

CONTENT VALIDITY OF AN INSTRUMENT ABOUT KNOWLEDGE ON NASOGASTRIC INTUBATION

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ABSTRACT: This study was undertaken to investigate the content validity of an instrument about knowledge on nasogastric intubation, based on the Pasquali model of content validation. Methods: methodological study developed with 23 nurses judges, teachers from public higher education institutions in the state of Rio Grande do Norte, by the application of Content Validity Index (CVI) and the Kappa index. The majority of the research judges were female (87%), age between 25 and 57 years-old, teaching time experience between 1 and 34 years and experience in the discipline of Nursing Semiology and/or Semiotics between 1 and 32 years. Of the total judges, 78.3% had master's degree as the maximum degree and 69.6% exercised exclusively the teaching. In the overall evaluation, the instrument obtained CVI values above 0.75, 0.94 the total CVI and 0.88 the total Kappa. However, some changes were made and focused on the requirements: vocabulary, clarity, updating and accuracy. The instrument showed reliability and trustworthy to observe the nursing care quality, however requires the resubmission of instruments to the same judges to retest, beyond its clinical application, for a more precise and specific content validation.

KEYWORDS: Nursing. Gastrointestinal Intubation. Validation Studies. Knowledge.

INTRODUCTION

The knowledge constitutes an essential tool for the nursing practice. However, many studies show the gap between the knowledge referred by nurses and the patient care in general, as well as those with nasogastric tube (MOREIRA; BERNARDINO JÚNIOR, 2013; CHAN et al, 2012; METHENY; STEWART; MILLS, 2012; HERMANN; CRUZ, 2008).

In this context, the guidelines for the nasogastric tube insertion and assistance to patients who use it must be guiding on scientific basis in order to result in a secure action to the patient with a view to the need to prevent risks related to nursing actions (HERMANN; CRUZ, 2008; CERIBELLI; MALTA, 2006).

Therefore, it becomes essential to evaluate the factors that affect nursing practice, so that a humanistic approach is reached during that assistance (HERMANN; CRUZ, 2008). In view of this, the construction of valid measurement tools in order to verify the adequacy of knowledge in relation to nursing practice represents a great step towards a coherent assistance with theoretical precepts (VITURI; MATSUDA, 2009).

However, to an instrument becomes valid is necessary a process of quality recognition, in other

words, the validation of the instrument (BITTENCOURT et al, 2011). That process besides examining the accuracy of a given prediction or inference from test scores, demonstrates the values found and the investigation process of the instrument adaptation used for this purpose (RAYMUNDO, 2009).

Content validity represents one of the validation kinds and can provide information about the representativeness and clarity of each item of the instrument as well as the degree that the measure items represents about the concept that it is intend to measure of certain object, in addition the elements identification that can be attributed to other objects (MARTINS, 2006; RUBIO et al, 2003). That process have two stages, the first is the development of the instrument and the second involves the analysis and judgment of specialists (POLIT; BECK, 2006).

The Pasquali model of content validation, present in several nursing research, mainly involves the development theory of measuring instruments to subjective phenomena, with the composition of three procedures sets: theoretical, empirical (experimental) and analytical (statistical) (PASQUALI, 2010).

In this context, the aim of this study was to investigate the content validity of an instrument

about knowledge on nasogastric intubation based on Pasquali model of content validation.

MATERIAL AND METHODS

Methodological study with a quantitative approach to data treatment and analysis, that has a focus the content validation of the instrument about knowledge on nasogastric intubation, performed in the period between June and September 2012 after obtaining the assent of the Research Ethics Committee from Hospital Universitário Onofre Lopes, which belongs to the Federal University of Rio Grande do Norte hospital complex (CAAE No 0002.0.294.000-10).

The study was developed in three stages, the first one (theoretical procedures) accomplished the construction of the instrument, a questionnaire consisting of 12 multiple choice questions, with five alternatives each one, which contemplated the important steps of the nasogastric tubes insertion technique. In the second step, it was proceeded to the identification, selection and invitation of experts in order to conduct the judgment of the items of the instrument; and the third stage corresponded to the content validity of the instruments (empirical procedure) with the verification of the agreement level among the judges (analytical procedures).

The Director's Collegiate Resolution (DCR) No. 63, 6 July 2000, that approves the technical regulation for the minimum requirements for Enteral Nutrition Therapy (BRASIL, 2000); the Federal Nursing Council Resolution No. 277 of 2003 (COFEN, 2003); the Guideline of Nursing Procedures (BRASÍLIA, 2012); some nursing summaries (NETTINA, 2011; STACCIARINI; CUNHA, 2011; POTTER; PERRY, 2009; TAYLOR; LILLIS; LEMONE, 2007; TIMBY, 2007). and some scientific articles (STEPTER, 2012; THO, 2011; CERIBELLI; MALTA, 2006; UNAMUNO; MARCHINI, 2002) were the main theoretical references for building the instruments.

The sample was selected by intentionality with inclusion of teachers of Semiology and/or Semiotecnic Nursing discipline with minimum 1 year of experience in the discipline and activity in those public universities in the state of Rio Grande do Norte, as to participate in this analysis, judges must be experts in the technology built, therefore theirs task consists to judge if the appraised items refer or not to the purpose of the instrument (PASQUALI, 2010).

The second step was performed through a contact with the coordinators of undergraduate nursing from the Universidade Federal do Rio

Grande do Norte (UFRN) - central campus and Santa Cruz campus - and the Universidade do Estado do Rio Grande do Norte (UERN) - Mossoró campus and Caicó campus, the request of the contacts (email and phone) of the teachers from the Semiology and/or Semiotics of Nursing discipline to send an invitation letter by email, with the study aims and the justification process validation.

Thus, 30 teachers were invited, of which 24 were available to participate and one was excluded by not completing appropriately the data collection instrument, that it was resulted in a total of 23 teachers, with recommendations supplanting by Pasquali which suggests between six to twenty subjects to the judges number (PASQUALI, 2010).

The research judges evaluated each of the 12 items of the instrument and classified them as "appropriate", "appropriate with changes" or "inappropriate". In those last two cases, the judges, through numerical codes between 1 and 10, explained the reasons for modification or inadequacy according to adapted requirements from the criteria suggested by Pasquali: usefulness / relevance (1), consistency (2), clearly (3) objectivity (4) simplicity (5), feasible (6), updating (7) vocabulary (8), accuracy (9), instructional sequence of topics (10). The overall evaluation of the instrument was also accomplished according to the previous requirements (PASQUALI, 2010).

After the instruments evaluation, the content validation was accomplished with application of Content Validity Index (CVI) and Kappa Index (K) to verify the level of agreement and level of consistency (reliability) among the judges according to the presence or not of the instruments items.

Kappa values range is from "minus 1" to "plus 1", if it more closes to 1, better the level of agreement among the observers. Its distribution and levels of interpretation are: <0.00 = Poor; 0.00 to 0.20 = Slight; 0.21 to 0.40 = Fair; 0.41 to 0.60 = Moderate; 0.61 to 0.80 = Substantial; 0.81 to 0.99 = Almost perfect; 1.00 = Perfect. As acceptance criterion in this study, a higher concordance than 0.61 among judges was established (PEREIRA, 1995).

The Content Validity Index (CVI) measures the proportion or percentage of judges who are in agreement on certain aspects of the instrument and its items, besides to allow the analysis of each individual item and the overall instrument (ALEXANDRE; COLUCI, 2011). To evaluate the instrument by CVI, the form used in this study was the average of the items calculated separately. Thus, it was added all CVI calculated separately and

divided by the number of items on the instrument about knowledge on nasogastric intubation.

In order to stipulate the acceptable rate of agreement among the judges, considering the judges quantitative in the study, it was established the recommended values of 0.75 as the minimum and an agreement of 80% as the minimum among them to serve as a decision criterion on the appropriateness and/or acceptance of each item and with the Kappa 0.61 as the minimum (ALEXANDRE; COLUCI, 2011; PASQUALI, 2010).

Data were tabulated in Microsoft Excel 2010 software and analyzed from reflective reading and descriptive statistics. After analyzing the data, the instruments have been reformulated in accordance with the guidelines and suggestions of the judges.

RESULTS

The teachers selected for content validation were a total of 23 judges, mostly female (87%), aged between 25 and 57 years-old (mean 36.5 years), time variation of teaching experience between 01 and 34 years (mean 7.9 years) and experience in the Semiology and/or Semiotecnic Nursing discipline between 01 and 32 years (mean 5.6 years). Teachers from UFRN represented 73.9% of the sample, 78.3% of the total researched had as maximum degree the academic master's degree and 69.6% exercised the teaching exclusively.

Regarding the instrument items judgment, the Table 1 shows a good level of agreement among the judges of research with CVI values greater than 0.75 and Kappa indexes greater than 0.61. Thus, no item instrument was considered inappropriate.

Table 1. Judgement of the instrument items about the knowledge on nasogastric intubation. Natal/RN, 2013.

QUESTIONS ABOUT NASOGASTRIC intubation TECHNIC	JUDGMENT					
	Appropriate		Appropriate with changes		IVC	Kappa
	n	%	n	%		
Q1. Indication to nasogastric tube use.	20	87.0	3	13.0	0.87	0.76
Q2. Care observed before the procedure	22	95.7	1	4.3	0.96	0.91
Q3. Necessary materials for the nasogastric intubation technic	22	95.7	1	4.3	0.96	0.91
Q4. Care observed immediately before the nasogastric tube insertion	21	91.3	2	8.7	0.91	0.83
Q5. Aspect to be evaluated in the patient before the nasogastric tube insertion	18	78.3	5	21.7	0.78	0.64
Q6. Determination of the nasogastric tube length	23	100.0	-	-	1.00	1.00
Q7. Care observed during the nasogastric tube insertion	22	95.7	1	4.3	0.96	0.91
Q8. Attitude front to the complications related to the nasogastric tube insertion	22	95.7	1	4.3	0.96	0.91
Q9. Continuous cares to patient in nasogastric tube use	23	100.0	-	-	1.00	1.00
Q10. Statement on certification of the correct nasogastric tube position	21	91.3	2	8.7	0.91	0.83

Q11. Attitude that must be taken immediately after the nasogastric tube insertion	23	100.0	-	-	1.00	1.00
Q12. Statement about the step to be accomplished after procedure	22	95.7	1	4.3	0.96	0.91

Of the instrument items, 03 questions had a perfect index agreement (Kappa = 1.00); 07 questions showed almost perfect index agreement (Kappa 0.81 to 0.99) and 02 showed substantial index agreement (kappa 0.61 to 0.80), with overall kappa among the instrument items of 0.88.

Regarding to CVI, all items reached levels above 0.75 and total CVI instrument of 0.94.

In this context, 09 items were considered appropriate with changes, shown in Figure 1, with judgment of judges according to adapted criteria by Pasquali and suggestions that were reformulated and improved (PASQUALI, 2010).

Questions	Requirements review	Judges suggests/coments	Acceptation	Justification
Q1	Clearly; Feasible; Vocabulary	The assertive "a" does not report the obstruction kind. Remove the word "except" from the question enunciation.	Yes	The obstruction in the question refers to a mechanical obstruction of the gastrointestinal tract. It will contribute to best question understanding.
Q2	Vocabulary	Remove the word "except" from enunciation.	Yes	It will contribute to best question understanding.
Q3	Updating	Consider the use of sterile or procedure gloves as the necessary materials.	No	Regarding to kind of glove used in the technique will be considered clean gloves, or procedure gloves as recommended in the literature.
Q4	Clearly; Vocabulary	Rephrase the question wording to "are nursing care made before tube insertion."	Yes	It will contribute to best question understanding.
Q5	Clearly; Updating; Vocabulary; Accuracy	Replace the assertive "a" "hypoglycemia" by "ability to ambulate". Remove the word "except" and "evaluation" from the question enunciation.	No	Study shows that the malnutrition condition of grave patients drives to an enteral nutrition by tube and in this case there is a hyperglycemia situation installed in these patients.
Q7	Vocabulary	Replace "we must" by "must be" from the question enunciation.	Yes	It will contribute to best question understanding.
Q8	Vocabulary	Replace "we must" by "must be" from the question enunciation.	Yes	It will contribute to best question understanding.
Q10	Vocabulary	Substitute the verb tenses "were" for "is" in the sentence "a". The sentence "c" is incomplete, because the aspirated liquid can only confirm the position of the tube when combined with a pH test and not only by its aspect.	Yes	Guidelines recommend to associate the aspirated fluid appearance to a pH test.
Q12	Clearly	To remove the term "judge the correct question" on the title of the question.	Yes	It will contribute to best question understanding.

Figure 1. Judges suggestions about the items considered appropriate with changes. Natal/RN, 2013.

In the judges conclusion about the instrument based on 10 evaluation requirements, all the adapted requirements from criteria suggested by Pasquali, obtained CVI above 0.75 and good Kappa index, as shown in Table 2 (PASQUALI, 2010). Among these requirements, utility/relevance, consistency, objectivity, simplicity, feasible and instructional sequence of topics received maximum score agreement. In contrast, the vocabulary item

had the lowest index in relation to other requirements, while the clarity, accuracy and updating requirements also showed no maximum score concordance. Thus, these requirements as well as the 09 items considered appropriate with changes were analyzed according to the suggestions of the judges and current literature in order to enable the construction of the final version of the instrument.

Table 2. Judges conclusion about the instrument about the knowledge on nasogastric intubation. Natal/RN, 2013.

REQUIREMENTS	OVERALL INSTRUMENT EVALUATION					
	Appropriate		Appropriate with changes		IVC	Kappa
	n	%	n	%		
Usefulness / Relevance	23	100,0	-	-	1,00	1,00
Consistency	23	100,0	-	-	1,00	1,00
Clearly	22	95,7	1	4,3	0,96	0,91
Objectivity	23	100,0	-	-	1,00	1,00
Simplicity	23	100,0	-	-	1,00	1,00
Feasible	23	100,0	-	-	1,00	1,00
Updating	22	95,7	1	4,3	0,96	0,91
Vocabulary	19	82,6	4	17,4	0,83	0,70
Accuracy	22	95,7	1	4,3	0,96	0,91
Instructional sequence of topics	23	100,0	-	-	1,00	1,00

In the overall evaluation, the instrument about knowledge on nasogastric intubation obtained CVI with values above 0.75 as well as shown total CVI of 0.97 and total Kappa of 0.94, which demonstrates trustworthiness and reliability of the instrument to observe the nursing care quality.

DISCUSSION

After the instrument analysis by judges, there was a perfect agreement level in items 06, 09 and 11. Item 06 discusses the determination of the nasogastric tube length, item 09 relates to the patients continuous care using nasogastric tube and item 11 considers the attitude that must be taken immediately after the nasogastric tube insertion.

These items presented the recommendations of the current literature to compose the questionnaire. In item 06, it was considered appropriate to measure the tube length that will be introduced positioning its distal hole in the tip of the

nose, extending to the earlobe and then to the xiphoid (UNAMUNO; MARCHINI, 2002).

In the item about the continuous care to patients using the tube, question 09, the assertive "e" approaches the importance of to make note of the volume and appearance of the liquid drained by an open tube. This assertion is in agreement with the DCR which provides about Enteral Nutrition Therapy, which recommends the procedure registry related to this therapy as well as other author who reports the importance of to registry volume, color and other characteristics descriptions of gastric contents drained, while question 11 shows the measure to be adopted immediately after the nasogastric tube insertion, which constitutes the testing to certificate the tube positioning and fixation (STACCIARINI; CUNHA, 2011; BRASIL, 2000).

Studies show a poor nursing knowledge regarding to various factors involving gastric intubation from aspects involving contraindication

for use of feeding tube as well as the risks and benefits of their use (GRUPTA et al, 2012; LOPEZ et al, 2010). These aspects were observed in questions 01 and 05 and provoked suggestions to appropriate among the judges, with presentation of the lowest agreement levels.

In this context, the question 01 about indication for nasogastric intubation, presented the recommendation to specify the kind of obstruction described in the assertive "a" "treat an obstruction" as an indication for nasogastric intubation.

That indication includes nutrition, hydration and drugs administration in patients unable to feed, but able to absorb nutrients; besides the gastric decompression and gases and liquids removal, which prevents and relieves nausea and vomiting after surgery or trauma; collection of gastric contents; compression, evaluation and treatment of bleeding in the gastrointestinal tract; and allows the diagnosis of gastrointestinal motility disorders, by determining the degree of pressure and motor activity (BRASÍLIA, 2012; NETTINA, 2011; STACCIARINI; CUNHA, 2011; SMELTZER; BARE, 2011).

Regarding to an obstruction treatment, that refers to the treatment of a gastrointestinal tract mechanical obstruction characterized by the presence of a blocking which impedes the transit of gastric and intestinal content. In this case, the tube is inserted to suck out the accumulated material above the obstruction (NETTINA, 2011).

The question 05 also produced disagreements among judges concerning the aspects to be evaluated in the patient before the nasogastric tube insertion, in the incorrect alternative the assertive "b" "hypoglycemia" answered the question. Thus, there was judges suggestion to change the assertive to "ability to ambulate" once the hypoglycemia is a factor that must be considered before the nasogastric tube insertion, as well the presence of nausea and vomiting, bowel sounds, swallow ability and the patient's consciousness level presents in the remaining assertions.

However, a study shows that despite the importance of evaluating these aspects before the nasogastric tube insertion, only obstruction, bowel perforation and ischemia are contraindications for tube insertion aiming to facilitate enteral nutrition. Bowel sounds and flatus absented enable the enteral nutrition, since the noise is due to air movement in the intestine and often are absent or weak even when the bowel functions normally (TOWN; TURNER, 2005).

About the hypoglycemia, considering that a severe undernourished patient presents indication

for enteral nutrition by tube and the state of malnutrition in this patient is characterized by a hyper-metabolic state with a high metabolic demand and consequent hyperglycemia, the judges suggestions was not accepted. Since no studies were found that point the hypoglycemia as an important aspect to be evaluated before the nasogastric tube insertion (FUGINO; NOGUEIRA, 2007).

Relative to question 03 about the materials needed for the nasogastric tubes technique and front of the recommendation of the judges to consider the use of sterile or procedure gloves to perform this technique, the suggestion was not accepted, since the kind of gloves to be considered to do the technique is a clean or procedure glove in accordance with manuals and nursing textbooks (BRASÍLIA, 2012; STACCIARINI; CUNHA, 2011; POTTER; PERRY, 2009).

Among the materials, the stethoscope has been eliminated as the items needed, once the confirmation of hidro-aereal sounds, epigastrium auscultation with air-blowing to confirm the tube position are not recommended by the scientific literature measures (THO et al, 2011; TOWN; TURNER, 2005).

Still regarding to the confirmation of tube placement, question 10 presented a disagreement among the judges as to the assertive "c", which says that "one of the placement tests is the fluids aspiration and observation of their aspect." In this section, the judges said that the assertive was incomplete because the aspirated fluid can only confirm the tube position associated with a pH test and not just by their aspect.

The suggestion was accepted because the aspirated description shows moderate degree of reliability to evaluate the location in the gastric or jejune region according to the literature (STEPTER, 2012).

Thereby the aspect of the aspirated is inadequate as the only method to distinguish between gastric fluid, tracheobronchial aspirates, pleural and intestinal fluids. In this sense, the aspect of the aspirated should be an auxiliary method to predict the tube position (METHENY; STEWART; MILLS, 2012). Some enteral nutrition guidelines recommend to associate the aspect of the aspirated fluid to a pH test (BANKHEAD et al, 2009). Therefore, will be considered the aspect of the liquid associated with to pH test to provide the tube position.

This question reflects the nursing knowledge deficiency revealed in recent studies as the tests to confirm the tube position. In item 10, the auscultation practice in the epigastric region was not

questioned by the judges (CHAN et al, 2012; GRUPTA et al, 2012; METHENY; STEWART; MILLS, 2012; HERMANN; CRUZ, 2008). Although this test does not show enough scientific support to sustain it, is still widely used and is still highlighted in nursing textbooks as a test to confirm the placement of the nasogastric tube (NETTINA, 2011; STACCIARINI; CUNHA, 2011; THO et al, 2011).

CONCLUSION

The 12 items on the instrument about knowledge on nasogastric intubation obtained, through the judges evaluation, high reliability and trustworthiness to observe the nursing care quality.

Although some items have required changes, especially regarding to vocabulary, clarity,

updating and accuracy requirements; in the overall evaluation of the instrument, according to specified requirements, CVI values above 0.75 and Kappa greater than 0.61, as well as presentation of total CVI of 0.94 and 0.88 Kappa total, that is an excellent instrument evaluation.

As soon, it was presented as valid as to their content for use on the observation of the nursing care quality, after adjustments of 07 items according to judge's suggestions.

The study represents an essential step in the beginning process of the content validity of the instrument about knowledge on nasogastric intubation, however requires the resubmission of instruments to the same judges retest, beyond its clinical validation for a content analysis more precise and specific.

RESUMO: Objetivo: investigar a validade de conteúdo de um instrumento sobre conhecimento em sondagem nasogástrica, com base no modelo de validação de conteúdo de Pasquali. Métodos: estudo metodológico desenvolvido com 23 enfermeiros juízes, docentes de instituições públicas de ensino superior do Rio Grande do Norte, por meio da aplicação do Índice de Validação de Conteúdo (IVC) e do índice Kappa. Resultados: Os juízes da pesquisa foram em sua maioria do sexo feminino (87%), com idades entre 25 e 57 anos, variação no tempo de experiência na docência entre 1 e 34 anos e de experiência na disciplina de Semiologia e/ou Semiótica de Enfermagem entre 1 e 32 anos. Do total de juízes, 78,3% possuíam como máxima titulação o mestrado acadêmico e 69,6% exerciam exclusivamente a docência. Na avaliação geral, o instrumento obteve IVC com valores acima de 0,75, IVC total de 0,94 e Kappa total de 0,88. No entanto, algumas alterações foram realizadas e se concentraram nos requisitos vocabulário, clareza, atualização e precisão. Conclusão: O instrumento apresentou confiabilidade e fidedignidade para observar a qualidade da assistência de enfermagem, no entanto exige a resubmissão dos instrumentos aos mesmos juízes para reteste, além da sua aplicação clínica, para uma validação de conteúdo mais precisa e específica.

PALAVRAS-CHAVE: Enfermagem. Intubação gastrointestinal. Estudos de validação. Conhecimento.

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