to March, 2016.

Population or sample: Inclusion and exclusion criteria

The content validation sample was composed of seven judges, who were selected through intentional sampling, having a Doctorate Degree and attending the minimum score of five points, according to criteria adapted for selection of judges, namely: Possess dissertation/thesis (2 points/work); have authorship in at least one paper published in a journal (1 point/work); participate in research groups/projects (1 point); have teaching experience (1 point/year); to have a practical performance in the hospitalization unit (0.5 point/year); and to have oriented thesis, dissertation or monograph (0.5 point/work), all related to the themes of the area of interest (Construction and validation of tools in the area of Nursing, Child care in hospitalization units, Child Health and Safety of the patient)[7].

For the analysis of construct validity and reliability, a sample of 184 nursing professionals (Nurses, Technicians and Nursing Assistants), who met the inclusion criteria: Acting in the process of medication administration to the children hospitalized in the units study for at least six months. Professionals who were on vacation, on leave or away from activities during the period of data collection were excluded.

Study protocol

Data collection was performed in two stages: Construction; and analysis of validity (content and construct) and reliability[8].

The construction of the evaluation tool was developed in light of the Safety, Prescription, Use and Administration of Medication Protocol[4], which is divided into three sections, including safe practices for prescription, distribution of medications and administration of medications, in which there are proposals for interventions (verification items), a standard operating procedure and monitoring indicators.

The tool construction step was performed by analyzing the verification items of the Safety, Prescription, Use and Administration of Medication Protocol, for the identification of interventions related to the construct safety in medication administration.

In order to analyze the validity of content, each item of the first version of the tool was evaluated by the judges' committee regarding the criteria of simplicity, clarity and relevance[9], based on a Likert Scale with the following indicators: 1 - very bad, 2 - bad, 3 - regular, 4 - good and 5 - excellent. In addition, this tool included a place for suggestions. The judges had a period of 15 days to finish such an analysis.

For the analysis of construct validity and reliability, the second version of the tool was delivered to 184 nursing professionals, in their respective working environments, at the time when they were willing to participate in the study. The professionals returned the tools answered at the end of each shift or at the subsequent shift.

The construct analysis was performed by exploratory factorial analysis and the reliability was evaluated in terms of homogeneity, from Cronbach's Alpha.

Analysis of results and statistics

The Content Validity Index (CVI) was calculated from the average number of responses "4" and "5" selected by the judges[10]. In order to verify the validity of the tool regarding the content, the value of concordance> 0.8 was chosen between the judges[9].

The factorial analysis was obtained through the correlation matrix, Kaiser-Meyer-Olkim criterion, Bartlett's Sphericity Test and the slope diagram (scree plot rule). In the correlation matrix, it is recommended that only items with coefficients> 0.3[11].

Reliability was verified by internal consistency as measured by Cronbach's Alpha. This coefficient ranges from 0 to 1, with zero indicating the total absence of internal consistency of the items, and 1 consistency of 100%. Acceptable alpha values are between 0.70 and 0.90[9].

RESULTS

In the construction phase of the ASPAM, by means of analysis of the verification items for the administration of medications proposed by the Safety, Prescription, Use and Administration of Medication Protocol[4], 28 actions were selected, which were transformed into precursor items of ASPAM (Chart1). According to the national recommendation[4], the items were stratified into nine domains, established on the basis of the nine principles of medication administration, namely: Right patient, right medication, right route, right time, right dose, right guidance, right way, and right answer (Chart 2).

The selected items were grouped in a measurement tool with fixed response format, Likert scale (1 - never, 2 - almost never, 3 - sometimes, 4 - almost always and 5 - always), in which the professional should respond by selecting only one option, so that only the response is always considered an adequate frequency for the safe performance of the medication administration actions performed by the nursing team in their care routine.

The content validity stage was carried out by a committee composed of seven judges, all female nurses, aged between 34 and 46 years and with training time ranging from 9 to 22 years. All of them had a minimum Doctor Degree, of which four (57.1%) had a thesis in the Pediatrics and/or Patient Safety, and one of them had a PhD in Nursing. All referred experience in areas of interest from 2 to 17 years. It should be noted that the seven judges met beyond the minimum number of points required, averaging 15.2 points. Chart 1 presents the CVI for each item of the tool, the total CVI according to the criteria evaluated (simplicity, clarity and relevance), as well as the correlation between the first and second version of the tool.

The criteria of simplicity and clarity had fifteen items with CVI below 0.80 (cutoff point) and resulted in a total CVI of 0.77 and 0.76, respectively. For the criterion of relevance, only three items presented CVI <0.80, reaching a total CVI of 0.94.

It is worth noting that in spite of the recommendation that only items with a CVI> 0.8 be considered acceptable, it was decided not to remove the items from the scale so that the construct validity and reliability could be analyzed later, nine items were maintained, eleven had their content modified, four were divided and four were excluded, obtaining the second version of the ASPAM tool with 28 items (Chart 1).

For the validation of construct and reliability, the second version of ASPAM was applied to 184 nursing professionals, of which 52 (28.2%) were nurses, 103 (56%) nursing technicians and 29 (15.8%) nursing assistants, with a mean age of 38.9 + 9.7 and training time (81.3%) and professional experience (79.8%) over five years.

Chart 1 – Items-criteria correlation for evaluation of the validation of content of the Patient Safety Assessment in Medication Administration (ASPAM) tool, Fortaleza, Brazil, 2016

Items of the 1st version of the tool	Content Validity Coefficient			Items of the 2nd version of the tool
	S*	C§	R£	
1. Uses at least two identifiers to confirm the right patient before administering medications.	0.85	0.57	1	1. Uses at least two identifiers (full name and medical record number) to confirm the patient before administering the medication.
2. Verifies the name of the prescription medication before administering it.	1	0.85	1	2. Verifies the name of the prescription medication before administering it.
3. Brings to the bed only what is prescribed to a single patient, not using a tray containing several medications for different patients.	0.71	0.71	1	3. Brings to the bed only the medications prescribed to a single patient.
4. Administers medication by verbal order only in case of emergency, with written record of the verbal order.	0.57	0.57	0.85	4. Administers medication by verbal order only in case of emergency.
5. Checks if patient is allergic to the prescribed medication, identifying the allergic patient in a differentiated way, with a bracelet and a warning on the chart, alerting the whole team.	0.57	0.71	1	5. Checks if patient is allergic to the prescribed medication.
				6. Identifies the allergic patient in a differentiated way with a bracelet and a medical record, alerting the whole team.
6. Identifies the prescribed route of administration, verifying if it is the technically recommended route of administration for a given medication.	0.71	0.71	1	7. Identifies the route of administration prescribed for the medication.
				8. Checks if the prescribed route is technically recommended for administering the medication.
7. Washes hands before preparation and administration of medications.	1	1	1	9. Washes hands before preparation and administration of medications.
8. Uses aseptic materials and techniques to administer medications intravenously and to other routes requiring this type of technique.	0.71	0.71	0.85	10. Uses aseptic materials and techniques to administer medications.

To be continued

Chart 1 (concluded)

Items of the 1st version of the tool	Content Validity Coefficient			Items of the 2nd version of the tool
	S*	C§	R£	
9. Prepares the medication immediately prior to its administration, obeying the schedule of the prescription.	0.71	0.71	1	11. Prepares the medication immediately prior to its administration.
10. Administers the medication at the right time.	0.71	0.85	1	12. Administers the medication at the right time.
11. In cases of patient preparation for exams or fasting, do not administer or postpone the administration of doses without discussing conduct with the prescriber.	0.71	0.57	0.85	Excluded
12. Adjusts the administration times of the medications to the routine of use already established before the hospitalization.	1	1	1	13. Adjusts the administration times of the medications to the routine of use already established before the hospitalization.
13. Discusses the prevention of medication-medication and medication-food interactions with the multiprofessional team.	0.71	0.71	1	Excluded
14. Carefully checks the dose prescribed for the medication.	1	1	1	14. Carefully checks the dose prescribed for the medication.
15. Makes sure that the scheduled infusion is the one prescribed for that patient.	0.85	0.71	0.71	Excluded
16. Confers the drip speed, programming and operation of continuous infusion pumps with the prescription.	0.85	1	1	15. Checks the drip speed, programming and operation of continuous infusion pumps with the prescription.
17. Performs double check of calculations for preparation and for administration of potentially dangerous or high vigilance medications.	1	1	1	16. Performs double check of calculations for preparation and for administration of potentially dangerous or high vigilance medications.
18. Uses standard measuring tools to prepare medications to measure doses accurately (e.g., millimeter syringes).	1	1	1	17. Uses standard measuring tools to prepare medications to measure doses accurately (e.g., millimeter syringes).
19. Returns leftover unadministered medications to the pharmacy.	0.85	0.85	1	18. Returns leftover unadministered medications to the pharmacy.
20. Checks the timing of administration of the medication immediately after each dose.	0.57	0.57	1	19. Records the time of administration of the medication immediately after each dose.
21. Records all medication-related occurrences (delays, cancellations, discontinuation, patient refusal and adverse events) and the different effects (in intensity and form) expected from the medication described by the patient/companion or observed for the team.	0.57	0.57	1	20. Records all medication-related events (e.g., postponements, cancellations, shortages, patient refusals, side effects, and adverse events).
				28. Informs the prescriber of all effects other than expected (in intensity and shape) for the medication.
22. Guides the patient and the caregiver about the medication administered (name), aspect (color and shape), justification of the indication, frequency with which it will be administered, expected effects, possible incidents related to the medication therapy, registering them in medical records and notifying them to the Risk Management and/or the Patient Safety Center.	0.57	0.57	0.71	21. Notifies the Risk Management and/or Patient Safety Center of any incidents related to medication therapy.
				25. Guides the patient and the companion about the name of the medication administered, aspect (color and shape), justification of the indication, frequency with which it will be administered and expected effects.
23. Checks whether the medication to be administered has the pharmaceutical form and route of administration prescribed.	0.42	0.42	0.71	26. Checks if the medication to be administered is in a pharmaceutical form (e.g., Ampoule, vial, tablet) compatible with the prescribed route of administration.
24. Observes the patient to identify, if possible, whether the medication had the desired effect.	0.71	0.85	1	27. Evaluates the patient to identify, if possible, whether the medication has the desired effect.
25. Clarifies doubts about the readability of the prescription, the indication of the medication, its dosage, vacuous prescription ("do if necessary", "at medical discretion"), unit of measures used, pharmaceutical form, route of administration and dose directly with the prescriber.	0.85	0.85	0.85	24. Clarifies doubts about prescribing before the prescriber before administering the medication (e.g., Ineligibility of prescription, indication of the medication, dosage, "if necessary", "at medical discretion", unit of measures used, pharmaceutical form, route of administration and dose).
26. Only administers the medication if the doubts are cleared.	0.71	0.71	1	Excluded
27. Keeps standardization regarding adequate storage and complete and clear identification (with date and time of the manipulation, concentration of the medication, name of the person responsible for the preparation and validity) of all medications that are under the care of the nursing team.	0.85	0.85	0.85	22. Keeps adequate records of prepared medications to be stored (date and time of the manipulation, concentration of the medication, name of the person responsible for the preparation and validity).
28. Monitors the temperature of the medication packaging refrigerator, recording the maximum and minimum values daily.	1	1	1	23. Monitors the temperature of the medication packaging refrigerator, recording the maximum and minimum values daily.
Total Criterion Content Validity Coefficient	0.77	0.76	0.94	

*Note - *Simplicity; §Clarity; £Relevance.*

For the factor analysis, five cases were considered for each item of the tool, which resulted in a ratio of 6.57, considered adequate according to the literature[11]. The Kaiser-Meyer-Olkin (KMO) measurement reached a coefficient of 0.66, exceeding the recommended minimum value of 0.6[12], and Bartlett's sphericity test[13] reached statistical significance ($p < 0.001$), confirming the adequacy of the factorial analysis for the present study.

The analysis of the main components revealed eight components with eigenvalues> 1, in this case eight domains, which would explain 68.7% of the total variance of the data (Table 1), which was confirmed by the analysis of the slope diagram scree plot) (Figure 1).

It should be pointed out that, although the analysis of the main components and the slope diagram reveals that only eight components could be extracted, nine factors (domains) were prefixed, since they represent the nine administration of national[4] and internationally standardized medications[14].

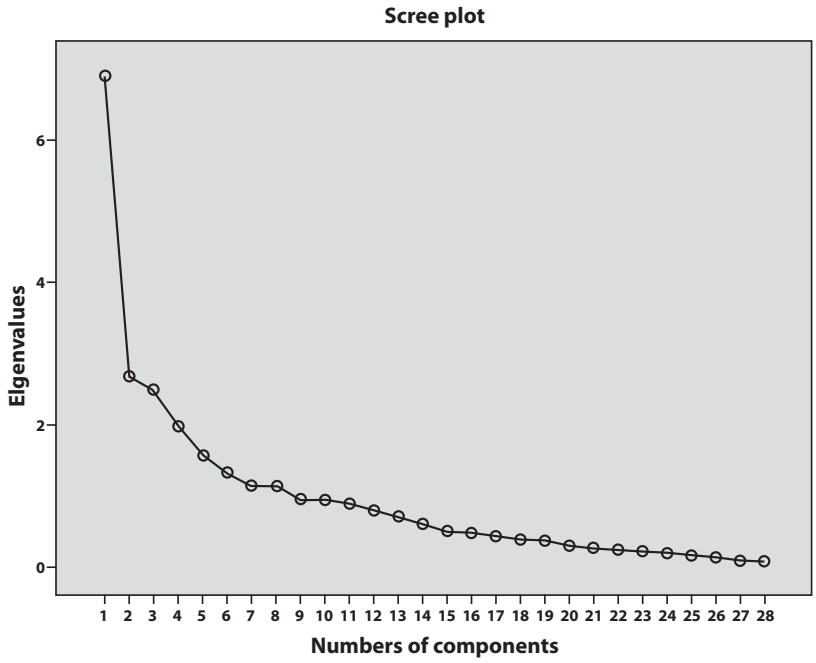

Figure 1 – Scree plot, considering the eigenvalues and number of components (domains) of the tool, Fortaleza, Brazil, 2016

Cronbach's Alpha of ASPAM with its 28 items was 0.85, indicating high internal consistency of the tool. Considering the removal of items 23 and 28, which most contribute to the increase and reduction of tool reliability, the Cronbach's Alpha, respectively, ranged from 0.841 to 0.855, characterizing the tool as reliable in its final version (Table 2). Thus, Cronbach's Alpha indicated a high internal consistency of the tool, ratifying the maintenance of the 28 items, even of those who had CVI <0.8.

Table 1 – Explained variance (eigenvalues) and percentages of variation of each item of the tool, Fortaleza, Brazil, 2016

Component	Total Variance	% of variance	% cumulative
1	6.897	24.633	24.633
2	2.676	9.557	34.190
3	2.492	8.900	43.090
4	1.985	7.090	50.179
5	1.568	5.601	55.780
6	1.327	4.738	60.519
7	1.143	4.082	64.600
8	1.138	4.063	68.663
9	0.956	3.413	72.076

Note – Extraction method: Analysis of the main components.

Therefore, the tool Patient Safety Assessment in Medication Administration was constituted by nine domains, these being: Right patient (item 1), right medication (items 2 to 6), right way (items 7 to 10), right time (items 11 (items 14 to 18), right register (items 19 to 23), right guidance (items 24 and 25), right form (item 26) and right answer (items 27 and 28), making a total of 28 items (Chart 2)

For the evaluation of the performance of each action, the performance was adopted as satisfactory; whose cut-off point was equal to or greater than 70% [15-16]. For the evaluation of the performance of professionals in each action of the administration of medications, the Positivity Index (PI) for Quality of Care was defined as desirable (PI = 100%), adequate (90% <PI <99%), insurance (80% <PI <89%), safe (71% <PI <79%) and low (PI <70%)[17].

Table 2 – Cronbach's Alpha values in the absence of any of the tool's items, Fortaleza, Ceará, Brazil, 2016

Item	Cronbach's Alpha if the item is excluded
1	0.843
2	0.850
3	0.848
4	0.849
5	0.846
6	0.853
7	0.847
8	0.844
9	0.850
10	0.845
11	0.845
12	0.846
13	0.843
14	0.849
15	0.851
16	0.844
17	0.842
18	0.844
19	0.848
20	0.842
21	0.836
22	0.846
23	0.855
24	0.845
25	0.842
26	0.848
27	0.842
28	0.841

Chart 2 – Final version of the Patient Safety Assessment in Medication Administration (ASPAM) tool, Fortaleza, Brazil, 2016

Domain	Patient Safety Assessment in Medication Administration	Frequency				
		Never	Almost never	Sometimes	Almost always	Always
		1	2	3	4	5
Right patient	1. Uses at least two identifiers (full name and medical record number) to confirm the patient before administering the medication.					
Right medication	2. Verifies the name of the prescription medication before administering it.					
	3. Brings to the bed only the medications prescribed to a single patient.					
	4. Administers medication by verbal order only in case of emergency.					
	5. Checks if patient is allergic to the prescribed medication.					
	6. Identifies the allergic patient in a differentiated way with a bracelet and a medical record, alerting the whole team.					
Right Route	7. Identifies the route of administration prescribed for the medication.					
	8. Checks if the prescribed route is technically recommended for administering the medication.					
	9. Washes hands before preparation and administration of medications.					
	10. Uses aseptic materials and techniques to administer medications.					
Right Time	11. Prepares the medication immediately prior to its administration.					
	12. Administers the medication at the right time.					
	13. Adjusts the administration times of the medications to the routine of use already established before the hospitalization.					
Right dose	14. Carefully checks the dose prescribed for the medication.					
	15. Checks the drip speed, programming and operation of continuous infusion pumps with the prescription.					
	16. Performs double check of calculations for preparation and for administration of potentially dangerous or high vigilance medications.					
	17. Uses standard measuring tools to prepare medications to measure doses accurately (e.g., millimeter syringes).					
	18. Returns leftover unadministered medications to the pharmacy.					
Right Record Of the Administration	19. Records the time of administration of the medication immediately after each dose.					
	20. Records all medication-related events (e.g., postponements, cancellations, shortages, patient refusals, side effects, and adverse events).					
	21. Notifies the Risk Management and/or Patient Safety Center of any incidents related to medication therapy.					
Right Record Of the Administration	22. Keeps adequate records of prepared medications to be stored (date and time of the manipulation, concentration of the medication, name of the person responsible for the preparation and validity).					
	23. Keeps adequate records of prepared medications to be stored (date and time of the manipulation, concentration of the medication, name of the person responsible for the preparation and validity).					
Right Guidance	24. Clarifies doubts about prescribing before the prescriber before administering the medication (ex: Ineligibility of prescription, indication of the medication, dosage, "if necessary", "at medical discretion", unit of measures used, pharmaceutical form, route of administration and dose).					
	25. Guides the patient and the companion about the name of the medication administered, aspect (color and shape), justification of the indication, frequency with which it will be administered and expected effects.					
Right way	26. Checks if the medication to be administered is in a pharmaceutical form (e.g., Ampoule, vial, tablet) compatible with the prescribed route of administration.					
Right answer	27. Evaluates the patient to identify, if possible, whether the medication has the desired effect.					
	28. Informs the prescriber of all effects other than expected (in intensity and shape) for the medication.					

DISCUSSION

The results of the analysis of the items by the judges' committee indicate that the tool is representative of the relevance of the content; however, it needed reformulation as to the simplicity and clarity of the items that compose it. Therefore, in order to make the items considered unclear and of little simple language adequate, a good part of the judges' suggestions were accepted, including some items that had reached adequate levels of agreement were restructured, seeking a better understanding of the same, as already observed in the literature[7,18].

In response to the request of the judges, examples of identifiers were added in the description of item 1 because they believed that the term "identifiers" might not be clear to all professionals.

Patient identifiers aim to standardize the identification approaches among the different units and institutions within a health system[1]. The most well-known indicators among health professionals are "full name of the patient" and "record number" (medical record)[19], which were added as examples to item 1. For similar reasons, examples were also added of forms presentation to item 22.

It was also agreed to subtract from paragraph 3 the sentence "not using a tray containing several medications for different

patients", considering that the errors involving the administration of the medication are associated with the nonconference of the medication and agglomeration of several types in single tray, which contributes to the exchange of the same at the time of application[20], a practice still evidenced among nursing professionals[21-22].

The extraction of the sentence "with written record of the verbal order" in item 4 was also attended, since it is up to the prescriber, not the nursing professional, to validate in the prescription medications administered during an emergency situation[4].

Although items 22 and 23 obtained CVI for relevance <0.80, the researchers chose to keep them in the questionnaire because they believe that both represent outstanding actions in the evaluation of the domains in the right way and the right answer. The items, however, were reformulated according to the judges' considerations.

Thus, ASPAM has proved to be a valid tool for the identification of risk-generating conditions for safety in medication administration, which demonstrates that it is suitable for the intended purpose and with a high degree of reliability because it obtained a value of 0.85 for Cronbach's Alpha, which demonstrates that the items of the tool are correlated[23].

It should be noted that, in the context of the present study, it was unnecessary to analyze the magnitude of the correlations and the conceptual adequacy of each item within each factor (domain) since the tool was constructed in the light of the verification items proposed for the implementation of the nine pillars of medication administration per protocol in Brazil[4].

Study limitations

Some limitations need to be considered for the extrapolation of the results found in this study, such as: the difficulty of adhering to the nurses in valuing and adhering to the research, demonstrated by the number of tools that were not returned during the data collection (n = 32) and the conditioning of the collection of data with the professionals to the routine and the unpredictability of the demand of each sector. Despite these limitations, it is important to note that a suitable sample size was used for the necessary statistical analysis, as recommended in the relevant literature.

Contributions for the sectors of Nursing, Health or Public Policy

The study brings advances to Nursing as it makes available the Patient Safety Assessment in Medication Administration as a valid and reliable technological resource in the identification of risk generating conditions; and offers subsidies that contribute to study the relationship between errors and habits of the work organization of the nursing team, aiming to improve the quality of care provided and thus promote the safety of hospitalized patients.

CONCLUSION

The study reached the proposed goal regarding the construction and validation of the Patient Safety Assessment in Medication Administration, demonstrating that it is a validated and reliable tool for the identification of risk-generating conditions related to the medication practice by the nursing team.

It is suggested, however, that new studies should be carried out, aiming to verify the reliability of the tool based on an observational methodology, due to the need to confront the results obtained from the self-report of professionals.

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