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FOOD TRANSITION IN PREMATURE NEWBORNS: BUNDLE VALIDITY BASED ON THE INTERACTIVE THEORY OF BREASTFEEDING

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ABSTRACT

Objective: to construct and validate the content of a bundle for nutrition transition for premature newborns admitted to a Kangaroo Intermediate Care Unit based on Interactive Theory of Breastfeeding.
Method: this is a multiple method research, carried out in five steps: systematic review; situational diagnosis; interview with Kangaroo Unit nurses; methodological step – (bundle construction with Interactive Theory of Breastfeeding application, pre-test); and content validity with expert judges and clinical nurses. The methodological step was carried out from January to July 2022 with Kangaroo Unit nurses of a public maternity hospital in Fortaleza-CE. Experts were invited by email using the snowball method. Validity occurred using a Content Validity Index >0.80.
Results: the bundle was constructed using 13 items, distributed and organized into corrected age groups: corrected age of ≤32 weeks; from 32 to 34 weeks; and ≥ 34 weeks. In the validity step, the judges, three experts and seven clinical nurses, judged the bundle to be adequate, presenting a Content Validity Index of 1.0.
Conclusion: given the lack of standardization for feeding transition in clinical practice, there is difficulty in recognizing the ideal moment to transition from orogastric tube feeding to mothers' breast. The food transition bundle, anchored by the Interactive Theory of Breastfeeding, allows nurses to assess the mother-child dyad, their particularities, time for both, maternal role, involving organizational systems to protect, promote and support breastfeeding. Brazilian Clinical Trials Registry (REBEC) under UTN number: U1111-1285-3181.

DESCRIPTORS: Infant, Premature. Kangaroo-Mother Care Method. Neonatology. Nursing Theory. Breastfeeding.

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TRANSIÇÃO ALIMENTAR EM PREMATUROS: VALIDAÇÃO DE *BUNDLE* BASEADO NA TEORIA INTERATIVA DE AMAMENTAÇÃO

RESUMO

Objetivo: construir e validar o conteúdo de um *Bundle* para transição alimentar para prematuros internados na Unidade de Cuidados Intermediários Canguru baseada na Teoria Interativa de Amamentação.
Método: Pesquisa do tipo método múltiplos realizada em cinco etapas: Revisão Sistemática; Diagnóstico Situacional; Entrevista com Enfermeiras da Unidade Canguru; Etapa Metodológica – (Construção do *Bundle* com aplicação da Teoria Interativa de Amamentação, Pré-teste) e por última, a validação de conteúdo com juízes *expertises* e enfermeiras assistenciais. A etapa metodológica, foi realizada de janeiro a julho de 2022, com enfermeiras da Unidade Canguru, de uma Maternidade pública de Fortaleza-CE, já os *expertises* foram convidados por e-mail, pelo método de bola de neve. A validação ocorreu mediante Índice de Validade de Conteúdo >0,80.
Resultados: A construção do *Bundle* ocorreu partindo de 13 itens, distribuídos e organizados em grupos de idade corrigida: idade corrigida de ≤32 semanas; entre 32 a 34 semanas e ≥ 34 semanas. Na etapa de validação, os juízes, três *expertises* e sete enfermeiras assistenciais, julgaram adequado o *Bundle,* apresentando Índice de Validade de Conteúdo de 1,0.
Conclusão: diante da inexistência de padronização para transição alimentar na prática clínica, existe uma dificuldade para o reconhecimento do momento ideal em realizar a transição da alimentação da sonda orogástrica para o peito materno. O *Bundle* de Transição Alimentar, ancorado pela Teoria Interativa de Amamentação, possibilita que o enfermeiro avalie o binômio mãe-filho, suas particularidades, tempo de ambos, protagonismo materno, envolvendo os sistemas organizacionais de proteção, promoção e apoio a amamentação. Registro Brasileiro de Ensaios Clínicos (REBEC) sob número UTN: U1111-1285-3181.

DESCRITORES: Recém-nascido prematuro. Método canguru. Neonatologia. Teoria de Enfermagem. Aleitamento materno.

TRANSICIÓN ALIMENTARIA EN BEBÉS PREMATUROS: VALIDEZ DE UN BUNDLE BASADO EN LA TEORÍA DE LA LACTANCIA MATERNA INTERACTIVA

RESUMEN

Objetivo: construir y validar el contenido de un bundle de transición dietética para bebés prematuros admitidos en la Unidad de Cuidados Intermedios Canguro basado en la Teoría de la Lactancia Materna Interactiva.
Métodos: se trata de una investigación de métodos múltiples realizada en cinco steps: revisión sistemática; diagnóstico situacional; entrevista con enfermeras de la Unidad Canguro; etapa metodológica – (construcción de bundle con aplicación de la Teoría de Lactancia Interactiva, pretest); y validez de contenido con jueces expertos y enfermeras clínicas. La etapa metodológica se realizó de enero a julio de 2022 con enfermeras de la Unidad Canguro de una maternidad pública de Fortaleza-CE. Se invitó a los expertos por correo electrónico utilizando el método de bola de nieve. La validación se produjo mediante el índice de validez de contenido >0,80.
Resultados: el bundle se construyó utilizando 13 ítems, distribuidos y organizados en grupos de edad corregidos: edad corregida de ≤32 weeks; entre 32 a 34 semanas y ≥ 34 semanas. En la etapa de validez, los jueces, tres expertos y siete enfermeras clínicas, juzgaron adecuado el bundle, presentando un Índice de Validez de Contenido de 1,0.
Conclusión: dada la falta de estandarización para la transición alimentaria en la práctica clínica, existe dificultad en reconocer el momento ideal para la transición de la alimentación por sonda orogástrica al pecho materno. El bundle de transición alimentaria, anclado en la Teoría Interactiva de la Lactancia Materna, permite a las enfermeras evaluar el binomio madre-hijo, sus particularidades, el tiempo de ambos, el rol materno, involucrando los sistemas organizacionales de protección, promoción y apoyo a la lactancia materna. Registro Brasileño de Ensayos Clínicos (REBEC) con el número UTN: U1111-1285-3181.

DESCRIPTORES: Recién Nacido Prematuro. Método Madre-Canguro. Neonatología. Teoría de la Enfermería. Amamantamiento.

INTRODUCTION

Being born prematurely generates anguish due to maternal separation and emotional instability, which can negatively influence breastfeeding initiation and maintenance, latch and mothering. Measures that promote family involvement in care, information about children's health condition and early breast stimulation in the first six hours postpartum greatly reduce this feeling of impotence[1].

For humanized care for the mother-child dyad, in Brazil the policy of Humanized Care for Low Weight Newborns – Kangaroo Care (KC) was instituted, divided into three steps. The first step began with the diagnosis of premature birth and referral to a reference maternity hospital with a Neonatal Intensive Care Unit (NICU) and/or Conventional Neonatal Intermediate Care Unit (CoNICU). The second begins when premature newborns (PTNBs) are transferred from the NICU to the Kangaroo Intermediate Care Unit (KaICU). The third step takes place with discharge from the KaICU to home and follow-up between the maternity hospital of origin and the Basic Health Unit[2–3].

One of the pillars of KC consists of early skin-to-skin contact between PTNB and their family members, strengthening emotional bond and encouraging breastfeeding. However, when there is no possibility of breastfeeding directly from mothers' breast due to PTNBs' limitations, there are options for implementing the diet, such as enteral, parenteral, cup and gavage feeding. These forms aim to provide newborns (NB) with their daily nutritional needs[2,4].

There are many benefits of breastfeeding. For NBs, breastfeeding improves the mobility, posture and orofacial muscle tone, contributes to spontaneous nasal breathing, and prevents the occurrence of harmful oral habits and dental malocclusions. However, among PTNBs, it occurs differently, due to incoordination of sucking and swallowing, respiratory pauses, disproportions between mouth and nipple size, breast crease, in addition to lack of stimulus and support for breastfeeding[4–5].

To promote and practice breastfeeding at KaICU, professionals can use technologies, such as the bundle, which allow recognizing the ideal moment to transition from the orogastric tube (OGT) diet to the breast.

A bundle is a "set of good practices", between three and five interventions, considered as "determined elements". All this care is based on a level of evidence 1 or on guidelines for daily application. Its use will be applied daily, repeated until the moment patients improve or their health status has been restored[6,7].

Thus, the Interactive Theory of Breastfeeding, proposed by Primo[8], is based on the dynamic interaction between mother and child. As it is a dynamic interaction, breastfeeding involves perception, judgment, action and reaction between mother and child, perceived with maternal positioning, NB sucking-latching, aiming for its achievement. Since it is dynamic, it becomes perceptible through verbal and non-verbal communication among the actors involved[8].

The Interactive Theory of Breastfeeding[8] application started from PTNBs' biological conditions, whose aspects can be complications, such as time to coordinate sucking, swallowing and breathing, latch and position, transition of OGT diet to oral route and breast feeding, in which interactions may occur during breastfeeding. PTNB perception is added with the adaptation of the uterine environment to that of the NICU and KaICU.

Women's biological conditions in the Interactive Theory of Breastfeeding[8] are applied to premature birth, such as women's perception of prematurity (real NB versus imaginary NB), stress with prematurity and prolonged hospitalization and stress of premature birth versus milk production, mothers' role with prematurity and their uncertainties regarding their role, which together contribute positively or negatively to breastfeeding initiation and continuation.

Analyzing the Interactive Theory of Breastfeeding[8] regarding the dynamic interaction of breastfeeding and organizational systems, it is clear that they act in accordance with KC policy. The nutrition transition bundle, based on the Interactive Theory of Breastfeeding, considers that PTNBs need time to coordinate sucking, breathing and swallowing, in addition to maternal inclusion as leading actors of care and decision-making in the method of nourishing their child. The study is justified by the need to encourage, guide, promote and continue breastfeeding in a population that experiences difficulties from the gestational period until hospital discharge.

Using a bundle can contribute to diet transition for PTNBs, constructed based on the Interactive Theory of Breastfeeding and applied to KaICU. It is understood that the bundle improves patient care, i.e., constructed from evidence-based practice, proven to produce results[7].

Given the gap in scientific work, the nutrition transition bundle proposal allows Neonatal and Kangaroo Unit nurses to begin nutrition transition with actions that provide premature birth maturity and, at the same time, admit its use in any region of the country, as their techniques are used in neonatal units' routine.

Therefore, the objective was to construct and validate the content of a bundle for food transition for PTNBs admitted to the Kangaroo Intermediate Care Unit based on the Interactive Theory of Breastfeeding.

METHOD

This is multiple method or multimethod research, which followed five steps: systematic review; Kangaroo Unit situational diagnosis (record admission assessment and discharge); interview with Kangaroo Unit nurses; methodological step – (bundle construction with Interactive Theory of Breastfeeding application, pre-test with two nurses); and content validity with expert judges and nurses. The collection of steps began in April 2021, with the 1st systematic review followed by bundle construction, pre-test and validity carried out from January to July 2022.

The systematic review step followed Cochrane Handbook for Systematic Review of Interventions recommendations, with collection starting after construction, registration and publication of the protocol in PROSPERO, CRD42021240725, with the link: https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=240725

The available evidence on nutrition transition from OGT to breastfeeding directly at the breast with PTNBs admitted to hospital units was analyzed. However, as it was not possible to identify a substantial number of articles, the need for a 2nd systematic review was felt with a search equation review. A systematic review was carried out by two independent reviewers, and in case of a tie, a third reviewer was invited. In accordance with evidence-based practice[7], all articles included in the bundle were randomized controlled trials (RCTs); two articles received the concept of high quality; the others received the concept of moderate quality of evidence because they did not mention blinding; and in one article the main investigator was not blind, but in the others they were.

The bundle construction phase included 13 items, with actions divided into 3 groups, varying according to PTNBs' corrected age and starting 24 hours after admission to the unit. After constructing the food transition bundle, a pre-test was carried out with two KaICU nurses to assess the coherence of the guidelines with the work context. Flowchart construction was requested to guide decision-making, with the bundle consisting of the parts as follows: a) guidance chart according to NBs' corrected ages; b) guidance flowchart for professionals; c) definition of terms used in the bundle; and d) references.

Each of these modules was assessed according to criteria established by content validity, according to the relevance and reliability of each item presented in the bundle[9]. It should be noted that there was a chart explaining each of these criteria. Participants assigned a Likert-type scale score to each item: “1 – completely disagree”; “2 – disagree”; “3 – neither agree nor disagree”; “4 – partially agree”; and “5 – totally agree”. In each item, a field was made available so that the evaluator could write their considerations.

This process was directed through the analysis of judges, chosen intentionally, selected through reccomendations from professors in the area of child health at universities in the state of Ceará through snowballing.

A total of 12 judges were reached, who received an invitation letter via email, with a deadline of up to 20 days for return, in addition to the Informed Consent Form (ICF), with instructions for analysis and assessment. The instrument was developed on Google Forms, with participant characterization and instrument items.

As for the number of evaluators, it was considered 06 to 20 experts, with a minimum of three individuals[9]. A total of 12 judges were invited, but only three responded and carried out validity. The number of care judges was seven nurses from KaICU.

Content judges should score the criteria adapted by Sabino[10]: having skills/knowledge acquired through experience; having specialized skills/knowledge that make the professional an authority on the subject; having special ability in a certain type of study; being approved in a specific test to identify judges; and having a high rating assigned by an authority. Each judge had at least two skills in each criterion.

In nurse selection, active health professionals (nurses) who have experience at KaICU of at least 6 months in neonatology or a specialization course, residency, master’s degree or PhD with an emphasis on neonatology, possessing at least two skills, were included.

Item relevance, content and reliability were verified through inter-rater agreement on the Content Validity Index (CVI). Items that presented more than 80% (CVI>0.80) of agreement were considered valid[9].

The research was submitted to the Research Ethics Committee of the *Universidade Estadual do Ceará*, following all ethical and legal precepts for research involving human beings. The research is registered on the Brazilian Clinical Trials Registry (REBEC – *Registro Brasileiro de Ensaios Clínicos*) platform under UTN U1111-1285-3181, following the RCT step with the co-participating institution for its implementation, reassessment and necessary adjustments.

RESULTS

The bundle construction step included 13 items, initially divided according to the Interactive Theory of Breastfeeding milestones, as shown in Figure 1.

By observing the Interactive Theory of Breastfeeding[8] and the findings of this systematic review, it is clear that breastfeeding is directly related to the dynamic interaction between mother and child, even in the condition of prematurity. This dynamic interaction becomes influenced by: women’s and children’s biological conditions; children’s perception of breastfeeding; organizational systems to protect, promote and support breastfeeding; time for breastfeeding; women’s decision-making on breastfeeding; stress with children’s admission to the NICU and premature birth; and mothers’ role.

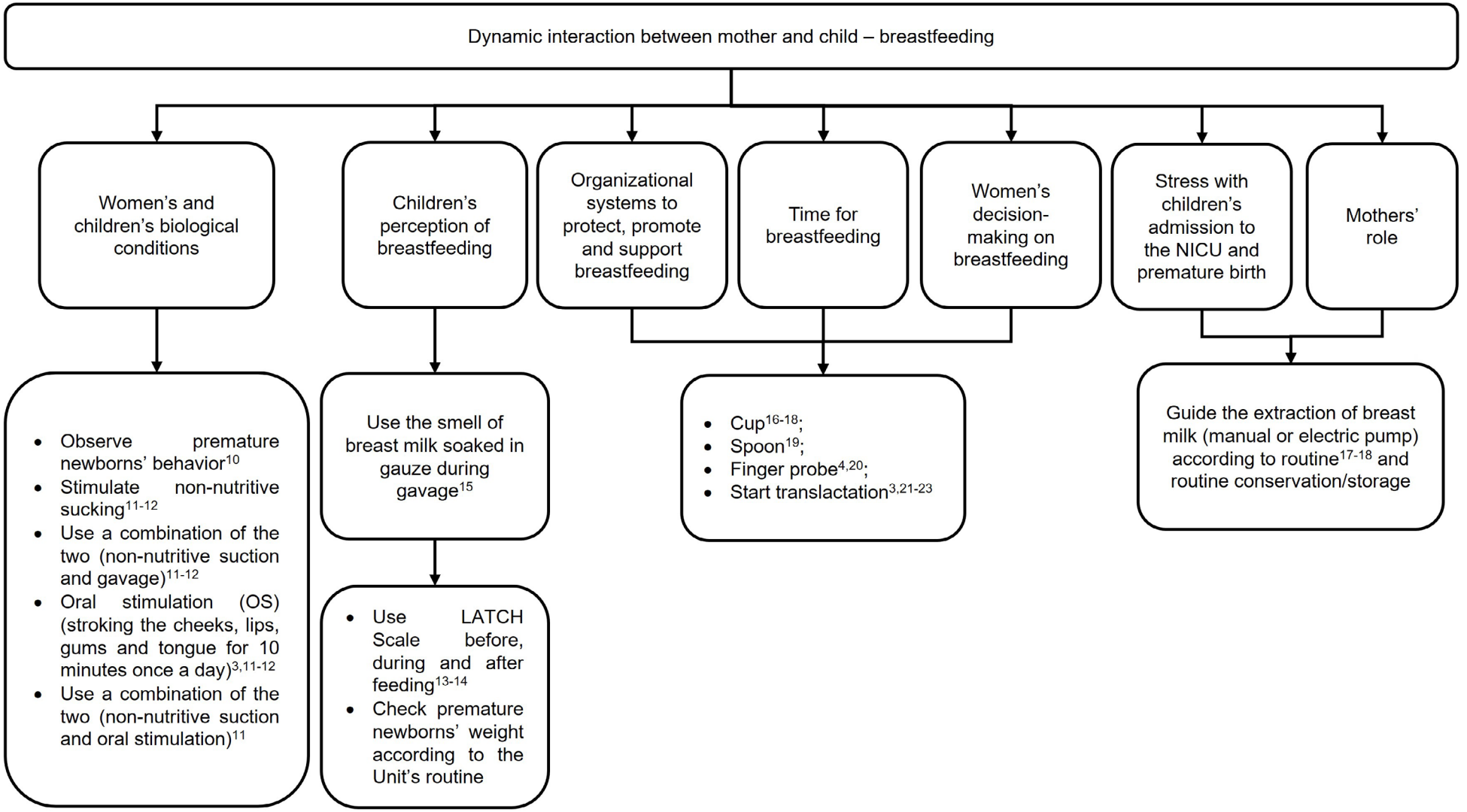

Figure 1 – Interactive Theory of Breastfeeding applied to prematurity and the guidelines that allowed the construction of the nutrition transition bundle, Fortaleza, Ceará, Brazil, 2022.

Therefore, these findings were distributed and organized to compose the nutrition transition bundle for PTNBs admitted to the KaICU, observing their corrected age. The included articles mentioned weight checking and diet acceptance as references for assessing diet transition, emphasizing the importance of maintaining maternal milk production for starting and continuing breastfeeding, according to Chart 1, which presents the food transition bundle.

Initially, validity was carried out with expert judges, with 3 participants, with a minimum age of 35 and a maximum of 63, 2 women and 1 man, with degrees ranging between 41 and 10 years. All were nurses and researchers,2 PhD holders and 1 PhD student, 2 of whom were professors, 1 of whom was an undergraduate course coordinator and the other was a neonatal nurse. Analyzing scientific production in the neonatal area, all have studies published in journals and abstracts in annals of events, 2 mentioned writing a monograph and 2 mentioned dissertations.

Expert judges' answers in the action chart, guidance flowchart for professionals and definition of terms that make up the nutrition transition bundle in PTNBs admitted to the KaICU, in the three corrected age groups ≤32 weeks 32-34 and ≥34, showed agreement among the three experts, with a CVI of 1.0 in all items, considered valid.

Among the contributions, an expert requested including PTNB with orofacial alterations or congenital malformations; however, this was an exclusion criterion from the research and, therefore, it was decided to disregard this suggestion. Another suggestion was the inclusion of vital signs in the bundle, but, as checking vital signs is routine at KaICU, it was decided to disregard it.

The "Definition of terms, description of the technique and guidelines for professionals" item was considered adequate by all experts: "*understandable and includes the necessary guidelines*".

In the validity step with experts, no items or other guidelines were added, as they were considered sufficient and the recommendations allowed the desired objective to be achieved, in addition to increasing instrument agreement and reliability.

The second moment was validity with KaICU nurses. The profile included seven nurses aged between 35 and 49 years, and graduation time ranged from 13 to 22 years. Six have specialization in child and neonatal health and one has specialization in progress. Among the participants, one is a KC master and tutor and another is studying for a PhD. Only one nurse works at two hospitals, carrying out the same care activity with PTNBs at KaICU.

Nurses judged the bundle validity that, for corrected age ≤ 32 weeks, 32 to 34 weeks and ≥ 34 weeks, in relation to "Use the smell of breast milk soaked in gauze during gavage", "Oral stimulation (OS) (stroking the cheeks, lips, gums and tongue for 10 minutes once a day)", "Combination of the two (non-nutritive sucking and oral stimulation)", "Cup, spoon or finger probe" and "Start translactation", 06 totally agreed and 01 partially agreed. In the routine actions to "Observe premature newborns' behavior", "Use LATCH Scale before, during and after feeding", "Guide the extraction of breast milk" and "Check premature newborns' weight according to the Unit's routine", all of them fully agreed. Therefore, the CVI was equal to 1.0.

Chart 1 – Food transition bundle for premature newborns admitted to the Kangaroo Unit. Fortaleza, Ceará, Brazil, 2022.

Corrected age at admission/ Interactive Theory of Breastfeeding application	Using OGT	Observe	Unit's routine conducts
≤ 32 weeks Women's and children's biological conditions; Women's and children's perception of breastfeeding; Time for breastfeeding; Mothers' role; Organizational systems to protect, promote and support breastfeeding; Women's decision-making.	1. Observe premature newborns' behavior[11]; 2. Use LATCH Scale before, during and after feeding[14–15]; 3. Use the smell of breast milk soaked in gauze during gavage[16]; 4. Stimulate non-nutritive sucking[12–13]; 5. Use a combination of the two (non-nutritive suction and gavage)[12–13];	**Premature newborns' behavior towards standardized feeding**[11]; 1. Crying 2. Silent alert 3. Hand-to-mouth activity 4. Suck fingers, fist or finger probe 5. Rooting reflex (chest reaching) (28 to 30 weeks) 6. Inability to settle after changing position, changing diaper, or pacifier **Signs of satiety** 1. Turns head away 2. Hold hands still 3. Falls asleep 4. Has no interest in restarting feeding after burping/interruption in sucking **Adverse events** 1. Apnea 2. Bradycardia 3. Oxygen desaturation 4. Combination of these events Observe the wakefulness of newborns and their behavioral state at the time of feeding[12]; Observe episodes of vomiting, refusal to eat, abdominal distension and changes in stool[18]. *Observe food intolerance[11,19].	1. Guide the extraction of breast milk (manual or electric pump) according to routine[18–19] and routine conservation/ storage; 2. Check premature newborns' weight according to the Unit's routine.

Chart 1 – Cont.

Corrected age at admission/ Interactive Theory of Breastfeeding application	Using OGT	Observe	Unit's routine conducts
32 to 34 weeks Women's and children's biological conditions; Women's and children's perception of breastfeeding; Time for breastfeeding; Mothers' role; Organizational systems to protect, promote and support breastfeeding; Women's decision-making.	1. Use the smell of breast milk soaked in gauze during gavage[16]; 2. Stimulate non-nutritive sucking[12–13]; 3. Oral stimulation (OS) (stroking the cheeks, lips, gums and tongue for 10 minutes once a day)[3,12–13]; 4. Use a combination of the two (non-nutritive suction and oral stimulation)[12–13].	**Premature newborns' behavior towards standardized feeding**[11]; 1. Crying 2. Silent alert 3. Hand-to-mouth activity 4. Suck fingers, fist or finger probe 5. Rooting reflex (chest reaching) (28 to 30 weeks) 6. Inability to settle after changing position, changing diaper, or pacifier **Signs of saciety** 1. Turns head away 2. Hold hands still 3. Falls asleep 4. Has no interest in restarting feeding after burping/interruption in sucking **Adverse events** 1. Apnea 2. Bradycardia 3. Oxygen desaturation 4. Combination of these events Observe the wakefulness of newborns and their behavioral state at the time of feeding[12]; Observe episodes of vomiting, refusal to eat, abdominal distension and changes in stool[18]. *Observe food intolerance[12–20].	1. Observe premature newborns' behavior[11]; 2. Use LATCH Scale before, during and after feeding[14–15]; 3. Guide the extraction of breast milk (manual or electric pump) according to routine[18–19] and routine conservation/ storage; 4. Check premature newborns' weight according to the Unit's routine.

Chart 1 – Cont.

Corrected age at admission/ Interactive Theory of Breastfeeding application	Using OGT	Observe	Unit's routine conducts
≥34 weeks Women's and children's biological conditions; Women's and children's perception of breastfeeding; Time for breastfeeding; Mothers' role; Organizational systems to protect, promote and support breastfeeding; Women's decision-making.	1. Use the smell of breast milk soaked in gauze during gavage[16]; 2. Oral stimulation (OS) (stroking the cheeks, lips, gums and tongue for 10 minutes once a day)[3,12–13]; 3. Use a combination of the two (non-nutritive suction and oral stimuation)[12–13]; 4. Use cup[17–19], spoon[20] or finger probe[4,21]; 5. Start translactation[3,22–24].	**Premature newborns' behavior towards standardized feeding**[11]; 1. Crying 2. Silent alert 3. Hand-to-mouth activity 4. Suck fingers, fist or finger probe 5. Rooting reflex (chest reaching) (28 to 30 weeks) 6. Inability to settle after changing position, changing diaper, or pacifier **Signs of saciety** 1. Turns head away 2. Hold hands still 3. Falls asleep 4. Has no interest in restarting feeding after burping/interruption in sucking **Adverse events** 1. Apnea 2. Bradycardia 3. Oxygen desaturation 4. Combination of these events Observe the wakefulness of newborns and their behavioral state at the time of feeding[12]; Observe episodes of vomiting, refusal to eat, abdominal distension and changes in stool[18]. *Observe food intolerance[12,20].	1. Observe premature newborns' behavior[10]; 2. Use LATCH Scale before, during and after feeding[14–15]; 3. Guide the extraction of breast milk (manual or electric pump) according to routine[18–19] and routine conservation/ storage; 4. Check premature newborns' weight according to the Unit's routine.

*LATCH scale: assesses nursing mothers' and their newborns' performance during breastfeeding, such as latching on to the breast, audible swallowing, type of nipple, comfort and absence of pain and whether the mother needs help to maintain the position[14–15]; †Oral stimulation (OS).

In the assessment step for defining the techniques, two suggestions emerged. The first was to detail "*oral stimulation time*", however oral stimulation time is described "*up to 10 minutes*" both in guidelines and in action chart, and perhaps it went unnoticed by participants. The second suggestion was "*in the technique of smelling breast milk how this milk will be heated*"; in this case, the text was adapted to the following bundle orientation: "*Breast milk will be collected before feeding and stored in the refrigerator, then heated, according to the unit's routine, before starting to administer the diet. At this time, 05 ml should be reserved to be placed on the gauze*". Heating must occur according to the unit's routine, as there are different realities, with water bath being frequently used.

Two nurses also added the following observations about the bundle and the flowchart: "*The process is easily understood and can be replicated by the team, through training", "I believe it will be a very useful tool for us to assess PTNBs' progression in the unit*" (N1, N2).

DISCUSSION

Transition from feeding tube to breast is one of the milestones in the development of PTNBs[25]. This process allows nutritional needs to be met, in addition to maternal insertion in care, with their stay in the hospital unit, awakening NBs' behavior and maternal responses, especially mothers' decision-making to breastfeed[8,26].

Given the lack of standardization for nurses regarding the nutrition transition steps, using nutrition transition bundle will allow autonomy in assessment, in addition to being one of the motivating factors of the study.

Assessment of PTNBs' behavior allows subtle warning signs to be identified early, especially those related to hunger, NB activity, crying and the presence of rooting reflex. For rooting reflex maturation, the action of olfactory genes is necessary, which play an essential role in memory, taste, defense and sensory integration[25].

Sensitivity to the smell of breast milk, especially soon after birth, favors early physiological sensitivity in NBs[26]. These physiological changes in PTNBs and mothers are based on the concepts of biological condition of women and children from the Interactive Theory of Breastfeeding[8].

This lack of standardization for health professionals (doctors, nurses and speech therapists) makes nutrition transition difficult, considering that using gestational age and weight is common. However, in addition to maturity, professionals must consider other variables, such as clinical stability, state of consciousness, oral motor skills and coordination between sucking, swallowing and breathing[27].

Standardization of techniques combined with team training makes it possible for PTNBs to successfully breastfeed. A similar finding was found in a multicenter, quasi-experimental intervention study, which aimed to assess a training program for neonatal nurses aimed at supporting exclusive breastfeeding of PTNBs. They noticed that significantly more PTNBs in the intervention group (whose nurses received training) were exclusively breastfed at discharge (66.6%) than in the control group (58.1%) (p=0.008)[28].

In a quasi-experimental study, which involved 60 PTNB admitted to the NICU, with the aim of assessing cue-based feeding, the experimental group (n=30) received behavioral cue-based feeding (BCBF): 1 – One BCBF every 12 hours for 3 days; 2 – Two BCBF feedings every 12 hours for 3 days; and 3 – All BCBF for 3 days. The control group received standard food. The mean duration for full oral feeding in the intervention and control groups was 17±6 and 20±11 days, respectively (P=0.19). However, the frequency of apnea was seen in the control group was 1±2.11 (P=0.16)[27].

The RCT compared the effect of two pacifier and gloved finger sucking methods on oral feeding behavior in 150 PTNBs, with a gestational age of 31 to 33 weeks, divided into 3 groups of 50. They received interventions three times a day for five minutes before gavage for ten days: non-nutritive sucking on a gloved finger (A), pacifier (B) and control (C). Rooting among the three groups A, B and C was 1.76 ± 0.47, 1.64 ± 0.48 and 1.40±0.90 ($p<0.001$), respectively. The average time to achieve independent oral feeding among the three groups was more evident in intervention groups A and B at 22.12±8.15, 22.54±7.54 days, respectively ($p=0.03$)[29].

Among the steps suggested in the nutrition transition bundle, it should be remembered that nurses will initially assess NBs' weight and corrected age at admission to know what actions will be taken (≤ 32 weeks, between 32 and 34 weeks and ≥34 weeks), combined with the assessment of patterns displayed by NBs.

The combination of parameters outlined by PTNB, such as non-nutritive sucking, corrected gestational age, posture and global tone, combined with behavioral state, can guide the assessment of the presence of readiness necessary to initiate transition from OGT to oral route[25,26].

The criteria for entering PTNB into the second step at KaICU are reiterated, such as clinical stability, full enteral nutrition and a minimum weight of 1,250 g[3]. Thus, PTNBs will be assessed to begin nutrition transition based on weight, clinical stability and corrected gestational age assessment, which enable transition from OGT to maternal breast to be achieved[30].

Understanding the breastfeeding dynamics, given the Interactive Theory and the findings that made up the bundle, we see that, in the context of premature children (concepts of biological conditions and child perception), help and support are needed from the organizational system, which is integrated and prepared to help mothers manage lactation, using standardized bundles/protocols[31]. In addition to support for maintaining lactation, mothers need to make the decision to breastfeed, recognizing within their role as mothers the importance of breastfeeding for their NBs[8].

Organizational systems are known to support initiation and continuation of breastfeeding. The study that assessed a cohort, with premature births ≤32 weeks and continued breastfeeding until 6 months post-discharge, found that at the time of discharge mixed versus exclusive breastfeeding with breast milk was associated with interruption before 6 months: aRR=0.60, 95% CI [0.48, 0.74][32].

Complementing these findings, a cohort assessed the effects of Kangaroo Mother Care (KCC) during breastfeeding. They assessed breastfeeding using the LATCH scale. They saw that the time of first lactation and its duration were observed in both cohorts (control and intervention). The KCC group had a shorter time to start the first lactation, breastfeeding and duration compared to the control group ($P<0.05$)[33].

It should be noted that each transition action included in the bundle will be recorded in patients' medical record and shared with the team during shift change to guide decision-making or discontinuation in case of physiological changes.

From this perspective, during the food transition bundle validity, the agreement coefficient found was similar to that found in the literature, which reiterates that the CVI must be at least 0.80 and, preferably, greater than 0.90, presenting itself as adequate for reliable applicability in practice[7].

The main limitation of this study is related to the fact that only 3 experts participated, despite the acceptance of the 12 invited researchers. However, it should be noted that the sample of judges (experts and assistants) was a considerable number, being adequate in line with the methodological framework used.

CONCLUSION

Content construction and validity of a nutrition transition bundle for PTNBs hospitalized at KaICU based on the Interactive Theory of Breastfeeding in an unprecedented way allows nurses to recognize the ideal moment to carry out PTNBs' nutrition transition based on actions.

It also makes it possible to recognize the mother-child dyad with its particularities, respecting the time of both and inserting mothers in their leading role when faced with the choice of nurturing their children, in addition to considering the support of "organizational systems to protect, promote and support breastfeeding" as a *sine qua non* condition for "women's decision-making on breastfeeding".

Therefore, in the validity process, the committee of experts and nurses considered it valid and possible to be implemented in clinical practice. It should be noted PTNBs' nutrition transition must be done together, observing clinical conditions, weight and corrected gestational age.

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NOTES

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Data analysis and interpretation: Tavares ARBS.
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CONFLICT OF INTEREST

There is no conflict of interest.

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