

## ONLINE EDUCATIONAL ACTIVITY ON BREASTFEEDING TO IMPROVE THE KNOWLEDGE OF COMMUNITY HEALTH WORKERS: A QUASI-EXPERIMENTAL STUDY

ATIVIDADE EDUCATIVA ON-LINE SOBRE ALEITAMENTO MATERNO PARA CONHECIMENTO DE AGENTES COMUNITÁRIOS DE SAÚDE: ESTUDO QUASE-EXPERIMENTAL

ACTIVIDAD EDUCATIVA ON-LINE SOBRE LACTANCIA MATERNA PARA MEJORAR LOS CONOCIMIENTOS DE LOS AGENTES DE SALUD COMUNITARIOS: ESTUDIO CUASI EXPERIMENTAL

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### ABSTRACT

**Objective:** to evaluate the efficacy of an online educational activity on breastfeeding (BF) for the cognitive knowledge of community health agents (CHAs). **Methods:** quasi-experimental study, carried out with community health agents. Previously, a knowledge test on breastfeeding was applied. Then, the participants were submitted to the theoretical and practical online educational activity. Subsequently, the post-test was applied. **Results:** the sample consisted of 53 professionals. The activity proved to be effective, as it was able to improve the professionals' cognitive knowledge about breastfeeding. There were significant statistics in the variables on physiology ( $p<0.001$ ) and benefits of breastfeeding ( $p<0.003$ ), breastfeeding position ( $p<0.002$ ), intervals between feedings ( $p<0.001$ ), breast complications ( $p<0.001$ ) and conservation of milk ( $p<0.005$ ). **Conclusion:** the online educational strategy was effective in improving the CHAs' cognitive knowledge about BF in all aspects addressed. Statistical evidence is highlighted regarding the difference between prior cognitive knowledge and knowledge after the online educational activity in the variables on physiology and benefits of breastfeeding, breastfeeding technique, intervals between feedings, breast complications and milk conservation.

**Keywords:** Breast Feeding; Health Education; Community Health Workers; Knowledge; Information Technology.

### RESUMO

**Objetivo:** avaliar a efetividade de atividade educativa on-line sobre aleitamento materno (AM) para conhecimento cognitivo de agentes comunitários de saúde (ACS). **Métodos:** estudo quase-experimental, realizado com agentes comunitários de saúde. Aplicou-se, previamente, teste do conhecimento sobre aleitamento materno. Em seguida, os participantes foram submetidos à atividade educativa on-line teórica e prática. Posteriormente, foi aplicado o pós-teste. **Resultados:** a amostra foi constituída por 53 profissionais. A atividade se mostrou efetiva, pois foi capaz de melhorar o conhecimento cognitivo dos profissionais sobre o aleitamento materno. Houve estatística significativa nas variáveis sobre fisiologia ( $p<0,001$ ) e benefícios da amamentação ( $p<0,003$ ), posição para amamentar ( $p<0,002$ ), intervalos entre as mamadas ( $p<0,001$ ), intercorrências mamárias ( $p<0,001$ ) e conservação do leite ( $p<0,005$ ). **Conclusão:** a estratégia educativa on-line obteve efetividade na melhora do conhecimento cognitivo dos ACS sobre AM em todos os aspectos abordados. Destacam-se evidências estatísticas referentes à diferença entre o conhecimento cognitivo prévio e o conhecimento posterior à atividade educativa on-line nas variáveis sobre fisiologia e benefícios da amamentação, técnica de amamentação, intervalos entre as mamadas, intercorrências mamárias e conservação do leite.

**Palavras-chave:** Aleitamento Materno; Educação em Saúde; Agentes Comunitários de Saúde; Conhecimento; Tecnologia da Informação.

### RESUMEN

**Objetivo:** evaluar la eficacia de una actividad educativa online sobre lactancia materna para el conocimiento cognitivo de los agentes de salud comunitarios. **Métodos:** estudio cuasi experimental, realizado con agentes de salud comunitarios. Previamente, se aplicó una prueba de conocimientos sobre lactancia materna, tras lo cual, los participantes fueron sometidos a una actividad educativa teórica y práctica en línea y, posteriormente, se aplicó una pos prueba. **Resultados:** la muestra estaba formada por 53 profesionales. La actividad demostró ser eficaz porque consiguió mejorar los conocimientos cognitivos de los profesionales sobre la lactancia materna. Hubo estadísticas significativas en las variables sobre fisiología ( $p<0,001$ ) y beneficios de la lactancia ( $p<0,003$ ), posición para amamentar ( $p<0,002$ ), intervalos entre tomas ( $p<0,001$ ), complicaciones mamarias ( $p<0,001$ ) y conservación de la leche ( $p<0,005$ ). **Conclusiones:** la estrategia educativa online fue eficaz para mejorar los conocimientos cognitivos de los TSC sobre LM en todos los aspectos abordados. Destacamos la evidencia estadística respecto a la diferencia entre los conocimientos cognitivos antes y después de la actividad educativa online en las variables sobre fisiología y beneficios de la lactancia materna, técnica de lactancia, intervalos entre tomas, complicaciones mamarias y conservación de la leche.

**Palabras clave:** Lactancia Materna; Educación en Salud; Agentes Comunitarios de Salud; Conocimiento; Tecnología de la Información.

## INTRODUCTION

Breastfeeding is a practice of fundamental importance for maternal and child health. Breast milk can prevent 13% of infant mortality in the world, being a protective factor against infectious and cardiovascular diseases, leukemia, necrotizing enterocolitis, celiac disease and inflammatory bowel diseases.<sup>1</sup>

Despite these benefits, only 40% of children in the world receive Exclusive Breastfeeding (EBF) at the beginning of life. There are differences between middle and high income countries, with 23.9% EBF in the first six months of life in high income countries, and low income countries, with 50.8%. In Brazil, the last report provided to the World Health Organization (WHO) on breastfeeding showed a rate of 45.7% of EBF up to six months.<sup>2</sup>

Several factors contribute to low EBF adherence rates. Among them, the following stand out: belief in weak/insufficient milk; introduction of other types of milk; use of pacifier or bottle; trauma and nipple pain; and little encouragement from healthcare professionals.<sup>3</sup>

Among these professionals, there is the Community Health Agent (CHA), an essential professional in the context of Family Health, as he/she is the mediator between the community and the healthcare team. This is because he/she is in permanent contact with the families, carrying out actions of an educational nature and identifying problems, in order to solve them together with the team. Therefore, the CHA is characterized as an essential collaborator for the success of breastfeeding, considering that it is the professional closest to the puerperal women who need guidance.<sup>4</sup>

A survey carried out with 148 CHA revealed that 45.9% of agents were not trained to provide practical guidance on breastfeeding for mothers, while 63.3% had never participated in courses on the subject. It is evident, therefore, that the knowledge of the CHA about the practice and promotion of breastfeeding (BF) is limited.<sup>5</sup>

In the pandemic context, despite the fact that mortality rates from COVID-19 are low in children, this group has been disproportionately affected by the interruption of routine health services. International guidelines do not contraindicate breastfeeding for mothers with COVID-19, as the benefits outweigh any potential risks of transmission of the virus from breast milk. Therefore, counseling on nutrition and support and monitoring of children's nutritional status should be continued, especially when routine consultations are limited.<sup>6,7</sup>

Thus, there is a need for CHA training for actions that promote BF, in order to expand the possibilities of clinical management with attention to the family, the

health of the woman and the community, in addition to the child.<sup>8</sup> The training must be carried out by Primary Care nurses, whose work is not restricted to performing techniques and procedures, as it also encompasses leadership, ethics, management of people and material resources, teamwork, health care and continuing education.<sup>9</sup>

With globalization in modern society, Nursing has used Information and Communication Technologies (ICTs) to develop care in the various health scenarios. Thus, it is important that health professionals recognize the opportunities that the digital environment provides for health education, favoring learning.

A survey that used digital pedagogical tools with primary care professionals showed greater qualification of the professionals participating in the course. The study found that there was a contribution to the dissemination and access to technical-scientific knowledge, demonstrating that the online strategy favors the expansion of health education actions, even in pandemic contexts.<sup>10</sup>

In this regard, there is a need to improve the CHA's knowledge about BF through new technologies (even in pandemic periods), contributing to transform the reality of these professionals' work and, consequently, maternal and child health. Thus, the present research aimed to evaluate the effectiveness of an online educational activity on BF for knowledge of CHAs.

## MATERIAL AND METHOD

This is a quasi-experimental intervention study, with a non-equivalent anterior-posterior control group. It was carried out from May to September 2020, and conducted online with healthcare professionals from the municipalities of *Redenção* and *Acarape*, in the interior of the state of *Ceará*, Brazil. This location was chosen because, in general, cities located in the interior have gaps in access to information and health services.

The intervention unit consisted of CHAs who are part of the Family Health teams that make up the Primary Care Network of the municipalities. Comparison of the situation before and after the educational activity carried out, without a control group and randomization, was the adopted design.

According to data from the municipal health departments, the city of *Redenção* has 10 Basic Health Units (UBS, *Unidade Básica de Saúde*), with a total of 63 CHAs; the city of *Acarape* has 11 UBS, with 33 CHAs, thus totaling 96 CHAs in both cities. For sample calculation in this study, the formula for finite populations was used, considering the prevalence  $p = 50\%$  (when there is no information about the proportion of interest), the confidence

level of 95% and the sampling error of 5%. Thus, the estimated sample was 77 CHAs.

However, some inclusion criteria were used, which are: work in the healthcare unit of the aforementioned municipalities for more than a year; have a computer/laptop/mobile phone with internet access and WhatsApp application. Six professionals were excluded, four due to sick leave and two due to being on vacation. There was a sample loss of 18 CHA due to the discontinuity criteria: 10 missed one of the scheduled days and 8 did not respond to the post-test after the educational activity. Thus, the final sample consisted of 53 CHAs.

Initially, the coordinators of the UBS were contacted and passed on the contacts of the CHAs of the units. With these data in hand, the CHAs were contacted via telephone, and the objectives and benefits of the research were explained. After agreeing to participate in the study, the professionals received, via the WhatsApp application, the Free and Informed Consent Form (ICF) to sign.

Data collection took place in three steps. The first, carried out using a form created on Google Forms and sent via WhatsApp, sociodemographic variables (age, gender, marital status and education) were investigated, time working as a CHA and whether he/she had already participated in any training/course on BF. A pre-test was also sent, created in Google Forms, with the aim of assessing the cognitive knowledge of professionals before the online educational activity was applied.

The second step referred to the application of the educational activity synchronous and online, in which the theoretical content was addressed through a video lesson (slides) lasting 30 minutes. This lecture preceded 15 days the demonstration of the practical content (30 minutes), in which a Breastfeeding Kit was used (doll, apron and breasts; reference: 01961, from the Virtual Saúde [Virtual Health] brand and a Kit with 8 units of glass jar for Storing Breast Milk Rbrvidros-Code echch82hh5). Following the standards and recommendations of the current scientific literature and advocated by the Ministry of Health,<sup>11,12</sup> the theoretical lecture covered the following topics: types of breastfeeding, benefits of breastfeeding, anatomy and physiology of lactation, breastfeeding techniques, clinical management of breastfeeding (fissure, engorgement, mastitis and candidiasis), milking and milk storage.

The practical content was carried out by a breastfeeding consultant nurse, who demonstrated the following themes: breastfeeding technique (correct attachment and types of positions), milking and milk conservation. Technological resources were also used to favor learning, as

well as interaction with professionals through videos, fixation games and clinical case.

The educational activity was carried out by two students of the eighth semester of Nursing graduating course who are part of the research group on Sexual and Reproductive Health and one breastfeeding consultant nurse, who is a PhD and professor at a public university. The environment used to hold the lecture was the Child Health Nursing Laboratory, at the Universidade da Integração Internacional da Lusofonia Afro-Brasileira [University of International Integration of Afro-Brazilian Lusofonia] (UNILAB).

The choice for the synchronous form aimed to allow the CHAs to have free access to ask questions and clarify doubts during the presentation of the content.

Finally, in the third step, the post-test was applied, in the same way as the pre-test. It was applied right after the educational activity, in order to assess the cognitive knowledge of the CHAs. The post-test was sent via the WhatsApp application, with a deadline of up to one week for professionals to respond.

The instrument used in the pre-test and post-test was created by the investigators, adapted from Suárez-Cotelo.<sup>13</sup> It was composed of ten objective questions, with four alternatives each and only one correct. Participants were asked about the following topics: types of breastfeeding, benefits of breastfeeding, hormone involved in lactation, breastfeeding techniques, clinical management of breastfeeding, milking and milk conservation.

The results of the pre-test were considered to define the distribution of the workload of the educational action and to understand how the CHAs should proceed to promote and support BF in the community and families, recognizing the technical and legal limits of these healthcare professionals.

Data were stored in Microsoft Excel® software. For data analysis, the statistical package IBM - SPSS 22.0 for descriptive statistics was adopted. To compare the correct answers before and after the educational activity, the Wilcoxon test was applied with a significance level of 5%, with  $p < 0.05$  being considered significant.

The study was approved by the Research Ethics Committee (REC) of UNILAB and followed the recommendations of the ethical precepts of Resolution nº 466/2012, of the National Health Council. As the study was carried out with employees, everyone was assured that the present research did not involve performance evaluation, guaranteeing confidentiality of the answers given to the two interviews. Therefore, the CHAs signed the Free and Informed Consent Form (ICF) to participate in the study.

## RESULTADOS

The final sample consisted of 53 CHAs from 16 UBS in the cities of *Redenção* and *Acarape*, with 15 CHAs coming from the municipality of *Acarape* and 38 from *Redenção*. Among the characteristics of the participants, most were women (88.7%), aged between 41 and 50 years (52.9%), married or in a stable relationship (66.1%) and with a high school education (79.4%). With regard to working time as CHA, most had enough experience in the position: 26 (49.1%) had between 11 and 20 years of experience, and 38 (71.7%) CHAs claimed to have participated in some previous course or training on BF, as shown in Table 1.

There was a predominance of CHAs working between 11 and 20 years, followed by 21 and 30 years; only 11.3% worked between one and 10 years. Regarding previous participation in BF training, 71.7% said they had participated, and 28.3% did not.

Based on the satisfactory responses presented, it was observed that the CHAs cognitive knowledge improved when comparing before and after the activities. This improvement refers to the concepts of exclusive breastfeeding (EBF), physiology and the benefits of breastfeeding, as shown in Table 2. Although the CHAs previously presented cognitive knowledge about the EBF concept, it was found that these professionals unanimously agreed to the test applied after online training. Regarding the physiology and BF benefits, the number of satisfactory responses almost doubled and were statistically significant, demonstrating a difference between the cognitive knowledge that the CHAs had before and after the educational activity, thus showing its effectiveness.

As in the previous questions, the efficacy of the educational activity was observed with regard to the most suitable position for breastfeeding, the signs of correct attachment and the intervals between feedings, as shown in Table 3. Furthermore, there was statistical evidence showing a difference between the cognitive knowledge before and after the educational activity in these variables.

When comparing the before and after of the educational activity in relation to cognitive knowledge about the main breast complications, the position indicated for the sleepy baby and the shelf life of frozen milk, a statistical significance was found, as shown in Table 4. It indicates that the CHAs managed to learn how to handle cases of cracked breasts and mastitis caused during breast complications, as well as the most appropriate position for a sleepy baby and the correct guidelines to be given to

families regarding the shelf life of preserved milk in the freezer (frozen).

During the interventions, the CHAs mentioned that the main causes they identified for the occurrence of early weaning in women belonging to the micro areas were the lack of family support for BF and the family encouraging the use of food or formula in feeding the baby. Besides, they also pointed out reports of feeling of “weak milk” or insufficient production, as well as breast conditions (fissure, mastitis and unfavorable anatomy, such as flat or inverted nipple).

When the CHAs were asked about which issues addressed in the interventions they did not previously know, some highlighted the clinical management of breastfeeding (cracks, mastitis, obstructed duct), different types of positions, milking and storage of breast milk.

There was an increase in correct answers for all questions applied after the educational activity. The minimum and maximum percentages prior to the educational activity were 13.2% and 98.10%, in the pre-test; and 73.6% and 100% in the post-test, respectively. The questions with the least correct answers in the pre-test addressed the themes of the most suitable position for a sleepy baby and the shelf life of milk stored in the freezer (frozen). In

Table 1 - Distribution of participants, according to sociodemographic data, *Redenção* and *Acarape*, Ceará, Brazil, 2020

Variables	(n)	(%)
<b>Age (years)</b>		
21 - 30	3	5.6
31 - 40	16	30.1
41 - 50	28	53.0
> 50	6	11.3
<b>Gender</b>		
Male	6	11.3
Female	47	88.7
<b>Marital status</b>		
Single	14	26.4
Married/Stable Union	35	66.1
Others	4	7.5
<b>Education</b>		
Elementary School	2	3.7
High School	42	79.4
Higher Education	9	16.9

the post-test, the benefits of BF and the signs of correct latching were identified. On the other hand, the themes with the highest successes in the pre-test were the concept of EB and the correct position for breastfeeding; in the post-test, they were the concept of EBF and whether the

woman with mastitis could breastfeed. The results were statistically significant, indicating the effectiveness of the online strategy to investigate the CHAs' level of cognitive knowledge about BF.

Table 2 - Distribution of CHA according to answers about the concept, benefits and physiology of breastfeeding before and after the educational action, *Redenção* and *Acarape*, *Ceará*, Brazil, 2020

Cognitive knowledge about the concept, benefits and physiology of BF	Before		After		p-value
	N	%	N	%	
Concept of Exclusive Breastfeeding	52	98.10	53	100	0.317
Benefit of Breastfeeding	25	47.20	39	73.60	0.003*
Hormone responsible for milk production	22	41.50	44	83.00	0.001*

\*Wilcoxon test

Table 3 - Distribution of CHAs according to answers about the correct position for breastfeeding, the signs of correct attachment and the interval between feedings, *Redenção* and *Acarape*, *Ceará*, Brazil, 2020

Cognitive knowledge about the correct position for breastfeeding, the signs of correct attachment (pegada) and the interval between feedings	Before		After		p-value
	N	%	N	%	
Correct position for breastfeeding	36	67.90	49	92.50	0.002*
Correct grip (pega) signals	27	50.90	41	77.40	0.006*
Intervals between feedings	28	52.80	51	96.20	0.001*

\*Wilcoxon test

Table 4 - Distribution of CHAs according to responses on the main breast complications, position indicated for sleepy babies and shelf life of frozen milk, *Redenção* and *Acarape*, *Ceará*, Brazil, 2020

Cognitive knowledge about the main breast complications, the position indicated for a sleepy baby and the shelf life of frozen milk	Before		After		p-value
	N	%	N	%	
Can a woman with mastitis breastfeed?	34	64.20	52	98.10	0.001*
Appropriate management in cases of fissures	29	54.70	47	88.70	0.001*
Best position for sleepy baby	7	13.2	42	79.2	0.001*
Shelf life of milk stored in the freezer (frozen)	10	18.90	43	81.10	0.001*

\*Wilcoxon test

## DISCUSSION

There was a predominance of CHA women, which can be explained by the historical context of “women's role” as caregivers. This aspect was positive for the support of the breastfeeding process, as a study points out that there is still resistance from users of the health system in relation to male CHAs when the topic is sexual and reproductive health.<sup>14</sup>

It was evident that most of the CHAs had worked between 11 and 20 years. According to a study that sought to know the socio-demographic profile, job characteristics and job satisfaction of CHAs in *Juazeiro*, *Bahia*, a longer working time is related to better development of

activities. This is because the bond and building ties with the community are strengthened, which also positively impacts the promotion of BF.<sup>14</sup>

A positive finding of this research was that most professionals reported that they had already participated in some course or training on BF - although the pre-tests revealed little cognitive knowledge of the CHAs on certain topics addressed. An integrative literature review that sought to analyze whether continuing health education is a strategy for qualifying the CHAs work process, showing that 80% of the analyzed studies indicated that continuing health education for CHA professionals promotes

the adoption of a work collaborative, reflective and critical, reflecting on better quality care for families.<sup>15</sup>

Thus, it is clear that interventions such as the one carried out in the present study can contribute to the reinforcement of the previously discussed contents and add new information and updates. Thus, cooperation is provided so that the CHA is able to carry out safer and more grounded guidelines, offering qualified assistance.

Although most CHAs already present satisfactory prior cognitive knowledge about the types of BF, after the educational activity, this cognitive knowledge improved among all. Knowing how to advise on the types of BF is a fundamental aspect to support the guidance given to breastfeeding women.

A survey that sought to understand the level of knowledge of pregnant women regarding EBF practices at a UBS in *Formosa, Goiás*, showed that mothers had doubts about EBF and food introduction, despite the guidelines received. This demonstrates that there are demands for the team to provide clearer and more accurate information, as correct information about the type of BF can favor mothers' adherence to EBF and not offering other foods.<sup>16</sup>

The activity provided improvement in cognitive knowledge regarding the physiology of lactation, which is an important point for those who provide assistance to lactating women. This is because hormones such as prolactin and oxytocin act directly on the production of breast milk. Guidance on how to stimulate the baby's sucking and breastfeeding in calm environments can favor stimulation and increase milk production.<sup>17</sup>

Regarding the benefits of BF, the improvement in cognitive knowledge after the educational activity was statistically significant, and it is important that this aspect be addressed, as many women adhere to BF due to its benefits, and it is up to professionals to offer support.<sup>18</sup> A survey which sought to understand the experiences of CHAs in BF care practice, showed that the knowledge of these professionals regarding the benefits of BF is limited to the baby, ignoring the advantages for the mother, family and society, so that the main actions are developed following these precepts.<sup>8</sup>

It was possible to perceive that the educational activity also contributed to increase cognitive knowledge about a much discussed aspect of breastfeeding, the proper positioning. A study about the positioning of the mother with the baby during breastfeeding showed that maintaining posture and correct positioning help maintain BF, in addition to contributing to the proper development of the child, reducing pain and muscle deformities in mothers and reducing the risk of breast complications.<sup>19</sup>

Another topic that showed a significant increase in the CHAs' cognitive knowledge after the educational activity was the types of positions for breastfeeding. There was a noticeable lack of knowledge about variations in positions for breastfeeding and the benefits for the breastfeeding process. The chosen position must be comfortable, favor the interaction between mother and child and can always be changed to a position that best suits the moment. Type of delivery, prematurity and sleepy baby are situations that can affect breastfeeding, and position variations resolve these issues.<sup>12</sup>

In terms of the correct grip, despite the fact that the professionals had satisfactory prior cognitive knowledge, it was possible to observe an increase in the rates of correct answers. Scientific evidence points out that one of the main difficulties in breastfeeding is inadequate attachment, and it is essential that professionals receive training to guide women on the prevention of breast complications, which are common in cases of incorrect latching - in addition to being a significant cause of weaning precocious.<sup>20</sup>

Regarding breast complications, more than 90% of the CHAs correctly answered the post-test, which is one of the items with the greatest improvement in cognitive knowledge. This finding is beneficial, as professionals who assist women in the pregnancy-puerperal cycle need to identify and solve the difficulties related to breastfeeding, given that breast complications are factors that contribute a lot to the interruption of BF.<sup>21</sup>

BF must occur on demand, and the CHAs' cognitive knowledge on this subject increased considerably after the educational activity. This is a positive aspect, as these professionals will be able to better guide Nursing mothers about not stipulating times to breastfeed, offering the breast whenever the child wants.<sup>11</sup>

Cognitive knowledge about the conservation of human milk increased by 62.2%, which is a relevant result, considering that it was one of the items with the lowest rate of correct answers before the educational activity. A study carried out in Campo Grande, Mato Grosso do Sul, sought to identify the knowledge of parturients about the donation of human milk. As a result, it revealed that none of the interviewees mentioned the hygiene processes necessary for milking and milk conservation, such as the time the milk remains in the refrigerator and in the refrigerator.<sup>22</sup> Therefore, the assistance provided by professionals in possession of this knowledge will have an impact positive in the lives of mothers who wish to continue breastfeeding after returning to work.

Promoting permanent education in the online modality can facilitate the training of professionals in difficult-to-access environments, with the participation of professionals specializing in the subject, and in pandemic contexts, in which crowds are avoided. Widely used in the context of breastfeeding promotion, digital technologies favor maternal and child health care, generating positive repercussions, having low cost and being accessible to the population.<sup>23</sup>

Despite the benefits of the online context, this strategy still has pitfalls. A course on patient safety, carried out with high school and university level professionals from the Secretary of Health of the State of Bahia of the Unified Health System Network, consisting of recorded video classes, showed gaps in the number of professionals. However, this modality was well evaluated by the participants.<sup>24</sup>

Thus, it is up to the nurse, as the protagonist of health education in Primary Care, to be responsible for training the team with the use of digital technologies. This is intended to achieve better rates of BF and EBF, as the association between receiving guidance on breastfeeding in primary health care and EBF is positive (PR = 1.32).<sup>25</sup>

A limitation of this study is that there was little adherence by some professionals, causing sample loss, even though it was carried out online. Furthermore, regarding the internal validity of the study, it is believed that the educational activity carried out in two meetings may have disfavored adherence. It is suggested to carry out studies that carry out activities in a single moment, with a longer period of duration, involving a larger number of CHAs. Furthermore, a survey should be carried out on the impact of educational activities on breastfeeding and EBF rates after trained professionals provide assistance to mothers.

## CONCLUSIONS

The online educational strategy was effective in improving the CHAs' cognitive knowledge about BF in all aspects addressed. Statistical evidence stands out regarding the difference between cognitive knowledge before and after the online educational activity in the variables physiology and benefits of breastfeeding, breastfeeding technique, intervals between feedings, breast complications and milk conservation.

The findings of this research confirm the importance of permanent training to improve the cognitive knowledge of professionals who work in maternal and child health, as well as envision a new possibility that proved to be effective to be inserted in the contexts of teaching

and learning in health units, being the nurse is the professional responsible for planning, conducting and training the work team. By training the CHA, the nurse promotes health, improving the assistance provided to mothers by qualified professionals.

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