

# Breastfeeding analgesia for pain relief in the vaccination room: perception of parents and health professionals

Mamanalgesia para alívio da dor em sala de vacina: percepção de pais e profissionais de saúde

*Mamanalgesia para el alivio del dolor en la sala de vacunación: percepción de padres y profesionales de la salud*

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## Abstract

**Introduction:** Immunization is effective against infectious and contagious diseases and reduces infant morbidity and mortality; however, when pain from the procedure, is not managed, it can lead to negative future experiences for the child. **Objective:** To understand the perceptions of parents and health professionals regarding the use of the breastfeeding analgesia method for pain relief during the administration of injectable vaccines. **Methods:** Action research with a qualitative approach and data processing using the IRaMuTeQ<sup>®</sup> software, which generated the similarity tree, the descending hierarchical classification, the word cloud, and enabled content analysis. **Results:** In the first phase, mothers presented meaning cores associated with the words 'breastfeeding analgesia' and 'vaccine'. The professionals presented similar terms, highlighting a lack of knowledge about breastfeeding analgesia in both groups. In the second phase, after the educational activity, the professionals and mothers emphasized the terms 'relief,' 'vaccine,' 'pain,' and 'child,' indicating a new perception and a potential willingness to adopt the technique. **Conclusions:** Lack of knowledge about breastfeeding analgesia may be the main barrier to its use. Professional training is necessary to ensure the provision of qualified care, supported by strategies such as health education.

**Keywords:** Primary health care; Nursing; Immunization; Infant.

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## Resumo

**Introdução:** A imunização é eficaz contra doenças infectocontagiosas e reduz a morbimortalidade infantil, porém a dor do procedimento, quando não tratada, pode gerar experiências negativas futuras para a criança. **Objetivo:** Conhecer a percepção de pais e profissionais de saúde com relação à utilização do método da mamanalgesia para alívio da dor, no momento da aplicação de vacinas injetáveis. **Métodos:** Pesquisa-ação com abordagem qualitativa e processamento de dados pelo software IRaMuTeQ®, que gerou a árvore de similitude, a classificação hierárquica descendente, a nuvem de palavras e possibilitou a análise de conteúdo. **Resultados:** A primeira etapa das mães indicou núcleos de sentidos com as palavras “mamanalgesia” e “vacina”. As profissionais apresentaram termos similares marcando o desconhecimento sobre a mamanalgesia para os dois grupos. Na segunda etapa, após atividade educativa, as profissionais e as mães ressaltaram os termos “alívio”, “vacina”, “dor” e “criança”, denotando haver uma nova percepção e possibilidade de adesão à técnica. **Conclusões:** O desconhecimento sobre mamanalgesia pode ser apontado como o maior impedimento para sua utilização. Faz necessária a atualização profissional para a oferta de cuidado qualificado, por meio de estratégias como a educação em saúde.

**Palavras-chave:** Atenção primária a saúde; Enfermagem; Imunização; Lactente.

## Resumen

**Introducción:** La inmunización es eficaz contra enfermedades infectocontagiosas y reduce la morbimortalidad infantil; sin embargo, el dolor del procedimiento, cuando no es tratado, puede generar experiencias negativas futuras para el niño. **Objetivo:** Comprender la percepción de padres y profesionales de la salud respecto al uso del método mamanalgesia para el alivio del dolor al aplicar vacunas inyectables. **Métodos:** Investigación acción con enfoque cualitativo y procesamiento de datos mediante el software IRaMuTeQ®, que generó el Árbol de Similitudes, Clasificación Jerárquica Descendente, Nube de Palabras y permitió el análisis de contenido. **Resultados:** La primera etapa de madres indicó grupos de significados con las palabras “mamanalgesia” y “vacuna”. Los profesionales presentaron términos similares, destacando el desconocimiento sobre analgesia mamaria de ambos grupos. En la segunda etapa, después de la actividad educativa, profesionales y madres resaltaron los términos ‘alivio’, ‘vacuna’, ‘dolor’ y ‘niño’, denotando una nueva percepción y posibilidad de adhesión a la técnica. **Conclusiones:** La falta de conocimiento sobre mamanalgesia puede identificarse como el mayor impedimento para su uso. Es necesaria la actualización profesional para ofrecer una atención calificada, a través de estrategias como la educación para la salud.

**Palabras clave:** Atención primaria de salud; Enfermería; Inmunización; Lactante.

## INTRODUCTION

The World Health Organization (WHO) has developed a document to encourage breastfeeding of infants during vaccination and/or immediately afterward, given the consensus that sucking provides an analgesic effect. This analgesic action, breastfeeding analgesia (termed *mamanalgesia* in Portuguese, it does not have a direct equivalent term in English), reduces pain and calms infants receiving injectable immunizations.<sup>1</sup>

To facilitate analgesia, breastfeeding should be initiated before, continued during, and maintained after vaccine administration. Therefore, nursing professionals should be aware of this practice and encourage breastfeeding mothers to use it to minimize pain caused by vaccination.<sup>2</sup>

According to the Ministry of Health<sup>3</sup> (*Ministério da Saúde* – MS), the effectiveness of breastfeeding has been observed in studies evaluating this practice at different times. It has been noted that when breastfeeding is used during the administration of injectable immunizations, it can reduce stress through various mechanisms, including physical comfort from sucking, distraction, and the ingestion of sugars and other substances that may have a pain-relieving effect. When breastfeeding is practiced before vaccination, it can reduce anxiety through the infant's satiety, thereby promoting calmness during needle-based procedures.

A recent randomized clinical trial demonstrated that breastfeeding newborns during painful procedures reduces pain. The mechanisms underlying this effect were considered multifactorial, including sucking, skin-to-skin contact, warmth, the mother's scent, and possibly the endogenous opioids present in breast milk.<sup>4</sup>

Pain caused by injectable vaccines is a concern for both parents and healthcare professionals. Healthcare professionals are also concerned about adverse events resulting from immunobiologicals. Consequently, parents who observe such reactions in their infants may experience distress, which often leads to the postponement or even cancellation of vaccines scheduled in the immunization calendar.<sup>5</sup>

With a view to expanding vaccination coverage and minimizing the suffering of children and their families, breastfeeding has been used as a pain relief technique. This practice is considered by the Ministry of Health as one of the non-pharmacological strategies for pain relief and is being adopted alongside other approaches, such as music therapy, chromotherapy or color therapy, sucking (gloved finger), kangaroo care (skin-to-skin contact), and the use of vibrating elements that emit sounds and lights.<sup>3</sup>

Immunization is a preventive and effective strategy for combating infectious diseases and reducing infant morbidity and mortality rates. However, the pain associated with the procedure is an expected adverse event and, when left untreated, can contribute to negative experiences for the child during future procedures.<sup>6</sup> In Brazil, concern with pain mitigation through minimization or control strategies has been discussed for some time.<sup>7</sup>

In Brazil, the National Immunization Program (*Programa Nacional de Imunização – PNI*) has faced significant challenges in recent years related to childhood vaccination coverage, which has shown a considerable decline. Several factors are considered to contribute to this issue, including vaccine hesitancy, which has become a major concern for Brazilian managers and researchers. Vaccine hesitancy is not new in some countries and has been discussed and studied, albeit under different terminology.<sup>8</sup> The decline in vaccination coverage began to be observed from 2016 onward, becoming relevant in the context of public health.<sup>9</sup>

The chosen theme arose from concerns among the researchers as healthcare professionals, allowing for a broader perspective on more assertive pain management. This situation results in delays in children receiving their vaccine doses at the recommended age, as well as hesitation among parents and/or family members to vaccinate their children, with their discomfort becoming evident when observing the infant's distress during the administration of injectable immunobiologicals.

Disseminating information on this topic, given the importance of nurses in promoting vaccination coverage in their communities, is considered a significant contribution to the dissemination of this technique. The contributions presented here may encompass both teaching and care in the field of Nursing. Based on the above, the guiding question established was: what is the perception of parents and healthcare professionals regarding the use of the breastfeeding analgesia method for pain relief during the administration of injectable vaccines?

Thus, the objective was defined as understanding the perception of parents and healthcare professionals regarding the use of the breastfeeding analgesia method for pain relief during the administration of injectable vaccines.

## METHODS

### Type of study

This is an action research study with a qualitative approach. Action research is based on empirical investigation and aims to describe tangible actions and situations in social environments, without discarding

theoretical research, as both complement each other. This type of research examines acquired and observed data in a comprehensive and descriptive manner. Action research considers the environment/context in its real nature and develops through data collection, requiring those involved to carry out actions directed toward the investigative process (team, researchers, and respondents).<sup>10</sup>

## Research setting

The research was conducted between September 2022 and February 2023 in two Primary Health Care Units (*Unidades Básicas de Saúde* – UBS) located in the urban area of the municipality of Campo Formoso. The municipality is situated in the north-central region of the state of Bahia and has a total population of 71,754 inhabitants (IBGE/2021),<sup>11</sup> including 6,145 children aged zero to five years (TABWIN DATASUS).<sup>12</sup>

Of the 20 UBS in the municipality, two were selected. Inclusion criteria for the units were location in the urban area and the highest flow of children for vaccination. Thus, UBS I and UBS II constituted the study locus.

## Study participants

In each unit, parents and family members of children under two years of age (infants) who were waiting to be seen in the vaccination room, as well as healthcare professionals working in immunization (Nursing technicians), were invited to participate.

Because this is a qualitative study, the sample size was determined by convenience, with seven participants being parents/family members and five being healthcare professionals. Due to the COVID-19 pandemic, a maximum of three participants per educational activity was adopted. During the initial contact with parents/family members, explanations about the research were provided, and once verbal acceptance was obtained, participants were asked to read and sign the Informed Consent. In all four educational activities conducted, municipal distancing regulations were followed, including the use of masks and hand sanitizer, in order to minimize the child's exposure.

Inclusion criteria for parents/family members were: being over 18 years of age and having children who were breastfeeding at the time of sample collection. For professionals, the criterion was having worked in a vaccination room for more than six months. Exclusion criteria for parents/family members included having children older than two years who were breastfeeding but had a comorbidity that prevented/hindered breastfeeding during vaccination. For professionals, exclusion applied to those on vacation or leave.

## Data collection and organization

The data collection instrument included sociodemographic and professional information, as well as specific questions regarding breastfeeding, pain in children, and vaccination. Data collection for parents/family members occurred in two interview sessions: one before the educational activity (first stage) and another after the educational activity (second stage). The interviews allowed for understanding participants' perceptions of the topic at different time points.

The educational activity was conducted individually or in small groups for both parents/family members and professionals. Each session took place in a private room within the unit, lasting

approximately 30 minutes, beginning with the initial interview, followed by discussion and in-depth exploration of non-pharmacological pain relief measures, with an emphasis on guidance regarding the use of breastfeeding analgesia.

After the educational activity, the researcher accompanied the parents/family members to the vaccination room, where the breastfeeding analgesia technique was applied during the child's scheduled vaccination. Subsequently, the parents/family members were invited to return to the private room to complete the second interview and discuss their experience, allowing for refinement of the information received and/or shared.

It is worth noting that all professionals participated in the first interview. Subsequently, a single educational activity was conducted with the entire group, followed by the final interview. However, due to the variety of experiences during the researcher's application of the technique, the professionals were invited to report on their experiences with its use and their expectations regarding its future adoption, or lack thereof, in their routine in the vaccination room.

## Data analysis

For the analysis of the workshop data, the content analysis method was employed, a widely used approach in qualitative research. It can be defined as a set of techniques for analyzing communications using systematic and objective procedures to describe central ideas, generating indicators that allow the induction of knowledge related to the message. Bardin's content analysis method consists of the following stages: pre-analysis, material exploration or coding, treatment of results, and inference and interpretation.<sup>13</sup>

The data analysis was conducted using the IRaMuTeQ<sup>®</sup> software, which is free and allows users to perform statistical analysis on a textual corpus. This analysis aimed to determine frequency and co-occurrence of terms with mutually similar expressions. The software performs the calculations and provides results, enabling characterization of the vocabulary (lexicon) and the segments identified.<sup>14</sup>

In the first stage of data processing, four textual corpora were created and analyzed using the IRaMuTeQ<sup>®</sup> software, employing descending hierarchical classification (DHC), similarity tree analysis, and word cloud analysis. In these methods, the textual corpus is successively divided, representative word classes are extracted based on the frequency of their occurrence in the interviewees' speech, and a statistical distribution of the vocabulary in the texts is performed, relating words through semantic proximity.<sup>14</sup>

To create the four categories, formed through the analysis of the mothers' DHC, excerpts of speech were included in which participants were identified with the letter M, followed by their order of participation in the interviews (M1...M7). Health professionals were identified with the letter P (P1...P5).

## Ethical aspects

This study was approved by the Research Ethics Committee of the State University of Bahia under number 5.531.685, on July 18, 2022. It followed the guidelines and criteria established in Resolutions 466/12; 510/2016, and 674/2022 of the National Health Council, prioritizing the legitimacy of the information,

as well as its privacy and confidentiality, and ensuring participant privacy by conducting the first and second stages in a closed setting.<sup>15,16</sup>

## RESULTS

This study included 12 participants: seven mothers who attended the service and five healthcare professionals (two from UBS I and three from UBS II). Regarding the mothers' sociodemographic characteristics, their ages ranged from 24 to 44 years; all reported being in a stable relationship, identified as homemakers, and did not have paid employment. Of these, four women self-identified as white and three as mixed-race. In terms of education, two had higher education, and five had completed/partially completed secondary education.

The professionals at UBS I were Nursing technicians who had worked as vaccinators for over 15 years in different units, with two of those years at this unit. One had completed higher education and the other had completed high school. Regarding employment status, one was a contract worker and the other a permanent employee. Their ages were 42 and 60 years.

The professionals at UBS II were nursing technicians who had worked as vaccinators for seven to 25 years; however, their length of service at that particular unit ranged from 29 days to seven years. The professional with the shortest tenure at the unit was covering for staff on vacation. For her, only the first stage could be completed, as no parents were available for the second-stage interview.

Regarding education, two had higher education and one had completed high school. Concerning their employment status in the municipality, one was a permanent employee and two were contract workers. Their ages ranged from 44 to 62 years.

In this study, data from the first and second stages are presented separately and by participant group. The similarity tree was constructed based on the corpus of parents' responses from the first stage, providing a coherent and visually interpretable organization and distribution of vocabulary. A frequency of five or greater was used as the cutoff point for constructing the tree (Figure 1).

Figure 1 revealed two core meanings. The first, centered on breastfeeding analgesia (*mamanalgesia* in Portuguese), is connected to the words "know," "pharmacological," "method," "technique," "relief," "information," and "knowledge." Based on graph theory, co-occurrences between the words were identified, indicating that the mothers participating in the study were largely unaware of the possibilities of using breastfeeding analgesia during vaccination, often associating the technique with prior knowledge related to potential consequences of breastfeeding, such as choking. This underscores the need for health education strategies to present breastfeeding analgesia as a non-pharmacological method of pain relief.

The second core of the similarity tree was formed around the word "vaccine," which is strongly linked to the words "pain," "application," and "breastfeeding." This indicates that participants believed breastfeeding during the vaccination process could harm the infant, leading them to avoid breastfeeding while the child received an injectable vaccine.

The responses from the second stage with the mothers, analyzed using IRaMuTeQ®, generated a dendrogram with the DHC, comprising seven classes and five categories (Figure 2), consisting of words/terms with a frequency of seven or greater.

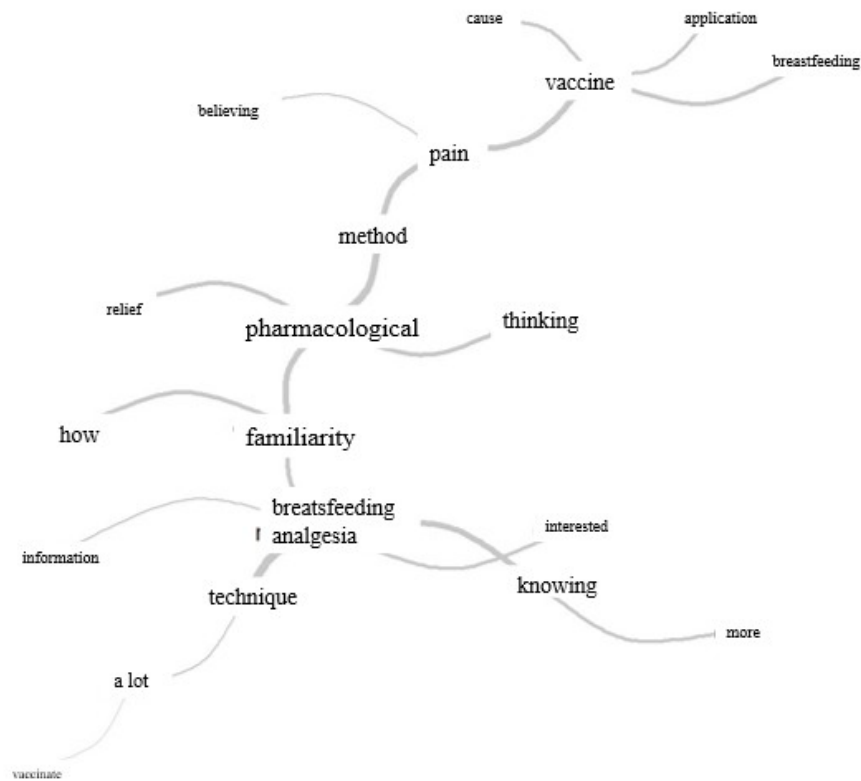


Figure 1. Similarity tree of parents' responses in the first stage.

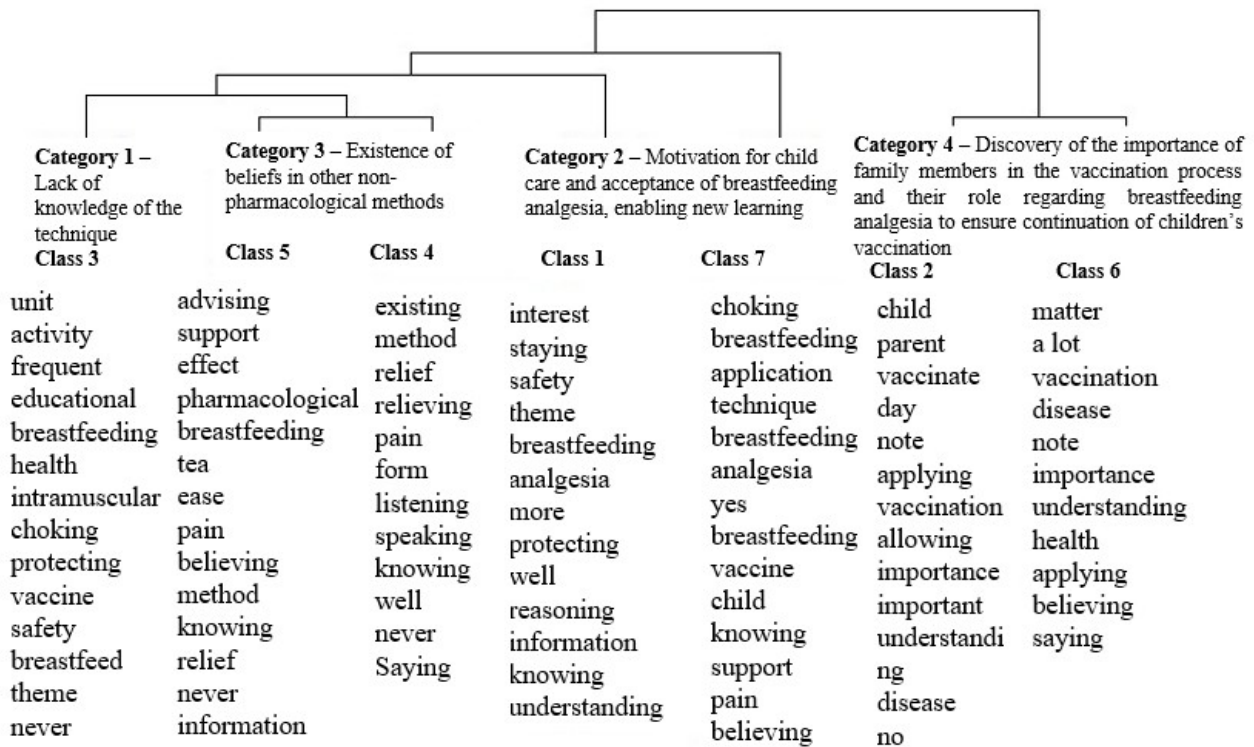


Figure 2. Dendrogram of the second stage of parents' responses.

The categories were named by the researchers based on the lexical groups that composed them and their semantic proximity, as determined from the speech excerpts.

### **Category 1: Lack of knowledge of the technique**

M3: "I don't know this technique, for example, but I understand that saying you can breastfeed during the vaccine could cause choking."

The first category was formed by class 3, highlighting the lack of knowledge about the technique. Participants indicated in their responses that they were completely unfamiliar with the breastfeeding analgesia technique. Some reported that, although they participate in educational activities at their primary health care unit, topics related to vaccination were not addressed, nor was breastfeeding during vaccination discussed. In other words, no information was provided about breastfeeding analgesia, only that breastfeeding is generally important for the infant's development.

The terms used in class 3 reveal parents' need and interest in obtaining more information and dispelling misconceptions about potentially harmful practices, such as "choking."

### **Category 2: Motivation for childcare and acceptance of breastfeeding analgesia, enabling new learning experiences**

M6: *"I know vaccines protect children, so I was interested in getting more information."*

The second category was composed of classes 1 and 7, which encompass elements related to motivation for participating in the activity proposed by the action research, reflected in terms such as "interest," "theme," "feeling safe," and "getting to know." Class 7 highlights how explicitly the mothers emphasized the importance of the activity for learning and accurately applying the technique, recognizing it as an effective non-pharmacological method. They also expressed satisfaction in understanding the positive effects of the breastfeeding analgesia technique and its potential contribution to maintaining up-to-date vaccinations.

### **Category 3: Existence of beliefs in other non-pharmacological methods**

M1: *"I think that information is false, that breastfeeding while getting an intramuscular vaccine can cause choking. I already use a cold compress at home to ease the pain."*

M4: *"The pain effects can be reduced with guidance and support during breastfeeding along with the vaccine. I give my child tea at home."*

The third category, comprised of classes 4 and 5, includes terms that underscore the need for "attention," "participation," and "support" from healthcare professionals in developing activities that provide coherent information on non-pharmacological methods for pain relief, including traditional approaches such as "teas" and "cold compresses." This highlights that guidance and support from all involved are essential to foster interest and engagement, thereby achieving positive and successful outcomes with these interventions.

### **Category 4: Discovery of the importance of family members in the vaccination process and their role in addressing maternal analgesia to continue the vaccination of children**

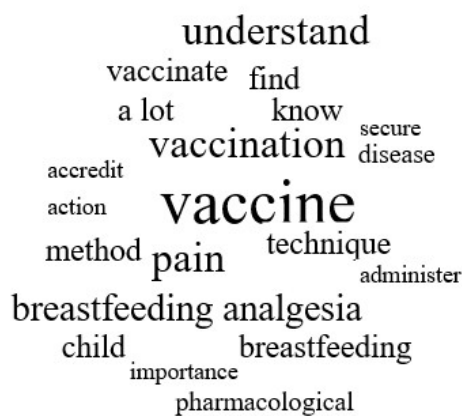
M7: *"Fake news about these vaccines can make parents doubt their importance, and easing the pain can help with that."*

The fourth category, comprised of classes 2 and 6, includes terms indicating that participants emphasized the importance of vaccinating their “children,” recognizing that vaccines prevent “diseases” and are effective in promoting, maintaining, and establishing health. They acknowledged that pain is part of this process, resulting from the administration of injections, but noted that it can be prevented or alleviated through the use of non-pharmacological methods.

Regarding the data from healthcare professionals, a similarity with the mothers’ responses was observed in both the first and second stages, as reflected in the word cloud configurations (Figures 3 and 4).



**Figure 3.** Word cloud of responses from healthcare professionals working in the vaccination room during the first stage.



**Figure 4.** Word cloud of responses from healthcare professionals working in the vaccination room during the second stage.

Based on the analysis of the first stage with healthcare professionals, the word cloud displays the most frequently occurring terms, with the most relevant ones shown in larger size. In Figure 3, the highlighted words were “vaccine” and “pain,” indicating limited knowledge of non-pharmacological methods

for pain relief, particularly the breastfeeding analgesia technique; in some accounts, it was evident that the technique had never been mentioned during their professional experience.

P5: *“I’m familiar with medicinal herbal teas, they help, but you shouldn’t skip prescribed medications. I think it’s true that pain effects can be reduced with support for breastfeeding during the vaccine.”*

There are also terms related to the importance of “breastfeeding” and “vaccination,” although professionals do not associate breastfeeding with the act of vaccine administration. Breastfeeding can be recognized as an effective method for relieving pain and alleviating discomfort for both the infant and the mother. Professionals considered the assertion that pain effects can be reduced through guidance and support for breastfeeding during vaccination to be false.

P2: *“[...] I also don’t think it’s true that guidance and support during breastfeeding will reduce vaccine pain. I’m not familiar with the technique, and I think the baby could actually choke if breastfed while getting the vaccine.”*

According to the analysis of the second-stage word cloud for healthcare professionals, following demonstration of the technique and explanation of its importance during vaccination, as well as through their lived experience, the most frequent terms were “vaccine,” “pain,” “breastfeeding analgesia,” and “child.” This reflects a “new” perception regarding the potential for incorporating the technique into the daily routine of the vaccination room.

P1: *“I’m amazed at how calm the baby stayed, it all went much more smoothly. The mother stays calm too.”*

## DISCUSSION

For most mothers participating in this study, the first stage clearly revealed a lack of knowledge about non-pharmacological methods for pain relief, particularly the technique of breastfeeding analgesia. Although widely used worldwide, breast analgesia remains little discussed in Brazil. The WHO has recommended it since 2015 as a non-pharmacological method to relieve pain in infants during immunization.<sup>17</sup>

Another important finding of this study is that, even without prior knowledge of the breastfeeding analgesia technique, mothers showed interest in learning more about it. Similarly, fathers who received guidance or training were more engaged in techniques such as those involving distraction of the child during the procedure.<sup>18</sup>

However, the mothers who participated in this study believed that breastfeeding during vaccination could harm the infant. For example, regarding the possibility of regurgitation of the vaccine, the package insert of the most commonly used vaccine in SUS indicates that no interval is required between breastfeeding and vaccine administration. In a study investigating nursing technicians’ beliefs about breastfeeding as a non-pharmacological intervention for pain relief, a lack of professional knowledge was observed.<sup>19</sup> Similarly, when nurses were studied regarding breastfeeding as a non-pharmacological strategy for pain relief in neonates undergoing invasive procedures, restrictive beliefs and even obstacles to maternal breastfeeding were identified, depriving newborns and infants of effective pain relief.<sup>20</sup>

This study clearly demonstrates that, after participating in the educational activity, mothers expressed both the need and interest in obtaining more information and dispelling misconceptions about potential harmful effects, such as choking. Through the research process, as well as the demonstration and application of the breastfeeding analgesia technique, it was possible to generate family members’ interest in learning more about this non-pharmacological method for pain relief.

Therefore, it is crucial to encourage, involve, and instruct parents in managing their children's pain. The implementation of non-pharmacological measures during painful procedures depends not only on effective strategies but also on the collaboration of family members, particularly in dispelling limiting beliefs.<sup>20,21</sup>

It is essential for professionals to provide motivation so that family members can care for the child and support breastfeeding. Healthcare professionals, including nursing technicians, should encourage mothers to use breastfeeding as a non-pharmacological method of pain management during vaccine administration.<sup>18</sup> In accordance with Technical Note No. 39/2021 from MS, professionals responsible for administering injectable vaccines to children should support, promote, and encourage breastfeeding during the procedure.<sup>3</sup>

Furthermore, parents need to be motivated and guided to provide emotional support during their children's painful experiences, whether related to chronic or acute illness, in order to alleviate anxiety through interventions and/or methods that promote relaxation and deep breathing. Such interventions help reduce stress in parents and, consequently, in children.<sup>22</sup>

In this study, mothers explicitly stated the importance of the educational activity for learning and accurately understanding how to perform the technique. Family members, however, considered the period from prenatal care to postpartum, including routine visits to the UBS, as the most appropriate time for providing guidance to the mother and her partner on breast analgesia.<sup>23</sup>

It is necessary that knowledge regarding good practices in childbirth and newborn care be addressed, provided, and encouraged during routine visits to primary health care, such as postpartum consultations, child health checkups, and vaccination updates, as these are opportune spaces for the exchange of experiences and knowledge. In this context, it is emphasized that consultations routinely conducted by nurses, in addition to providing health education, contribute to the empowerment of women. Nurses are qualified and trained to assume the role of educator, and health education is integrated into the course of clinical nursing care.<sup>20</sup>

Therefore, it is necessary to identify the actual needs of the public (family members) so that nursing professionals can enhance their technical and scientific qualifications, including educational actions that reflect a paradigm shift. Counseling and support for all involved in this process are essential to achieve positive outcomes and successful pain relief in neonates, which can, in turn, stimulate interest among other family members and increase the visibility of the technique.<sup>24</sup>

Given the professional autonomy to carry out activities within the nurse's scope of competence, health education is highlighted as a strategy for acquiring and updating knowledge, as well as training multipliers among users and the health team.<sup>25</sup>

Routine immunization is intrinsic to Primary Health Care practice throughout Brazil; however, in recent years, a decline and heterogeneity in vaccination coverage have been observed, influenced by various factors, including vaccine hesitancy. Studies indicate that providing Primary Health Care professionals with new perspectives on vaccine hesitancy, considering multiple context-specific lenses, can enhance understanding of its complexity and support the adoption of new techniques in daily practice.<sup>8</sup>

It is worth emphasizing that training actions should be based on methodologies that establish a connection between proposed strategies and real-world practice, that is, methodologies that foster critical thinking for decision-making and enable the selection of approaches most consistent with the work process and the needs of users in the practical context.

Regarding prior knowledge of nursing techniques, Figure 3 shows that the most frequently used words were "vaccine" and "pain," indicating a "lack of knowledge" of non-pharmacological methods for pain relief, particularly the breastfeeding analgesia technique. In some accounts, it was evident that the nursing technicians had never encountered breastfeeding analgesia in their professional experience.

In a study conducted with nursing technicians working in primary health care units, the results align with the present research regarding professionals' lack of knowledge about non-pharmacological methods. Of the nine professionals included in the study, only three had technical-scientific knowledge of breastfeeding as a method of pain relief; the remaining participants, in addition to being unfamiliar with the technique, questioned infant safety, associating choking incidents with crying during breastfeeding.<sup>19</sup>

Even though a considerable percentage of healthcare professionals (66.3%) had previously encountered non-pharmacological pain relief techniques during technical, undergraduate, or postgraduate training, the main references cited were environmental preparation and the use of music therapy. Regarding the proper preparation of newborns for painful procedures, the majority (61.9%) of assistants/technicians and 50% of physiotherapists agreed that continuing education is necessary.<sup>26</sup>

According to the previous study, MS guidelines recommend that professionals use non-pharmacological interventions with proven efficacy for pain relief and low operational cost, such as breastfeeding, skin-to-skin contact, reduction of tactile stimuli, sweetened solutions (sucrose or glucose), and non-nutritive sucking. Nurses stood out for their interest in learning more about pain relief techniques, their understanding of hemodynamic changes and the long-term consequences of pain exposure, and their mastery of non-pharmacological strategies.<sup>26</sup>

Before the educational activity, the nursing technicians, despite their extensive experience in the vaccination room, considered the assertion that pain could be alleviated through counseling and support for breastfeeding during vaccination to be false. The professionals recognize the benefits of breastfeeding during vaccination and associate it with several factors, such as physical contact, the infant's desire to suckle for analgesic effect, and the presence of endorphins, all contributing to a calmer baby. However, despite demonstrating some knowledge of the subject, the professionals did not adhere to the technique due to a lack of scientific training.<sup>4</sup>

Although some nurses use breastfeeding during vaccination, its practice as a non-pharmacological strategy for pain reduction is not uniformly recognized or perceived. Some argue that vaccination is not the optimal time to breastfeed due to the risk of the child crying and choking, preferring instead to use other forms of distraction.<sup>5</sup>

A study on pain in newborns during the Newborn Screening Test demonstrated that breastfeeding is a natural, effective, and cost-free intervention applicable in various situations, including pain relief. However, professionals continue to doubt its efficacy, which may be related to the absence of specific and relevant content on the subject in technical and undergraduate courses, allowing this lack of knowledge to persist and pain and suffering to remain unaddressed.<sup>27</sup>

Regarding adherence to breastfeeding analgesia, both parents and professionals showed strong interest in implementing pain relief interventions during childhood vaccination.<sup>18</sup> Similarly, as observed in the perceptions of mothers and nursing technicians after the educational activity, parents demonstrated in their second-stage responses a "new" understanding and recognition of the possibilities for incorporating breastfeeding analgesia into the daily routine of the vaccination room.

## Limitations of this study

The development of action research requires time and appropriate opportunities to involve the family in care preceding the educational activity, that is, before the procedure itself. As an innovative practice in the service/municipality, there was resistance from participants, particularly regarding the time required at the primary health care unit. Additionally, the limited number of studies on the topic hindered broader discussion of the findings.

## FINAL CONSIDERATIONS

For the participants in this study, whether mothers in stable relationships with secondary and/or higher education, or nursing technicians with extensive experience in vaccination rooms, the greatest barrier to using the breastfeeding analgesia technique appeared to be a lack of knowledge. Through action research, participants experienced breastfeeding during the administration of immunobiologicals, and the application of the technique, which provided pain relief, led to changes in perception and the potential for future adoption of the method.

This study highlighted the need for ongoing training and knowledge updating for nursing professionals throughout their careers to provide qualified care to their communities. Therefore, further research on this topic is recommended, contributing to the improvement of care quality for families and children and potentially impacting vaccination coverage.

## CONFLICT OF INTERESTS

Nothing to declare.

## AUTHOR'S CONTRIBUTION

Galvão RSS: Data curation, Writing – original draft. Suto CSS: Supervision, Formal analysis, Writing – review & editing. Nascimento RC: Writing – review & editing. Silva MBC: Data curation, Writing – original draft. Freitas RG: Data curation, Writing – original draft. Almeida MP: Writing – review & editing. Jesus MEF: Writing – review & editing.

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