



Validation of the “Interactive Breastfeeding Scale”: theoretical and empirical analysis^a

Validação da “Escala Interativa de Amamentação”: análise teórica e empírica

Validación de la “Escala Interactiva de la Lactancia Materna”: análisis teórico y empírico

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ABSTRACT

Objective: To conduct a theoretical and empirical analysis of the Interactive Breastfeeding Scale. **Method:** A methodological study that followed the measurement method by Pasquali and was carried out in two stages: theoretical analysis with 40 nurses as content’s judges and a pilot survey with 68 mothers of a maternity hospital of a university hospital in southeastern Brazil. **Results:** The evaluation with judges showed that the items of the scale are accurate on the theoretical concept, semantic adequation, and pertinence. From 58 items on the scale, 33 had a Content Validity Index greater than or equal to 0.80. The pilot survey allowed us to evaluate the items in the social and cultural context of the target population. In the end, the scale remained with 30 items. **Conclusion and implication for the practice:** The validation with the judges showed that the items of the Interactive Breastfeeding Scale are accurate to the theoretical concept regarding semantics and relevance and proved to be a reliable and valid instrument to evaluate the factors that interfere in mother-child interaction during breastfeeding.

Keywords: Breastfeeding; Validation studies; Psychometry; Maternal-child nursing.

RESUMO

Objetivo: Realizar análise teórica e empírica da Escala Interativa de Amamentação. **Método:** Estudo metodológico que seguiu o método proposto por Pasquali, e foi realizado em duas etapas: análise teórica com 40 juízes enfermeiros e teste piloto com 68 puérperas de uma maternidade de um Hospital Universitário da região sudeste do Brasil. **Resultados:** A avaliação com os juízes demonstrou que os itens da Escala possuem precisão no conceito teórico quanto à adequação semântica e pertinência, sendo que dos 58 itens da escala, 33 apresentaram Índice de Validade de Conteúdo maior ou igual a 0,80. O teste piloto permitiu avaliar os itens no contexto social e cultural da população alvo. Ao final, a escala permaneceu com 30 itens. **Conclusão e implicação para a prática:** A validação com os juízes demonstrou que os itens da Escala Interativa de Amamentação possuem precisão com o conceito teórico quanto à semântica e pertinência, e se mostrou um instrumento confiável e válido para avaliar os fatores que interferem na interação mãe-filho durante a amamentação.

Palavras-chave: Amamentação; Estudos de Validação; Teoria de enfermagem.

RESUMEN

Objetivo: realizar análisis teóricos y empíricos de la Escala Interactiva de la Lactancia Materna. **Método:** estudio metodológico que siguió el método propuesto por Pasquali, realizado en dos etapas: análisis teórico con 40 jueces de enfermería y prueba piloto con 68 madres de la maternidad de un hospital universitario en el sureste de Brasil. **Resultados:** la evaluación a cargo de los jueces mostró que los ítems de la Escala son exactos en el concepto teórico sobre la adecuación semántica y la relevancia y, de los 58 ítems de la escala, 33 exhibieron un Índice de Validez de Contenido mayor o igual a 0,80. La prueba piloto permitió evaluar los ítems en el contexto social y cultural de la población objetivo. En última instancia, la escala se mantuvo con 30 ítems. **Conclusión e implicación para la práctica:** la validación a cargo de los jueces mostró que los ítems de la Escala Interactiva de la Lactancia Materna son exactos para el concepto teórico con respecto a la semántica y la relevancia, y demostraron ser un instrumento confiable y válido para evaluar los factores que interfieren con la interacción madre-hijo durante la lactancia.

Palabras clave: Lactancia materna; Escala; Teoría de enfermería; Psicometría; Enfermería materno infantil.

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INTRODUCTION

The production of scientific knowledge involves the generation and testing of theories and the production of empirical applications for the developed knowledge. In the development of the phenomenon of breastfeeding this is no different, with theoretical and practical knowledge being continuously developed.

Breastfeeding being a complex phenomenon and influenced by several factors,¹ there are several instruments used to measure, evaluate or obtain specific information related to the phenomenon, such as assessment of holding, mother-baby positions or evaluation of breastfeeding of premature babies;²⁻⁴ and the skills and properties of a construct such as self-efficacy and maternal confidence in breastfeeding.⁵

However, the lack of scales that evaluate the mother and child interaction is worth mentioning, besides the various factors that influence the process of breastfeeding. Moreover, the development of a scale represents a process of construction and application of operational propositions that would represent the elements of a theoretical construct within the scope of the phenomenon. Based on this understanding, in 2016 the Interactive Breastfeeding Scale was developed⁶ based on the Interactive Breastfeeding Theory.¹ The Interactive Breastfeeding Scale represents a micro-range theory,⁷ derived from a medium-range theory, whose purpose was to produce propositions to identify the empirical elements of the mother-child interaction in the dynamic process of breastfeeding, applying the organization provided by the concepts of the Interactive Breastfeeding Theory.¹ In view of the recent development of this micro-range theory, no validation studies have been found to support its practical use. The validation of an instrument is a necessary process to make it clear whether the items displayed on a scale conform to the theoretically grounded content and whether the scale is actually measuring what it intends to measure.⁸⁻⁹

Thus, this research aims to perform a validation by a theoretical and empirical analysis of the Interactive Breastfeeding Scale.

METHOD

A methodological study that was divided into two stages: 1) Theoretical analysis of the items and 2) Empirical procedure (Pilot test).

The Interactive Breastfeeding Scale is the most concrete or empirical level of the “Interactive Breastfeeding Theory”,¹ representing a micro-range theory theoretically elaborated by the derivation of concepts and statements procedures, and empirically constructed by the Pasquali method.⁸ The authors of the Interactive Breastfeeding Scale emphasize its proximity to the empirical component of knowledge and express their role in measuring the concept of breastfeeding as an interactive and dynamic process.⁶

The structure of the connection of the affirmative (items) of the Scale to the concepts derived from the Interactive Breastfeeding Theory is what makes it possible to direct the actions to the determining factors of breastfeeding change, in order to be successful in the process.

The scale has 58 items or statements that are related to the concepts of the Interactive Breastfeeding Theory. They are operational statements presented in sentences formulated in the positive form. The adherence to the statements is measured by applying scores ranging from 1 to 5, where 1 means never, 2 rarely, 3 sometimes, 4 often, and 5 always. At the end, adding the scores of the items, values between 58 and 290 are obtained, the mother-child-environment interaction in breastfeeding being greater, as it obtained a higher score. When low, it indicates a reduced mother-child-environment interaction. Items 18, 20, 23, 27, 32, 34, 36, 38, 40, 42, 44, 47 and 49 are affirmative with inverted punctuation.⁶

The validation process involved the following: theoretical item analysis (semantic analysis and content validation) and empirical procedure (pilot test). The theoretical analysis stage verified the semantic adequacy and relevance of these items to the theory by a group of judges. The judge observes whether the items are understandable to the population to be reached from the lowest stratum to the sphere of greatest ability and judges whether the proposed item conforms to the theoretical concept.⁸⁻⁹

As judges, those who met the following inclusion criteria were considered: being a nurse, having a clinical experience of at least 3 years in the areas of maternity or Human Milk Bank or Neonatal Intensive Care Unit (NICU) and having a *stricto sensu* or *lato sensu* specialization in one of the following areas: maternal and child, obstetric or neonatal nursing.

To make the selection of the nurse judges, three strategies were applied: 1) search for researchers in the Lattes Platform, using the following keywords: breastfeeding; 2) appointment of judges from the relational universe of researchers; and 3) “snowball” technique by appointment of the judges previously selected. The contact was electronically, by means of a letter of invitation and, after accepting to participate, the Free and Informed Consent Form, a cover letter and instructions for completing the item evaluation instrument were sent; forms were later made available online in Google Docs, with the following information: Characterization of the nurses; Instrument for assessing the relevance of the items in the Interactive Breastfeeding Scale. Through the use of online instruments, the anonymity and confidentiality of the participants was guaranteed.

In the instrument of theoretical analysis, the judges gave their opinion about the criterion of semantics and relevance, in which marked with “X” one of the options: Not relevant; less relevant; very relevant; very much relevant. If any item was considered as not relevant the space indicated could be used for a justification and suggestions for modification or deletion.

Data collection took place from July to August 2017. The deadline for completion was 30 days from the date of receipt. After completing the instruments, the answers were tabulated in the Microsoft® Excel® program and analyzed using the Content Validity Index (CVI). The items with a CVI ≥ 0.80 were considered totally pertinent. However, values between CVI ≥ 0.60 and < 0.80 were not excluded as they were considered "potentially relevant".¹⁰

The pilot test was performed in the second stage with a sample of similar characteristics to the target population for which the scale is intended. The purpose was to evaluate the adequacy of the language applied in the instrument and the understanding of the scale items. The sample was determined by convenience and represented 68 mothers in the postpartum period from a high-risk maternity hospital of a University Hospital in the metropolitan region of Espírito Santo, Southeast of Brazil. The collection took place from October to November 2017. The following inclusion criteria were used: healthy women and newborn infants in a rooming-in system with at least 12 hours postpartum who had no restrictions on breastfeeding. The exclusion criteria were women who had cognitive, hearing or motor disabilities, or who were non-Portuguese speakers.

All mothers in the postpartum period admitted to the institution who met the inclusion criteria during the data collection period agreed to participate in the study. The women were invited to participate in the study after their acceptance, and signed the Free and Informed Consent Form.

The study was approved by the Research Ethics Committee of the Health Sciences Center of the Federal University of Espírito Santo under CAAE No. 53610316800005060.

RESULTS

731 nurses were selected from all over Brazil to compose the corps of judges of the content. Of these, 40 professionals responded to the request. Regarding gender, 87.5% were female. The age median was 39 years old, ranging from 27 to 56 years old (SD=8.5); 50% reside in the southeast region, 25% in the northeast; 10% in the south, 7.5% in the north and 7.5% in the midwest. Regarding the time since graduation, the median was 12 years (SD=9.2); and 75% graduated from public institutions. The judges have, respectively, 27.5%, 37.5% and 35%, PhD, master and specialist as their maximum title. Their median experience is 10 years (SD=8.9). Most (57.5%) act exclusively as clinical practice nurses, while 20% work in teaching and 22.5% in both areas.

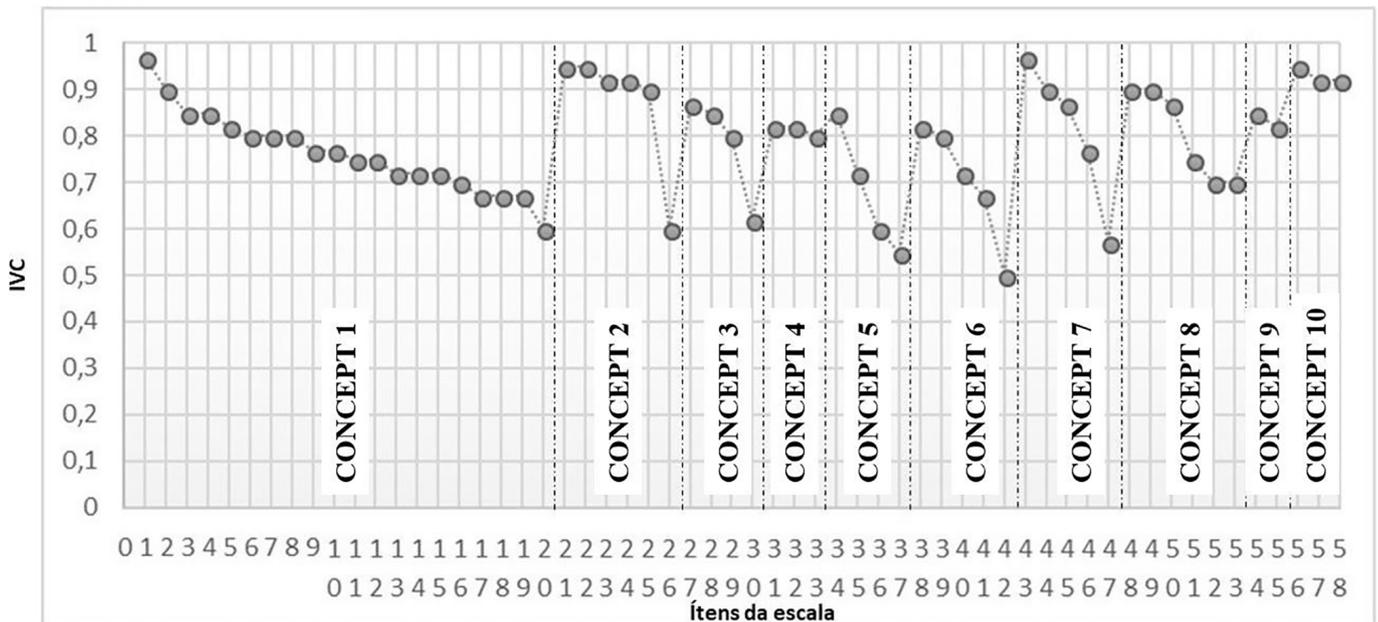
Each item to be validated was considered according to the category of concepts in the Interactive Breastfeeding Scale and it was found that the items with the lowest CVI values were distributed in six of the ten categories of the instrument (Figure 1).

Three obtained a CVI of: 0.5 to 0.59; eight of 0.6 to 0.69; 14 of 0.7 to 0.79; and 33 items with content validity index greater than or equal to 0.8. The CVI of the total scale was 0.70, according to values arranged in the Table 1.

Regarding the pilot test, the scale was applied to 68 women with an age median of 30 years old, ranging from 16 to 43 years old, standard deviation of 7.0; most were married and/or in a stable union (60.2%), followed by 35.2% single and 4.4% divorced. Regarding race/skin color, 54.4% consider themselves brown, 23.5% black, 19.1% white (Caucasian) and 2.9%, yellow.

Figure 1. Content Validity Index (CVI) of the 58 Scale items, organized by the concepts of the Interactive Breastfeeding Theory.

Source: Authors.



Legend of the concepts: 1 - Woman's perception of breastfeeding 2 - Child's perception of breastfeeding 3 - Woman's Biological conditions 4 - Child's Biological conditions 5 - Woman's body image 6 - Space for breastfeeding 7 - Mother's role 8 - Organizational systems for the protection, promotion and support of breastfeeding 9 - Family and social authority 10 - Woman's decision making.

Table 1. Description of the CVIs by concept items of the Interactive Breastfeeding Scale. Vitoria, Espirito Santo, 2017.

Concept	Questions	CVI
Woman's Perception	1. I feel satisfaction when my baby is satiated after breastfeeding.	0.97
	2. My baby is calm and relaxed after breastfeeding.	0.90
	3. I talk, touch and look at my baby while breastfeeding.	0.85
	4. I believe breast milk supports the baby.	0.85
	5. I know the benefits of breastfeeding for the health of the child.	0.82
	6. I can stay relaxed and comfortable to breastfeed.	0.80
	7. I believe that the use of pacifiers impairs/hinders breastfeeding.	0.80
	8. I have positive experiences with breastfeeding.	0.8
	9. I believe that my diet influences my milk.	0.77
	10. I know the benefits of breastfeeding for the health of women.	0.77
	11. I correctly put my baby in the breast.	0.75
	12. I am able to explain the benefits of breastfeeding for the health of the child.	0.75
	13. I am able to explain the benefits of breastfeeding for the health of women.	0.72
	14. I believe that the use of nursing bottles impairs/hinders breastfeeding.	0.72
	15. I believe it is difficult to continue breastfeeding after returning to work/study.	0.72
	16. I am able to position my baby correctly in the breast.	0.70
	17. I can properly hold my baby to breastfeed.	0.67
	18. I can hold my baby with the head facing the breast and the body next to me.	0.67
	19. I believe that breastfeeding takes a lot of time from my day.	0.67
	20. I believe that the size of the breasts and nipples hinders breastfeeding.	0.60
Child's Perception	21. My baby spontaneously unholds my breast when sated.	0.95
	22. My baby is relaxed after breastfeeding.	0.95
	23. I know when my baby is hungry.	0.92
	24. My baby is calm after breastfeeding.	0.92
	25. My baby stays awake and relaxed during breastfeeding.	0.90
	26. My baby gets angry and cries while breastfeeding.	0.60
Woman's Biological Conditions	27. I believe that breastfeeding the baby right after delivery helps in breastfeeding.	0.87
	28. I can produce enough milk to breastfeed my baby.	0.85
	29. I feel pain when breastfeeding.	0.80
	30. I believe breast surgery interferes with breastfeeding.	0.62
Child's Biological Conditions	31. My baby sucks my breast properly.	0.82
	32. My baby keeps constantly holding the breast.	0.82
	33. My baby unholds the breast often.	0.80
Woman's Body Image	34. I believe breastfeeding helps me lose weight.	0.85
	35. I think breastfeeding makes my breasts flaccid and sag.	0.72
	36. I think bigger breasts produce more milk.	0.60
	37. I can breastfeed comfortably in the presence of men.	0.55
Space for Breastfeeding	38. I feel comfortable breastfeeding in the presence of other women.	0.82
	39. I cover my breast when breastfeeding in public places.	0.80
	40. I feel comfortable breastfeeding in public places.	0.72
	41. I am embarrassed to breastfeed in public places.	0.67
	42. I prefer to milk me and offer it in the nursing bottle when I'm away from home.	0.50

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Table 1. Description of the CVIs by concept items of the Interactive Breastfeeding Scale. Vitoria, Espirito Santo, 2017.

Concept	Questions	CVI
Mother's Role	43. I breastfeed because it is the best for my baby.	0.97
	44. I enjoy breastfeeding.	0.9
	45. I breastfeed because I feel pleasure.	0.87
	46. I have a duty to breastfeed my baby.	0.77
	47. I feel obligated to breastfeed.	0.57
Organizational Systems for the Protection, Promotion and Support of Breastfeeding	48. I have the support of my family to breastfeed.	0.9
	49. I need professional support to breastfeed.	0.9
	50. I have support from my partner to breastfeed.	0.87
	51. I know the laws that support breastfeeding.	0.75
	52. I think my community supports breastfeeding.	0.7
Family and social authority	53. I use some social support network for breastfeeding.	0.7
	54. I change my opinion according to the guidance of health professionals.	0.85
Woman's Decision Making	55. I feel influenced by my family to decide on breastfeeding.	0.82
	56. I wish to breastfeed.	0.95
	57. I believe that having a positive experience influences my decision to breastfeed.	0.92
	58. I think knowing the advantages of breastfeeding helps in the decision to breastfeed.	0.92

As for the level of education, 45.5% have completed high school, 20.5% have incomplete elementary school, 14.7% incomplete high school, 7.35% complete elementary school, 4.4% incomplete higher education and 7.3% complete higher education. Regarding occupation, there were 17 different types, the most predominant being housewives with 38.2%, unemployed (16.1%), and 7.3% for either students or self-employed or auxiliary general services. With regard to family income, 44.1% of the women have an income less than or equal to 1 minimum wage (minimum wage of R\$ 937.00 or approximately US\$ 286.00 at the time of data collection); 32.3% reported that their income is greater than 1 minimum wage and 23.5% have an income greater than two minimum wages. Of the 68 women, 82.3% live in the city of Vitória; 7.3% in Vila Velha; 4.4% in Cariacica, 4.4% in Serra and 1.4% in Viana.

Referring to the obstetric and breastfeeding data, 73.5% of the women were multiparous, had between 2 to 6 children and 26.4% were primiparous. 23% of the women reported that they already had miscarriages. Among the multiparous women, 72.6% of them breastfed their previous children, while 1.4% did not. Only 4.4% had breast surgery and 95.5% did not. Regarding breastfeeding complications: 70.5% had no difficulty breastfeeding, 19.1% had cracked nipple, 5.8% mastitis, 2.8% nipple candidiasis and 1.4%, cracked nipple and mastitis. It was found that 97.6% receive family support to breastfeed.

The validation from the judges at the national level made it possible to evaluate the accuracy of each item regarding its semantics and pertinence, as well as to standardize the items within the cultural context. During the pretest application, the mothers reported that some items had the same idea or meaning and there were also episodes of confusion in understanding some items that expressed different ideas.

The items answered by the judges were later compared to the items of the pilot test that was performed to the participating women.

As for the items of "**Woman's perception of breastfeeding**", the need to merge the sentences "I place my baby correctly on the chest" and "I am able to position my baby correctly on the chest" was noted as indicating the same idea being changed to: "I am able to place my baby correctly on my breast".

In items 5, 10, 12 and 13 that addressed questions about the benefits of breastfeeding, the judges suggested leaving only one to refer to the woman and the child, because they present the idea that if the woman knows the benefit, she would consequently be able to explain them, so the items were replaced by the statement "I know the benefits of breastfeeding". As for questions 07 and 14, they proposed to join them, since both the nursing bottle and the pacifier influence breastfeeding, being "I believe that the use of pacifier and nursing bottle harms breastfeeding".

Relating to "**Child's perception of breastfeeding**", experts pointed out that items 22 and 24 could be joined and kept in one concept; also in the application with the target population, women reported that they considered similar. Thus, the statement was replaced by: "My baby is calm and relaxed after breastfeeding".

In "**Woman's biological conditions**", the item "Do I believe that breast surgery interferes with breastfeeding?" presented a CVI of 0.62; however, considering the influence of this clinical condition on the mother-baby interaction presented in several national and international studies, it was kept in the scale.¹¹⁻¹³

Referring the questions about the "**Child's biological conditions**", it was suggested by the judges regarding the issues of holding and opening the mouth to breastfeed, then added the sentence "My baby has difficulty latching my breast".

In the concept of “**Woman's body image**”, the item “I think breastfeeding makes my breasts flaccid and sag” had a CVI of 0.72; however, women pointed out that this question always or often interferes with breastfeeding.

In the validation, the judges pointed to the question of the relation between sexuality and breastfeeding, according to the reports: “*I see a lot of women talk about breastfeeding and sexual attraction, as we know hormonal changes and the burden on women hinders relaxation and even libido*”. “*The woman may not be comfortable with sex and this puts her in a position to stop breastfeeding*”.

Agreeing with the judges that this issue may interfere with the breastfeeding process, the following sentence was elaborated: “I feel unattractive during the breastfeeding period”, now in the final version of the scale.

Regarding the “**Space for breastfeeding**”, the item “I feel comfortable breastfeeding in the presence of other women” had a CVI of 0.82; however, 97% of the women reported that this issue did not influence breastfeeding, making this item unimportant. On the other hand, the question “I feel comfortable breastfeeding in public places” obtained a CVI of 0.72, but 28% of the women say they are not comfortable and that do not breastfeed in public, signaling the relevance of the item to the scale.

In analyzing the concept of “**Mother's role**”, the item “I feel obliged to breastfeed” had a CVI of 0.67; however, during the application of the scale, 13% of the women reported breastfeeding only by obligation, signaling the importance of the item for the scale.

Some judges have shown that the items “I breastfeed because I feel pleasure” and “I enjoy breastfeeding” have the same meaning, suggesting that only one remained; the item “I enjoy breastfeeding” was chosen because it had a higher CVI.

In “**Organizational systems for the protection, promotion and support of breastfeeding**”, the three questions remained that obtained a CVI above 0.8; however, according to the judges' guidance of unifying family with partner, it was reworded as: “I have the support of my family/partner to breastfeed”. The other questions the women reported doubts about and did not perceive any influence on the breastfeeding process were excluded.

In “**Family and social authority**”, the judges requested the inclusion of an item regarding the influence of friends: “I feel influenced by my friends to decide on breastfeeding”. Concerning “**Woman's decision making**”, there were no propositions of modifications.

Thus, after the validation phases between the two audiences, the scale was adjusted, according to Chart 1.

The scale was positively formulated and scored from 1 to 5, with 1 - Never, 2 - Rarely, 3 - Sometimes, 4 - Frequently and 5 - Always.

After the application, the values are summed and can vary from 30 to 150, and the closer the value to 150 the greater the mother-child-environment interaction in breastfeeding. When the value is closer to 30, less interaction is indicated, allowing the professional to intervene in determining factors in order to be successful in the breastfeeding process.

Items 10, 15, 16, 17, 19, 20, 26 and 27 are affirmative with inverted punctuation, as the answer “always” and “never” receive the values 1 and 5, respectively for the items.

DISCUSSION

As it assumes the multidimensional interactive breastfeeding theory¹, the Scale should contain items that assess the personal, interpersonal, and social factors of women and children as proposed in the Theory's conceptual framework, and on the scale there are concepts that produce observable empirical indicators and others that need to be expressed by women and children.

Regarding the personal dimensions of the woman and child involved in the interaction during breastfeeding, items 1 to 19 evaluate the perceptions of the woman and the child, the biological conditions of the binomial, the body image and the space for breastfeeding.

The woman's perceptions can be influenced by her knowledge and experiences, and most women know the advantages of breastfeeding, related to women's physiological aspects, the affective relationship between mother and child, economic issues, immunoprotection and the healthy growth and development of the child.¹⁴⁻¹⁵

The biological conditions of the woman deal with the aspects related to the anatomy and physiology of the breast structure and milk production and it is recognized that breast surgeries have a great interference in breastfeeding, since some women who undergo breast reduction cannot exclusively breastfeed their children until the sixth month and, over time, need to complement with other milks, while others start breastfeeding complementation still in the maternity, and some women can exclusively breastfeed until the sixth month. Also, women undergoing breast augmentation with prosthesis implantation may breastfeed exclusively for a shorter time than women without breast implants.^{13,16}

The child's perception refers to the sensations perceived during breastfeeding, while the biological conditions are related to the sucking capacity, breast seizure and hold maintenance. The women point out that holding was the greatest difficulty at first, making breastfeeding a difficult practice, but also a significant time when reached.¹⁷⁻¹⁸

Regarding the body image and the space for breastfeeding, several studies indicate that women believe that breastfeeding makes breasts flaccid and sag, increases nipples making them ugly, and these beliefs may contribute to breastfeeding failure.¹⁸⁻¹⁹

Chart 1. Description of the Interactive Breastfeeding Scale items after validation with the judges and application of the pilot test. Vitoria, Espirito Santo, 2017.

Concept	Questions
Woman's Perception	1. I talk and look at my baby while breastfeeding. 2. I can stay relaxed and comfortable to breastfeed. 3. I believe that the use of pacifier and nursing bottle harms breastfeeding. 4. I believe breast milk supports the baby. 5. I know the benefits of breastfeeding.
Child's Perception	6. My baby stays awake and relaxed during breastfeeding. 7. My baby spontaneously unholds my breast when sated. 8. I know when my baby is hungry. 9. My baby is calm and relaxed after breastfeeding.
Woman's Biological Conditions	10. I feel pain when breastfeeding. 11. I can produce enough milk to breastfeed my baby. 12. I believe that breast surgery interferes with breastfeeding.
Child's Biological Conditions	13. My baby sucks my breast properly. 14. My baby keeps constantly holding the breast. 15. My baby has difficulty latching my breast.
Woman's Body Image	16. I think breastfeeding makes my breasts flaccid and sag. 17. I feel unattractive during the breastfeeding period.
Space for Breastfeeding	18. I feel comfortable breastfeeding in public places. 19. I cover my breast when breastfeeding in public places.
Mother's Role	20. I feel obligated to breastfeed 21. I enjoy breastfeeding. 22. I breastfeed because it is the best for my baby.
Organizational Systems for the Protection, Promotion and Support of Breastfeeding	23. I have the support of my family/partner to breastfeed. 24. I have professional support for breastfeeding.
Family and social authority	25. I change my opinion according to the guidance of health professionals. 26. I feel influenced by my family to decide on breastfeeding. 27. I feel influenced by my friends to decide on breastfeeding.
Woman's Decision Making	28. I wish to breastfeed. 29. I believe that having a positive experience influences my decision to breastfeed. 30. I think knowing the advantages of breastfeeding helps in the decision to breastfeed.

In the Western culture, women's breasts have been eroticized and objectified to sexuality, conflicting with the fact that women can breastfeed in a judgment-free public. Still, cultural and social issues play a big role, women verbalize embarrassment, dislike breastfeeding in public, find it embarrassing even in front of their family or friends, being a factor that influences their decision about breastfeeding.¹⁹⁻²⁰

In the interpersonal dimension, items 20 to 23 address issues about the mother's role, and it can be observed that in some societies, the mother is considered good enough when feeding her child. The social value attributed to breastfeeding forces a woman to breastfeed, even if this is not her desire or if it does not bring her pleasure. The decision not to breastfeed, according to society's perception, transforms the woman into an irresponsible mother, unable to perform the art of being a mother, leading to a sense of guilt.²¹

Regarding the concepts related to the social factors of breastfeeding, items 24 to 30 seek to evaluate the social influences and to know the woman's support network. Women receive information regarding breastfeeding practice from different sources of information, the most relevant being the family, especially the mother, stepmother, grandmother, aunt and neighbors. By experiencing breastfeeding in a positive way, women put into practice what they have learned from their own experiences, the people they live with, the media and the health professionals. Successful experiences create a moment of tranquility for the woman and the child.^{14,21-22}

Considering that breastfeeding is a complex and systemic phenomenon, after validation with the judges and target population, the Scale was able to capture the multiple factors that influence the mother-child-environment interaction during the breastfeeding process through the sentences that portray indicators that are descriptions, perceptions, conditions and feelings of the women and of the children.¹

The validation from the experts and the target audience made it possible to evaluate the accuracy of each item of the Interactive Breastfeeding Scale regarding its semantics and relevance, as well as the standardization of the items within the social and cultural context. The study points out that, from the pilot test, it is possible to verify words and expressions that cause confusion and could interfere with the results.⁵

It is noteworthy that the adoption of reliable and validated instruments that help the evaluations about the breastfeeding process by the health professionals is still incipient in the professional practice. Although the studies indicate that face-to-face counseling is paramount in establishing exclusive breastfeeding, it is extremely important to early identify the possible factors involved in the risk of this process failure.²³

As a limitation of the study, the application of the pilot test occurred only in the public health sector, which may require the specific work dynamics of the service or specificities of the users be considered, even if the existence of a general character of the scale regarding the variable type of health service is judged.

CONCLUSION AND IMPLICATIONS FOR THE PRACTICE

The validation with the judges showed that the items of the Interactive Breastfeeding Scale are accurate to the theoretical concept regarding semantics and relevance and, of the 58 items in the scale, 33 statements presented a CVI higher than 0.80. The pilot test with postpartum women allowed to validate the items in the social and cultural context of the target population. After the final evaluation, the scale was reformulated presenting 30 items. In this sense, it can be concluded that the Scale proved to be a reliable and valid instrument to evaluate the factors that interfere with the mother-child interaction during breastfeeding.

REFERENCES

1. Primo CC, Brandão MAG. Interactive Theory of Breastfeeding: creation and application of a middle-range theory. *Rev Bras Enferm* [Internet]. 2017 dec; [cited 2017 dec 8]; 70(6):1191-8. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672017000601191&lng=en&tng=en
2. Moran VH, Dinwoodie K, Bramwell R, Dykes F. A critical analysis of the content of the tools that measure breast-feeding interaction. *Midwifery* [Internet]. 2000 dec; [cited 2017 dec 8]; 16(4):260-8. Available from: <http://linkinghub.elsevier.com/retrieve/pii/S026661380090216X>
3. Howe TH, Lin KC, Fu CP, Su CT, Hsieh CL. A Review of Psychometric Properties of Feeding Assessment Tools Used in Neonates. *J Obstet Gynecol Neonatal Nurs* [Internet]. 2008 may; [cited 2017 dec 8]; 37(3):338-49. Available from: <http://linkinghub.elsevier.com/retrieve/pii/S0884217515300800>
4. Vieira AC, Costa AR, Gomes PG. Boas práticas em aleitamento materno: Aplicação do formulário de observação e avaliação da mamada. *Rev Soc Bras Enferm Ped*. 2015;15(1):13-20.
5. Oriá MOB, Ximenes LB. Tradução e adaptação cultural da Breastfeeding Self-Efficacy Scale para o português. *Acta Paul Enferm* [Internet]. 2010 apr; [cited 2017 dec 8]; 23(2):230-8. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0103-21002010000200013&lng=pt&tng=pt
6. Souza CON, Ruchdeschel T, Resende FZ, Leite FMC, Brandão MAG, Primo CC. Escala interativa de amamentação: proposição baseada na teoria de médio alcance de enfermagem. *Esc Anna Nery*. 2018;22(3):1-9.
7. Higgins PA, Moore SM. Levels of theoretical thinking in nursing. *Nurs Outlook*. 2000 jul/aug;48(4):179-83.
8. Pasquali L. Psicometria. *Rev Esc Enferm USP* [Internet]. 2009 dec; [cited 2017 dec 8]; 43(spe):992-9. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0080-62342009000500002&lng=pt&tng=pt
9. Medeiros RKS, Ferreira Júnior MA, Pinto DPSR, Vitor AF, Santos VEP, Barichello E. Modelo de validação de conteúdo de Pasquali nas pesquisas em enfermagem. *Rev Enf Ref* [Internet]. 2015 feb; [cited 2018 oct 18]; serIV(4):127-135. Disponível em: http://www.scielo.mec.pt/scielo.php?script=sci_arttext&pid=S0874-02832015000100014&lng=pt DOI: <http://dx.doi.org/10.12707/RIV14009>
10. Lopes MVO, Silva VM, Araujo TL. Validação de diagnósticos de enfermagem: desafios e alternativas. *Rev Bras Enferm* [Internet]. 2013 oct; [cited 2017 dec 8]; 66(5):649-55. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672013000500002&lng=pt&tng=pt
11. Chiummariello S, Cigna E, Buccheri EM, Dessy LA, Alfano C, Scuderi N. Breastfeeding after reduction mammoplasty using different techniques. *Aesthetic Plas Surg*. 2008 mar;32(2):294-7.
12. Thibaudeau S, Sinno H, Williams B. The effects of breast reduction on successful breastfeeding: a systematic review. *J Plast Reconstr Aesthet Surg*. 2010 oct;63(10):1688-93.
13. Schiff M, Algert CS, Ampt A, Sywak MS, Roberts CI. The impact of cosmetic breast implants on breastfeeding: a systematic review and meta-analysis. *Int Breastfeed J*. 2014 oct;9:17.
14. Silva NM, Waterkemper R, Silva EF, Cordova FP, Bonilha ALL. Mothers' knowledge about exclusive breastfeeding. *Rev Bras Enferm* [Internet]. 2014 apr; [cited 2017 dec 13]; 67(2):290-5. Available from: <http://www.gnresearch.org/doi/10.5935/0034-7167.20140039>
15. Moraes BA, Gonçalves AC, Strada JKR, Gouveia HG. Fatores associados à interrupção do aleitamento materno exclusivo em lactentes com até 30 dias. *Rev Gaúcha Enferm* [Internet]. 2016; [cited 2017 dec 11]; 37(spe):e2016-0044. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1983-14472016000500424&lng=pt&tng=pt
16. Camargo JF, Modenesi TSS, Brandão MAG, Cabral IE, Pontes MB, Primo CC. Breastfeeding experience of women after mammoplasty. *Rev Esc Enferm USP*. 2018;52:e03350. DOI: <http://dx.doi.org/10.1590/S1980-220X2017020003350>

17. Barbosa GEF, Silva VB, Pereira JM, Soares MS, Medeiros Filho RA, Pereira LB, et al. Dificuldades iniciais com a técnica da amamentação e fatores associados a problemas com a mama em puérperas. *Rev Paul Pediatr* [Internet]. 2017 sep; [cited 2018 oct 24]; 35(3):265-272. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0103-05822017000300265&Ing=en DOI: <http://dx.doi.org/10.1590/1984-0462;2017;35;3;00004>
18. Lahós NT, Pretto DBA, Pastore CA. Mitos e crenças acerca do aleitamento materno no estado do Rio Grande do Sul (Brasil). *Nutr Clin Diet Hosp* [Internet]. 2016; [cited 2017 dec 13]; 36(4):27-33. Available from: <http://revista.nutricion.org/PDF/DOUMID-BORGES.pdf>
19. Foley W, Schubert L, Denaro T. Breastfeeding experiences of Aboriginal and Torres Strait Islander mothers in an urban setting in Brisbane. *Breastfeed Rev*. 2013 nov;21(3):53-61.
20. Brown A, Rance J, Warren L. Body image concerns during pregnancy are associated with a shorter breastfeeding duration. *Midwifery*. 2015 jan;31(1):80-9.
21. Primo CC, Nunes BP, Lima EFA, Leite FMC, Pontes MB, Brandão MAG. Which factors influence women in the decision to breastfeed?. *Invest Educ Enferm* [Internet]. 2016 feb; [cited 2017 dec 13]; 34(1):198-210. Available from: <http://aprendeenlinea.udea.edu.co/revistas/index.php/iee/article/view/26007/20779359>
22. Amaral LJX, Sales SS, Carvalho DPSP, Cruz GKP, Azevedo IC, Ferreira Júnior MA. Fatores que influenciam na interrupção do aleitamento materno exclusivo em nutrizes. *Rev Gaúcha Enferm*. 2015;36(spe):127-134.
23. Ingram J, Johnson D, Copeland M, Churchill C, Taylor H. The development of a new breastfeeding assessment tool and the relationship with breast feeding self-efficacy. *Midwifery*. 2015 jan;31(1):132-7.

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