VALIDATION OF AN INSTRUMENT TO ASSESS THE KNOWLEDGE, ATTITUDE AND PRACTICE OF PUERPERAL WOMEN ABOUT THE GENERAL DANGER SIGNS OF THE NEWBORN

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ABSTRACT

The validation of an instrument is essential to ensure its reliability and accuracy. This study aimed to validate an instrument to assess the Knowledge, Attitude and Practice of puerperal women in rooming-in about general danger signs that the newborn may present. The study followed 7 stages: 1st conceptual structuring, 2nd definition of the instrument's objectives, 3rd construction of the items and response scales, 4th selection and organization of the items, 5th structuring of the instrument, 6th content validation and 7th pre-test. Then, the psychometric properties of validity and reliability were evaluated. The statistical analysis of the data evaluated the CVI of pertinence, relevance and clarity for each item and all items evaluated in the final survey had CVI greater than or equal to 0.8 in the pertinence and relevance item. The final version of the instrument was validated containing 41 items separated by 3 domains, Knowledge, Attitude and Practices. The internal consistency of the instrument evaluated by Cronbach's Coefficient showed that the instrument has high reliability with alpha equal to 0.88. Validating this instrument was fundamental, as it enabled the application, analysis, and adequate planning of interventions that can improve the care of newborns and reduce avoidable deaths.

Keywords: Knowledge. Attitudes and Practice in Health. Validation study. Newborn.

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INTRODUCTION

The neonatal phase is the one marked by greater vulnerability and all care for the newborn and the risks that surround it is necessary to reduce infant mortality, which is still high in Brazil, however, care alone is not enough, it needs to be accompanied by adequate, complete and highly recognized execution to protect the individual and his health. (BRAZIL, 2015). This infant mortality rate in Brazil has been a concern for the United Nations, which has proposed as one of its "Sustainable Development Goals in Brazil" to reduce the avoidable deaths of newborns and children in the country. (UN, 2015).

The Child Health Handbook is an important tool in the construction of this care, which is distributed throughout Brazil and has become a fundamental document for the baby, as it accompanies the newborn throughout childhood. In addition to recording all the child's information, it also contains the necessary guidelines for caring for the child, such as identifying danger signs, so that the child grows and develops in a healthy way (BRASIL, 2020).

In this context, knowing the danger signs that the newborn may present is essential when it comes to child care, as a simple change in sleep pattern, or even a difficulty in breastfeeding can be a risk to the life of this baby. For this reason, it is a point highlighted in the Child Health Handbook, and in it, in addition to describing the main general signs of danger that the child may give, the ways in which the mother or caregiver should seek help are also guided so that the emergence of diseases and even death can be avoided (BRASIL, 2020).

Thus, the application of the CAP survey is pertinent because knowledge is knowledge, that is, the ability to transmit definitions on a subject based on previously obtained notions. Attitude is the opinion, the feeling, the emotion that one has about a subject. Practice is acting, the impulse to perform an action (MARINHO, 2003). Thus, CAP research investigates a specific population in order to understand its knowledge, beliefs, and behaviors related to a given topic and, thus, perceive existing gaps in knowledge, cultural convictions, or ways of acting that can influence understanding and action in this context. This type of research direction reveals challenges and impasses when seeking solutions to a problem. The data collected serve to guide better application of resources and develop interventions (WHO, 2009).

Along with this, applying validation because, "validity is the aspect of the measure being congruent with the measured property of the objects and not with the accuracy with which the measurement, which describes this property of the object, is made" (PASQUALI, p.158, 2013). This aspect encompasses three categories that are increasingly used in the

validation processes of instruments in nursing, the validity of content, criterion and construct (OLIVEIRA, 2018).

The first stage of the validation of an instrument is the construction of a theoretical basis of the scale, identifying principles and elaborating their respective indicators. The construction of a solid theory is done from the systematization of all the empirical evidence about the instrument. The empirical data about the construct that is intended to be built will guide the construction of its measurement instrument and, based on them, the researcher will be able to formulate his construct theory and this will guide the construction of the measurement instrument. According to the empirical data that will be collected through the instrument thus constructed, they will determine whether their theory is logical or not (LOCH et al, 2021; PASQUALI, 1998).

The next step is to establish the purpose of the instrument and define the population involved. It is understood that the objectives of the research in question will define the concepts to be investigated and will directly link concept to item and target population to sample. There is an equivalence between the concept and the item, the latter being a practical representation and the former an abstract term, as well as the sample is considered the practical part and the target population, the abstract term. When defining the items, based on the concept, this population-target/sample relationship is taken into account, in the same way that when defining the sample, based on the target audience, the concept/item relationship is taken into account (GUNTHER, 2003).

The construction of the items should be based on the conceptual framework, whether through literature search, existing questionnaires, reports from the target population, clinical observation, or expert opinion (COLUCI, ALEXANDRE, MILANI, 2015). In addition, during development, the social environment in which the questionnaire will be applied, the configuration and arrangement of the instrument and its items must be taken into account (GUNTHER, 2003).

It is necessary to adopt some criteria in the construction of the items, such as the behavioral criterion, that is, the item must express a behavior, it must be able to allow the person a clear and precise action, the objectivity or desirability criterion, which must allow different tastes, preferences, feelings and ways of being. The criterion of simplicity and clarity, which value the expression of a single idea and the use of short sentences, with simple and unequivocal expressions, respectively. The criterion of relevance, that is, the item must not convey an attribute different from the one defined and, finally, the criterion of credibility (face validity), which expresses that the item must be formulated in such a way that it does not appear as ridiculous, unreasonable or childish (PASQUALI, 1998).

In addition to building the items, it is also essential to develop and choose a method to obtain the answers. Response scales can take many forms, and method selection should be guided by the nature of the question at hand. Among the techniques used to create response scales, the most common include direct estimation methods, such as the visual analog scale, adjective scales, Likert-type scales, scales with graphic representations, among others. Each type of scale has its own advantages and disadvantages (COLUCI, ALEXANDRE, MILANI, 2015).

The Likert scales were proposed by Rensis Likert in 1932, and constructed in such a way that they expressed, through the answer, their degree of agreement or disagreement to allow a clear view of the position of individuals in relation to the topic in question. This type of scale has a sequence of items that vary in intensity, the classic being the five-point scale, ranging from "strongly disagree" to "strongly agree". Other scales, such as the four-point scale, are also valid, because, in addition to measuring the variety of opinion, they provide a balance between the positive and negative response alternatives (LIKERT, 1932).

The purpose of the domain specification is to ensure that all relevant domains or concepts have been appropriately addressed by the set of items and that all relevant dimensions have been properly incorporated. Experts should examine whether the content is appropriate for potential respondents, verify the accuracy of the domain structure and its content, and assess whether the material included in the domain is representative enough. In this context, judges can offer suggestions for both adding and removing items as needed (COLUCI, ALEXANDRE, MILANI, 2015).

Then, the judges have the responsibility of analyzing each item in isolation. In addition, this analysis should be conducted taking into account several factors, such as the format of the item, its title, the instructions, the domains addressed, the scores associated with the domains (or the instrument as a whole), and the subsequent analysis of the results. This implies evaluating the clarity and relevance of each aspect to be considered during the evaluation (COLUCI, ALEXANDRE, MILANI, 2015).

The questionnaire structuring phase is the one aimed at finalizing the previous stages, focusing on organizing the items in their corresponding domains and defining the general format of the instrument. In this process, it is important to take into account elements such as the title, instructions, response scales, scores and other relevant details (COLUCI, ALEXANDRE, MILANI, 2015). According to the traditional approach of positivist psychometrics, the recommendation is to start with at least three times as many items as desired in the final result, with the aim of ensuring that one-third of them remain after the final selection (PASQUALI, 1998).

Once you have created and organized the instrument, it will likely have more items than the final questionnaire. This is because it is still necessary to confirm that the selected items are really representative and appropriate to address the different aspects of the construct we want to measure. This verification is carried out through a content evaluation, in which we establish connections between the abstract concepts we are studying and the specific indicators that we can observe and measure (COLUCI, ALEXANDRE, MILANI, 2015)

Content or construct analysis seeks to verify the adequacy of the behavioral representation of latent attributes. In it, the expert judges in the area of the construct will evaluate whether the items refer to the characteristic in question or not (PASQUALI, 2013).

Content validity indicates the extent to which the instrument has an appropriate sample of items to measure the specific construct and adequately cover its domain, so that it is necessarily based on a judgment. Although there are no formulas that attest to a fully adequate coverage of the content of the instrument, researchers increasingly use experts to judge the validity of the content of new instruments (POLIT, BECK, 2011).

After review by the judges, it is crucial to conduct an evaluation of the Content Validity Index (CVI). The CVI is a criterion widely used in the field of health, being used to measure the level of agreement among experts in relation to specific aspects of the instrument and its items, expressing this agreement in the form of a percentage or fraction (ALEXANDRE, COLUCI, 2011).

To calculate the CVI, the Likert-type scale of four variables is used, in the evaluation of relevance point 1: not relevant or not representative, 2: item needs a large revision to be representative, 3: item needs a small revision to be representative, or 4: item relevant or representative. In terms of clarity, point 1: not clear, 2: unclear, 3: fairly clear, 4: very clear. Based on the answer obtained, answers 1 and 2 should be revised or eliminated and only the answers "3" and "4" of each judge in each item analyzed of the questionnaire should be considered for sum, divided by the total sum of answers (COLUCI, ALEXANDRE, MILANI, 2015).

Some authors differ as to the agreement between the judges, Polit and Beck (2011) suggest a CVI of 0.90 as a standard to establish the excellence of the content validity of a scale. On the other hand, Pasquali (1998) states that an agreement of at least 80% among the judges can serve as a criterion for deciding on the relevance of the item to the trait to which it theoretically refers and that items that do not reach an agreement in the application of the factors (about 80%) obviously present problems and it would be the case to discard them from the pilot instrument.

The next step is the application of the final instrument with the target audience, known as apparent validation or face validation. This is done to assess how this audience perceives the relevance of the instrument. The last phase is the reliability analysis, which involves the evaluation of internal consistency and temporal stability through repeated application (test-retest) with the target audience of the final version of the instrument (LOCH, 2021).

Based on this, the objective of this study is to validate an instrument, based on risk signals contained in the Children's Handbook and in the Neonatal IMCI, which can analyze the knowledge, attitudes and practices of puerperal women both in the hospital and in the post-hospital period. This approach will allow a clearer and more objective understanding of the main difficulties that these women have in recognizing the general signs of danger. Thus, in addition to strengthening the bond between the mother-baby binomial, the study will help health professionals to carry out a more quality care practice and promoting health education in a more concise way, in rooming-in and outpatient sectors, taking into account the entire social and economic context of these women.

METHODOLOGY

This is a methodological research with a quantitative approach. This study is part of a larger research entitled "Evaluation of the Knowledge, Attitude and Practice of Postpartum Women in the Care of Newborns". It is a validation of the knowledge, attitude and practice (CAP) survey, which is a formative assessment that aims to collect data from a portion of the population and favor the development of interventions.

CAP are used to diagnose and evaluate the effectiveness of interventions or programs. They help to understand the knowledge, attitudes and practices of the population in relation to a given topic. In addition, they can be applied to identify problems and design specific interventions. The objectives of the CAPs include assessing knowledge about diseases, understanding people's feelings about them, and identifying risk behaviors. These questions provide information about protection against diseases and perception of danger (OLIVEIRA et al, 2020).

The research was conducted in the Rooming-in Room of CISAM (Centro Universitário Integrado de Saúde Amaury de Medeiros), University of Pernambuco, located in the northern zone of Recife, in the Encruzilhada neighborhood, in the territory of the Health Sanitary District II in Recife, Pernambuco. It is an Education and Health unit, which is part of the Hospital Complex of the University of Pernambuco – UPE. It has 138 beds in the Hospital unit, all linked to the Unified Health System – SUS, being a state reference in high-

risk pregnancy and childbirth, with care for women, adolescents and people with uteruses in situations of sexual and domestic violence and legal abortion – PROMARIAS, performs gynecological surgeries and also has a Human Milk Bank.

The population was composed of nurses and postpartum women from the teaching hospital. The sample was composed of 20 expert judges for the content validation stage, which had as inclusion criterion specialty or experience in the area of child health and as exclusion criterion to have less than 1 (year) of employment with the health unit, and 30 puerperal women from the maternity hospital to perform the pre-test, As an inclusion criterion, a minimum age of 18 years and being with the newborn in rooming-in were defined, mothers who did not present clinical and/or psychological conditions that would allow the understanding of the study objectives were excluded, so that they could not sign the Informed Consent Form.

Based on the literature review, the items of the instrument were developed so that there was a corresponding item for each domain, knowledge, attitude and practice. The answers to the items in the knowledge domain were dichotomous, yes or no, and those in the attitude domain were given based on a Likert scale: "Not important", "Sometimes important", "Moderate", "Important and Very Important". The items in the Practice domain also had responses on a Likert scale: "Never", "Rarely", "Occasionally", "Often", "Very Frequent".

For the expert judges, each item in each domain was judged as to Relevance, whether it belongs or not, to the domain in question, Relevance, whether it is important, and Clarity, whether it is understandable or not, using a Likert-type scale. In terms of pertinence, the scale was composed of: "Very pertinent", "Pertinent", "Not very relevant" and "Not at all relevant", as for relevance the scale was: "Very relevant", "Relevant", "Not at all relevant" and "Not at all relevant". Following the same conformation, clarity was evaluated based on a Likert-type scale: "Very Clear", "Clear", "Not Very Clear", "Not at all Clear", in addition, if the item was not clear, there was room for a suggestion for change.

The stages of the study followed the seven steps of the construction of instruments proposed by Coluci, Alexandre and Milani (2015), 1st conceptual structuring, 2nd defining the objectives of the instrument, 3rd constructing the items and response scales, 4th selecting and organizing the items, 5th structuring the instrument, 6th content validity and 7th pre-test. At the end, the psychometric properties of validity and reliability were evaluated.

The collection was carried out between the months of October 2022 and October 2023. In the validation phase, the invited judges were given the Informed Consent Form, the

judge questionnaire and the sociodemographic questionnaire. In the pre-test, when inviting the puerperal woman to participate in the research, the Free and Informed Consent Form, the final questionnaire, the semantic analysis instrument and the sociodemographic questionnaire were delivered. The semantic analysis instrument was given to analyze the understanding of the items, the words and the completion of the answers.

For data processing, Microsoft Excel software was used. In the content validation stage, the CVI was calculated. The evaluation was made using a Likert scale scored as follows: 1 = Very pertinent/relevant/clear, 2 = pertinent/relevant/clear, 3 = Not very pertinent/relevant/clear and 4= Not at all pertinent/relevant/clear. In the evaluation of Clarity, in addition to the scale, the judges were given a space to suggest changing the item, if they judged it to be "Unclear" or "Not at All Clear". Answers "1" and "2" of each item received a score of 1 and "3" and "4" a score of 0. At the end, the scores were summed by the number of responses (Figure 1).

Figure 1 - Calculation of the Content Validity Index

$$IVC = \frac{\text{Number of Responses "1" or "2"}}{\text{Number of responses}}$$

Source: adapted from Coluci, Alexandre and Milani (2015)

Items that received CVI equal to or greater than 0.8 were maintained, while those that had lower agreement among the judges regarding pertinence and relevance were eliminated from the instrument. In terms of clarity, the CVI was important to make changes in the formatting of the questions to improve understanding. After the updates in the number and structuring of the items, a new instrument was taken to another 10 judges, who evaluated the items in the same way.

In the analysis of the Pre-test data, reliability was evaluated, that is, whether the instrument really measures what it is intended to measure, by means of Cronbach's Alpha Coefficient, widely used to evaluate the internal consistency of the instruments. To this end, values were assigned to the answers that represent the understanding of the women interviewed, transforming them from a nominal to a numerical scale as follows: Yes=1; No=0; I don't know=0; Not important=0; Sometimes it is important=0.25; Moderate=0.5; Important=0.75; Very Important=1; Never=0, Rarely=0.25; Occasionally=0.5; Often=0.75; Very Frequent=1. The answer "I don't know" was considered an omission, so it was replaced by the value zero (MATTHIENSEN, 2011).

The alpha values range from 0 to 1, and are classified as follows (Figure 2):

Figure 2: Cronbach's Coefficient Reliability Classification

Confiabilidade	Muito Baixa	Baixa	Moderada	Alta	Muito Alta
Valor de α	$\alpha \leq 0,30$	$0,30 < \alpha \leq 0,60$	$0,60 < \alpha \leq 0,75$	$0,75 < \alpha \leq 0,90$	$\alpha > 0,90$

Source: Freitas and Rodrigues (2005)

The main project has already been submitted via Plataforma Brasil and forwarded to the Ethics Committee for Research with Human Beings, in compliance with the guidelines inherent to resolution 466/12 CNS, obtained a favorable opinion from CEP 4.651.198 and CAEE registration: 45334621.9.0000.5191, through the Ethics and Research Committee of the Amaury de Medeiros Integrated University Health Center (CISAM).

RESULTS AND DISCUSSIONS

The sample consisted of 20 judges, all nurses, 15% (n=3) were between 23 and 27 years old, 5% (n=1) were between 28 and 32 years old, 10% (n=2) were between 33 and 37 years old, 15% (n=3) were between 38 and 42 years old, 15% (n=3) were between 43 and 47 years old, 20% (n=4) were between 48 and 52 years old and 20% (n=4) were between 53 and 57 years old.

Regarding gender, 90% (n=18) were female and 10% (n=2) were male, as for color/race, 65% (n=13) were white, 10% (n=2) were black and 25% (n=5) were brown. At the level of education, 15% (n=3) had only completed higher education, 40% (n=8) had specialization, 10% (n=2) had residency, 30% (n=6) had a master's degree and 5% (n=1) had a doctorate.

Regarding the time of experience in children's health, 35% (n=7) had been working in children's health for more than 1 to 4 years, 5% (n=1) were between 5 and 8 years, 20% (n=4) were between 9 and 12 years, 5% (n=1) were between 13 and 16 years, 20% (n=4) were between 17 and 20 years old, and 15% (n=3) had been working in child health for more than 20 years. The profile of the expert judges was mostly over 40 years old, female, white, with a postgraduate degree and more than 9 years of experience in child health.

In the first phase of content validation, 10 judges evaluated the content of each item for pertinence, relevance and clarity, within a 4-point Likert scale. Based on the results, the Content Validity Index of each item was measured. This is because it is necessary that the survey adequately encompasses the scientific knowledge to be transmitted, according to the guidelines and criteria established by the specialist in the area (RIBEIRO, POSSOLLI, RIBEIRO, 2024).

The items in the Knowledge domain had CVI, for the most part, greater than 0.8, but three judges 2, 5 and 9 evaluated item 10 (I10) as "Not Very Relevant" or "Not at All Relevant", resulting in CVI=0.7, so the item was excluded from the instrument. The items in the attitude domain had an adequate CVI, i.e., greater than 0.80, so no item was eliminated. In the evaluation of the Practice, the configuration of the items left doubts as to the relevance of the question, which left the agreement among the judges low. Thus, the CVI of items 8, 10 and 11 was below the desired level, leading to the exclusion of these questions (Table 1).

In the evaluation of the relevance of the Knowledge domain, I10 had a CVI <0.8 and was eliminated. The items in the Attitude domain had CVI>0.8, so they remained in the instrument, however, in the Practice domain, items 8, 10 and 11 had low agreement among the judges and were also eliminated (Table 1).

When judging clarity, the judges who considered the item "Not Very Clear" or "Not at All Clear" were asked to make a suggestion to change the item in question, the judges who answered that a question was "Clear" or "Very Clear", but suggested a change to improve the understanding of the question, a score of 0 of "Not at All Clear" or "Not at all Clear" was considered.

In the Knowledge domain, I8 was less clear for the judges with CVI=0.5, which means that only 50% of the judges judged the item as clear. In the Attitude domain, the item that caused the most misunderstanding among the judges was I9, with CVI=0.6, followed by I8 and I1, with CVI=0.7.

The items of the Practice had, in clarity, the lowest CVI, I9 and I10 with CVI=0.6 and I8 and I13 with CVI=0.7 (Table 1). This is because, initially, the frequency with which the mother perceived a sign of danger was asked, however, the child could never present a sign and she would answer that it would never, with this, it would not be possible to know if the baby never actually presented or if the mother did not know how to identify such a sign. Therefore, the survey was adapted to this variable, as shown in Table 2.

Table 1: Distribution of Content Validity Indices by Item - CAP1 Instrument, Recife – Pernambuco.

Pertinence															
	I1	I2	I3	I4	I5	I6	I7	I8	I9	I10	I11	I12	I13	I14	I15
IVC - Knowledge	1	1	1	1	0,8	1	1	0,8	0,9	0,7	1	1	1	1	1
IVC – Attitude	1	1	1	1	0,9	1	1	0,9	0,9	0,9	1	1	1	1	1
IVC – Practice	0,9	0,9	0,8	0,8	0,8	0,8	0,8	0,7	0,8	0,7	0,7	0,8	0,8	0,8	0,8

Relevance															
IVC - Knowledge	1	1	1	1	0,9	1	1	0,8	0,9	0,7	1	1	1	1	1
IVC – Atitude	1	1	1	1	0,9	1	1	0,9	0,9	0,9	1	1	1	1	1
IVC – Practice	0,9	0,9	0,8	0,8	0,8	0,8	0,8	0,7	0,8	0,7	0,8	0,8	0,8	0,8	0,8
Clarity															
IVC - Knowledge	1	0,9	0,8	0,7	0,9	0,9	0,8	0,5	0,9	0,9	1	1	1	0,8	0,9
IVC – Atitude	1	1	0,8	0,8	1	0,9	1	0,6	0,6	0,8	1	1	0,7	0,9	1
IVC – Practice	0,9	0,9	0,8	0,8	0,9	0,8	0,9	0,7	0,6	0,6	0,9	0,9	0,7	0,8	0,8

Description: I- Item; IVC- Content Validity Index.
Source: Authors, 2023.

When analyzing the judges' suggestions, the most pertinent to the item was balanced so that it was as clear as possible to the target audience (Table 2).

Table 2: Distribution of suggestions for change by each judge in each item - Instrument CAP 1, Recife - Pernambuco.

ITEM KNOWLEDGE	SUGGESTION FOR CHANGE
1. Do you know how to identify when your baby can't breastfeed or drink milk?	J2: Changes the verb to achieve for difficulty; J9: Change the beginning of the question to "can you tell when";
2. Do you know how to identify when your baby has an abnormal body temperature?	J1: Do you know how to identify when your baby is not at a normal temperature?; J2: Use "your baby is cold or has a fever".; J9: Change it to "can you tell when your baby's body temperature is abnormal"; J10: change abnormal to changed. (continua)
3. Do you know how to identify when your baby is breathing more or less than normal?	J4: Change it to faster or slower; J5: Change it to "is having difficulty breathing (tired)"; J9: Change it to "can you tell when your baby's breathing is faster or slower than normal?".
4. Do you know how to identify the signs of umbilical stump infection?	J1, J7: Change the word umbilical stump to navel; J9: Change it to "you can identify the signs of infection (bad smell, redness and color)".
5. Do you know how to identify the signs of ear infection?	J3: The question is not pertinent because ear infection is more common between 6 months and 2 years, and not in newborns; J6: in your baby.
6. Do you know how to identify when your baby is pooping more or less than normal?	J5: Change it to "it's doing little, normal or a lot of poop"; J9: change it to "do you know how to identify when your baby poops out of the ordinary?"
7. Do you know how to identify when the appearance of your baby's stool is abnormal?	J2: The question should induce the mother to describe the baby's feces: "what should your baby's poop be like?"; J5: change aspect for "color and texture"; J9: change it to "do you know how to identify when the appearance of the stool is out of the ordinary?"; J10: change abnormal to changed.
8. Do you know how to identify the signs that precede the seizure in your baby?	J1: Change it to "do you know how to identify the signs that warn you that your baby will convulse?"; J2: The question should be asked in specific cases; J4: Wouldn't it be more important to act on the seizure?; J5: Replace precede with "before the baby has convulsions"; J8: To change precede by "before"; J9: Change it to "you know

	how to identify the signs that appear before a seizure in your baby".
9. Do you know how to identify if your baby is conscious or not?	J2: The term conscious should be replaced or the question should be reformulated; J3: The mother cannot understand the concept of conscious, better to ask about moving, stretching, making faces, smiling, etc.; J5: As a baby we talk about activity and reactivity, change it to "active/reactive". *(continua)*
10. Do you know how to identify when your baby is about to vomit?	J5: "You know the danger when your baby vomits."
11. Do you know how to identify the signs of dehydration in your baby?	J3: For the use of some technical terms, you need a prior explanation of what it is.
12. Do you know how to recognize pus blisters that can appear on your baby's skin?	J9: Replace it with "do you know how to recognize the pus bubbles that...".
13. Do you know how to identify characteristics of oral moniliasis (mouthpiece/thrush) in your baby?	J9: change it to "do you know how to identify the characteristics of oral moniliasis, also known as mouthpiece or thrush, in your baby's mouth?".
14. Do you know the way (technique) of choking your baby?	J3: "do you know what to do when your baby chokes?"; J4: change it to "how to choke your baby"; J8: change it to "unchoke your baby"; J9: change it to "do you know how to perform the choking maneuver on your baby?"; J10: change it to "do you know the way to choke your baby?".
15. Do you know how to identify when your baby's skin color is abnormal?	J4: change color by color; J9: change it to "do you know how to identify when your baby's skin color is out of the ordinary?"; J10: change abnormal to changed.
ITEM ATTITUDE	SUGGESTION FOR CHANGE
1. Do you think it is important to know how to identify when your baby is unable to breastfeed or drink milk?	J9: change it to "when your baby is unable to breastfeed or drink milk".
2. Do you think it is important to know how to identify when your baby has an abnormal body temperature?	J9: change it to "when is your baby's body temperature out of normal?"; J10: change abnormal to changed.
3. Do you think it is important to know how to identify when your baby is breathing more or less than normal?	J4: change to faster or slower; J5: change it to "you are having difficulty breathing or are tired"; J9: change it to "when is your baby's breathing out of normal?". *(continua)*
4. Do you think it is important to know how to identify the signs of umbilical stump infection in your baby?	J1, J4, J7: change the word umbilical stump to navel.
6. Do you think it is important to know how to identify when your baby is pooping more or less than normal?	J5: change it to "when the stool has a normal color and texture"; J9: change it to "when does your baby poop out of the ordinary?".
7. Do you think it is important to know how to identify when the appearance of your baby's stool is abnormal?	J2: change the word aspect; J9: change it to "when is the appearance of your baby's stool out of the ordinary?"; J10: change abnormal to changed.
8. Do you think it is important to know how to identify the signs that precede the seizure in your baby?	J4: it would be more important to act on the seizure; J5: change it to "know what the signs are like before the seizure; J9: change it to "the signs that occur before a seizure in your baby?"; J10: change it to "what comes before your baby's seizure?".
9. Do you think it is important to know how to identify if your baby is conscious or not?	J3: the mother may not understand the concept of conscious, better ask about moving, stretching, making faces, smiling, etc.; J5: replace it with "is active/reactive".

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10. Do you think it's important to know how to identify when your baby is about to vomit?	J2: Vomiting and gulfing may be normal in a baby depending on the amount. The question would be more valid if it addressed "Do you know how to identify when your baby's vomiting is a sign of illness? Or even, do you know how to differentiate vomiting from choking?; J5: change it to "what are the dangers when your baby vomits".
11. Do you think it is important to know how to identify the signs of dehydration in your baby?	J3: for the use of some technical terms, you need a prior explanation of what it is.
12. Do you think it's important to know how to recognize pus bubbles that can appear on your baby's skin?	J9: change it to "know how to recognize the pus bubbles that...".
13. Do you think it is important to know how to identify characteristics of oral moniliasis, also called "mouthwash", in your baby?	(continua) J2, J4, J8: include the term "thrush"; J9: change it to "identify the characteristics of oral moniliasis, also called mouthpiece or thrush, in your baby?
14. Do you think it is important to know the way (technique) of choking your baby?	J3: "Do you think it's important to know what to do when your baby chokes?"; J4: change it to "how to choke"; J9: change it to "know how to perform the choking maneuver on your baby?"; J10: change it to "to choke your baby?".
15. Do you think it is important to know how to identify when your baby's skin color is abnormal?	J4: change color for "color"; J9: change it to "when is your baby's skin color out of the ordinary?"; J10: change abnormal to changed.
ITEM PRACTICE	SUGGESTION FOR CHANGE
1. How often do you notice that your baby is unable to breastfeed or drink milk?	J4: The mother will never respond if she never sees these signs, but it does not mean that the practice will be inappropriate; J6: it would not be relevant to know the number of times the mother notices; J10: replace all the statements of the practice with "can you perceive that..."
2. How often do you notice that your baby has an abnormal body temperature?	J10: Swap Abnormal for Changed
3. How often do you notice that your baby is breathing more or less than normal?	J5: Change it to "is normal or tired"; J9: Change it to: "that your baby's breathing is faster or slower?"; J10: Change it to "can you tell if your baby is breathing more or less than normal?"
4. How often do you notice signs of umbilical stump infection in your baby?	J1, J7: change the word umbilical stump to navel
6. How often do you notice that your baby is pooping more or less than usual?	J5: change aspect for "color and texture"; (conclusion)
8. How often do you notice the signs leading up to seizure in your baby?	J5: change precede by "before the baby has seizures"; J8: What would be a frequent seizure? Put the average number of episodes in a given time (month/year).
9. How often do you notice if your baby is conscious or not?	J3: The mother may not understand the concept of conscious, better ask about moving, stretching, grimacing, smiling, etc. J5: change to "active/reactive".
10. How often do you notice that your baby is about to vomit?	J5: change it to "the dangers when your baby vomits".
11. How often do you notice signs of dehydration in your baby?	J3: for the use of some technical terms, you need a prior explanation of what it is.
12. How often do you notice pus blisters on your baby's skin?	J8: she only had 24/48 hours with the NB, the frequency will probably be low.
14. How often do you perform the choking technique on your baby?	J3: "How often do you perform the choking technique on your baby?".
15. How often do you notice that your baby's skin color is abnormal?	J10: change abnormal to changed.

Source: Authors, 2023.

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From this evaluation, the Knowledge domain, which initially had 15 items, now has 14 items, by excluding item 10, the Attitude domain had 15 items and remained with the same, while the Practice domains, items 8, 10 and 11 were also eliminated, leaving 12 items in the domain. After the changes in the number of items and in their formulation, the new instrument was submitted to another 10 judges who evaluated the questionnaire in the same way, with the same criteria.

Table 3: Content Validity Index by Item - CAP 2 Instrument, Recife – Pernambuco.

	I1	I2	I3	I4	I5	I6	I7	I8	I9	I10	I11	I12	I13	I14	I15
Pertinence															
IVC - Knowledge	1	1	1	1	1	0,9	0,8	0,9	1	1	1	0,9	0,9	1	ON
IVC – Atitude	1	1	1	1	1	1	0,9	0,9	1	1	1	0,8	1	1	1
IVC – Practice	1	1	1	1	1	0,8	0,9	0,9	1	0,9	0,9	1	ON	ON	ON
Relevance															
IVC - Knowledge	1	1	1	1	0,9	1	0,8	1	1	1	1	0,9	1	1	ON
IVC – Atitude	1	1	1	1	1	0,9	1	1	1	1	1	1	1	1	1
IVC – Practice	1	1	1	1	1	0,8	0,9	0,9	0,9	0,9	0,9	1	ON	ON	ON
Clarity															
IVC - Knowledge	1	0,6	1	0,6	0,7	0,8	0,6	0,7	0,7	0,7	0,9	0,8	0,8	0,7	ON
IVC – Atitude	1	0,9	1	0,8	0,8	1	0,8	0,7	0,9	0,9	0,8	0,8	1	1	1
IVC- Practice	1	0,9	1	0,7	0,8	0,8	0,6	0,5	0,8	1	0,9	1	IN	IN	IN

Description: I- Item; NA- IVC- Content Validity Index does not apply.
Source: Authors, 2023.

Of all the items judged, none had CVI<0.8 in terms of pertinence and relevance (Table 3), so there was no change in the quantity, only small changes in some terms of the questions at the suggestion of the judges (Table 4).

Table 4: Suggestions for change by each judge in each item - Instrument CAP 2 (continued)

ITEM KNOWLEDGE	SUGGESTION FOR CHANGE	AFTER CHANGE
2. Can you notice when your baby's body temperature changes?	J11: replace "altered body temperature" with "different body temperature"; J16: use less technical language; J19: Change for fever; J20: High and low body temperature.	2. Can you tell when your baby has a temperature that is too high or too low?
4. Can you notice the signs of belly button infection in your baby?	J16: Change language with the user, "signs of abnormality", "alteration in the navel", not necessarily infection; J19: "navel smells bad, very dirty, with green discharge".	4. Can you tell if your baby's belly button is red, swollen or pus?
5. Can you notice the signs of ear infection in your baby?	J16: use more informal, clear language, at the level of the user/parent; J19: "dirty ear, some secretion coming out"	5. Can you tell if your baby's ear is red, swollen, or if there is any fluid coming out of it?
6. Can you tell when your baby is pooping an unusual amount?	J16: First to know if the mother understands what is normal, what is normal like?	6. Can you tell when your baby is pooping an unusual amount?
7. Can you tell when the color and texture of your baby's poop is altered?	J19: "poop is different from normal".	7. Can you tell when the color and texture of your baby's poop is altered?

9. Can you notice when your baby has altered movement, activity and/or reactivity?	J16: explain simply, mothers do not always know the meaning of words;	9. Can you notice when your baby has altered movement, activity and/or reactivity?
10. Can you notice the signs of dehydration in your baby?	J19: You have to say what is dehydrated	10. Can you notice the signs of lack of water in your baby's body?
11. Can you notice pus blisters on your baby's skin?	J17: as the public is mostly lay, it would be good to use a more common language: "yellowish bubbles", etc;	11. Can you notice yellowish pus blisters on your baby's skin?
12. Can you notice the characteristics of oral moniliasis, also called mouthpiece or thrush, in your baby's mouth?	J16: "can you identify moniliasis...";	12. You can identify oral moniliasis, also called

mouth or thrush, in your baby's mouth? |
14. Can you notice when your baby's skin color is altered?	J13: change the language; J19: Insert the colours (purple, grey...)	14. Can you notice when your baby's skin color is altered?
ITEM ATTITUDE	SUGGESTION FOR CHANGE	AFTER CHANGE
2. Do you think it is important to know how to identify when your baby has an altered temperature?	J11: replace "altered body temperature" with "different body temperature"; J19: "fever";	2. Do you think it is important to know how to identify when your baby has a temperature that is too high or too low?
8. Do you think it is important to know how to identify the signs that warn that your baby will convulse?	J16: "how important is it to know how to identify..."	8. Do you think it is important to know how to identify the signs that warn that your baby will convulse?
ITEM PRACTICE	SUGGESTION FOR CHANGE	AFTER CHANGE
4. Has your baby ever shown signs of belly button infection? If so, how often?	J16: "some abnormality or alteration"; J19: "navel smells bad, very dirty, with green discharge".	4. Has your baby ever had a red, swollen or pus-ridden belly button? If so, how often?
5. Has your baby ever shown signs of infection in your baby's ear? If so, how often?	J16: "discharge in the ear"	5. Has your baby ever had a red, swollen ear, or if there is any fluid coming out of it? If so, how often?

Source: Authors, 2023.

In the pre-test, the postpartum women who participated in the study were over 18 years old, 26.7% (n=8) were between 18 and 22 years old, 36.7% (n=11) were between 23 and 27 years old, 20% (n=6) were between 28 and 32 years old, 3.3% (n=1) were between 33 and 37 years old, and 13.3% (n=4) were between 38 and 42 years old. Regarding color/race, 70% (n=21) were brown, 20% (n=6) were white and 10% (n=3) were black, at the level of education, 13.3% (n=4) had up to Incomplete Elementary School, 3.3% (n=1) up to Complete Elementary School, 10% (n=3) up to Incomplete High School, 63.3% (n=19) up to Complete High School, 3.3% (n=1) had incomplete higher education and 6.7% (n=2) had completed higher education.

Regarding the occupation of the puerperal women, 53.3% (n=16) were housewives, 26.7% (n=8) had paid work and 20% (n=6) were unemployed. To analyze the prepartum conditions, we asked about prenatal care, 93.3% (n=28) had consultations, of which 85.7% (n=24) had more than 6 consultations and 14.3% (n=4) had less than 6 consultations, 82.1% (n=23) started consultations in the 1st trimester, 14.3% (n=4) started in the 2nd

trimester and 3.6% (n=1) started in the 3rd trimester, Regarding the location, 96.4% (n=27) performed in public institutions and 3.6% (n=1) performed in public and private institutions.

Regarding participation in educational groups on newborn care, 90% (n=27) of the women answered that they had never participated, this shows a scarcity of essential information, since educational groups during prenatal care are usually planned to provide crucial information on antenatal care, childbirth, postpartum and newborn care. The deprivation of this information can generate negative effects on maternal and child health.

Regarding the understanding of the items and words, none of the items generated disagreement, however, regarding the arrangement of the answers to the questions in the Practice domain, it generated doubts due to the fact that they had more than one answer referring to the same objective, for example, for item 1 of the Practice domain: "Has your baby ever had difficulty breastfeeding or drinking milk? If so, how often? " The following answers "Yes", "No" and "I don't know" were placed, followed by a Likert frequency scale: "Never", "Rarely", "Occasionally", "Often" "Very Frequent", the answer "Yes" would fit into "Rarely", "Occasionally", "Often" or "Very Frequent" and the answer "No" into "Never", so the alternatives "Yes" and "No" were removed.

After validation, the reliability of the instrument was verified by Cronbach's Alpha Coefficient, for which an attribution of values was given to the answers that represents the understanding of the women interviewed, transforming them from a nominal scale to a numerical one. This happened as follows: Yes=1; No=0; I don't know=0; Not important=0; Sometimes it is important=0.25; Moderate=0.5; Important=0.75; Very Important=1; Never=0, Rarely=0.25; Occasionally=0.5; Often=0.75; Very Frequent=1. The answer "I don't know" was considered an omission, so it was replaced by the value zero (Matthiensen, 2011). Based on this, the coefficients per item and the coefficients of the general instrument were calculated (Chart 1).

Chart 1: Distribution of Cronbach's alpha coefficients by item, Recife – Pernambuco.

Domain	Item	Alfa Value	Domain	Item	Alfa Value	Domain	Item	Alfa Value
	1	0,8845		1	0,8725		1	0,8855
	2	0,8822		2	0,8742		2	0,8844
	3	0,883		3	0,8739		3	0,8854
	4	0,8835		4	0,8738		4	0,8841
	5	0,8887		5	0,8756		5	0,8841
	6	0,8808		6	0,8742		6	0,8847
	7	0,8837		7	0,874		7	0,8844
	8	0,8793		8	0,8741		8	0,8842
	9	0,8886		9	0,8742		9	0,8841
	10	0,8917		10	0,8734		10	0,8841
Knowledge	11	0,88	Attitude	11	0,8737	Practice	11	0,8852
	12	0,8832		12	0,8718		12	0,8844
	13	0,8908		13	0,8734			

| | 14 | 0,8832 | | 14 | 0,8725 | | | |
| | | | | 15 | 0,8758 | | | |

Considering the value of the Cronbach's coefficient of 0.8844, it can be stated that the instrument has high reliability.

A validation study brought criticism from the judges regarding the number of items contained in the questionnaire. The judges reported that the volume of items generates fatigue that impairs the accuracy of the answers (MELO et al, 2021). In addition, they believe that this may also affect the acceptance of the survey by the target audience, which brings a risk to the reliability of the answers.

The validation of instruments is essential to have an accurate measure of what is intended to be measured. In it, there are techniques necessary to reach the goal, this involves the validity of content, appearance, criterion and construct. Content validity seeks the representativeness of the items, determined by the judgment of specialists, who in this study brought nurses who are specialists in the area of child health (JÚNIOR, MATSUDA, 2012). Appearance validation, which, although subjective, evaluated the relevance and adequacy of the items to the social and economic context of the target population, which largely has low education and economic power.

Throughout the construction of the items, little scientific support was perceived when it comes to the danger signs of the newborn, so the instrument was formed from two fundamental theoretical bases in the construction of knowledge about this care, especially in primary care (BRASIL, 2020; BRAZIL/PAHO, 2011). In addition, in the theoretical foundation of validation, although very relevant, most studies on instrument validation had been published for more than 10 years.

The study was designed with a sample from a very specific location, the postpartum women who agreed to participate in the study do not fully represent the population of puerperal women in general. However, future studies may be carried out in other locations and with a broader target population, such as in prenatal outpatient clinics, pregnant women, and family members.

The survey has the capacity to evaluate the knowledge, attitude and practice of puerperal women which, when applied, favors the elaboration of specific strategies of the health team that aim to improve the ability to care, avoiding diseases and complications that can lead to the death of newborns, reducing, in small steps, neonatal mortality.

CONCLUSION

The validation of this instrument for assessing the knowledge, attitude, and practice of puerperal women about the general danger signs of the newborn contributed significantly to the promotion of neonatal health, providing valuable insights for the development of targeted and effective educational strategies. The results of this research may inform health education programs aimed at postpartum women, health professionals and public policy managers, with the objective of improving the care provided to newborns and reducing neonatal morbidity and mortality.

It was noticed that the instrument can accurately and consistently measure the dimensions of Knowledge, Attitude and Practice of puerperal women about the general danger signs of the newborn. The results are highly reliable and reflect the instrument's ability to adequately assess these aspects.

With a Cronbach's alpha of 0.88, indicating a high reliability and internal consistency of the instrument, it is suggested that the instrument is suitable to be used in future research and interventions related to this specific theme. This makes it possible to obtain reliable and valid data on the knowledge of puerperal women and caregivers, their attitudes and practices in relation to the recognition of danger signs in the newborn.

These results may also indicate the need for training and educational interventions aimed at postpartum women and caregivers, in order to improve their knowledge about the danger signs of the newborn and promote safe neonatal care practices.

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