

Accompanying Breastfeeding with eHealth: Integrative Review
Acompañando la lactancia materna con eHealth: revisión integrativa
Acompanhando o aleitamento materno com eHealth: revisão integrativa

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Abstract: Introduction: The World Health Organization recommends exclusive breastfeeding during the first 6 months of life, as well as continuing it supplemented with appropriate foods up, to 2 years and more. Therefore, the need of professional support around it is observed for mothers during pregnancy and once breastfeeding has begun. The World Health Assembly recognized the potential of digital technologies to improve public health, highlighting that the use of eHealth has transformed health, allowing the delivery of care in people's homes remotely. Objective: To determine if professional support through eHealth is a strategy that favors the support to mothers who are going through the breastfeeding process and improves their breastfeeding results. Methodology: A integrative review was carried out seeking to understand the phenomenon or topic of interest from different perspectives. To carry it out in June 2020, the databases Pubmed, Scopus, CINAHL, ProQuest, ClinicalKey and Science Direct were consulted. Results: They were organized into two groups: professional support strategies through eHealth to mothers in breastfeeding process and results of eHealth as a tool for professional support to mothers in breastfeeding process. Conclusion: eHealth is an effective tool to provide meaningful support to pregnant or breastfeeding women.

Keywords: eHealth; telehealth; mHealth; breastfeeding; review literature.

Resumen: Introducción: La Organización Mundial de la Salud recomienda la lactancia materna exclusiva durante los primeros 6 meses de vida, así como continuar complementada con alimentos apropiados hasta los 2 años y más. Es por esto, que se observa la necesidad del apoyo profesional en torno a esta, para las madres durante el embarazo y una vez iniciado el amamantamiento. La Asamblea Mundial de la Salud, reconoció el potencial de las tecnologías digitales para la mejora de la salud pública, destacando que el uso de eHealth ha transformado la salud, permitiendo la entrega de cuidados en los hogares de las personas de manera remota. Objetivo: Determinar si el apoyo profesional por medio de eHealth es una estrategia que favorece el acompañamiento a las madres que viven el proceso de

amamantamiento y mejora sus resultados en la lactancia materna. Metodología: Se realizó una revisión integrativa buscando la comprensión del fenómeno o tema de interés desde diversas perspectivas. Para llevarla a cabo en junio de 2020 se consultaron las bases de datos Pubmed, Scopus, CINAHL, ProQuest, ClinicalKey y Science Direct. Resultados: Se organizaron en dos grupos: estrategias de acompañamiento profesional a través de eHealth a las madres en proceso de amamantamiento y resultados de eHealth como herramienta para el acompañamiento profesional a las madres en proceso de amamantamiento. Conclusión: La eHealth es una herramienta efectiva para brindar apoyo a mujeres embarazadas o en proceso de amamantamiento.

Palabras claves: eHealth; telehealth; mHealth; lactancia materna; revisión de literatura.

Resumo: Introdução: A Organização Mundial da Saúde recomenda o aleitamento materno exclusivo durante os primeiros 6 meses de vida, e também que seja complementado com alimentos apropriados até os 2 anos ou mais. É por isso que se faz necessário o apoio profissional às mães neste processo, desde a gestação até o início da amamentação. A Assembléia Mundial da Saúde reconheceu os benefícios das tecnologias digitais para o aprimoramento da saúde pública, destacando a ferramenta eHealth, cuja utilização transformou a saúde e permitiu um atendimento especializado nos lares das pessoas, de maneira remota. Objetivo: Determinar se o apoio profissional por meio da eHealth é uma estratégia que favorece o acompanhamento às mães que estão atravessando o processo de amamentação e melhora seus resultados do aleitamento. Metodologia: Foi realizada uma revisão integrativa, procurando compreender o fenômeno ou tópico de interesse a partir de diferentes perspectivas. Para implementá-la em junho de 2020 foram consultadas as bases de dados Pubmed Scopus, CINAHL, ProQuest, ClinicalKey e Science Direct. Resultados: Eles foram organizados em dois grupos: estratégias de apoio profissional por meio da eHealth para mães em processo de amamentação e resultados da eHealth como ferramenta de apoio profissional para mães em processo de amamentação. Conclusão: A eHealth é uma ferramenta efetiva oferecem um suporte significativo às gestantes e às mães durante o aleitamento.

Palavras-chave: eHealth; telehealth; mHealth; aleitamento materno; revisão de literatura.

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Introduction

The World Health Organization (WHO) has described breastfeeding as the cornerstone of infant survival, nutrition and development and maternal health, and recommends exclusive breastfeeding for the first 6 months of life, followed by appropriate complementary feeding for up to 2 years of age and beyond. ⁽¹⁾

Considering this recommendation, the WHO committed itself to support countries in the implementation and follow-up of the "Comprehensive implementation plan on maternal, infant and young child nutrition", adopted by member states in May 2002. The plan has six targets, one of which is to increase exclusive breastfeeding at 6 months of age to at least 50 per cent by 2025. In 2018, the WHO estimated that 33 countries had met this target; therefore, by 2018, 68 countries still had exclusive breastfeeding rates at 6 months of life below 50 %. ⁽²⁾

In this scenario and with the aim of improving breastfeeding rates, the need to increase efforts at the health system, political and community levels was emphasized, the latter level of action being considered crucial for strategies to have a chance of success. ⁽³⁾

This is not a recently visualized need, as WHO and the United Nations Children's Fund (UNICEF) jointly published a statement in 1989 on the protection, promotion and support of breastfeeding, where they presented the ten steps towards a happy and natural breastfeeding, which were the basis for the Baby-Friendly Hospital Initiative, published in 1991. ⁽⁴⁾

In 2018, WHO and UNICEF published an update of these ten steps, explaining how health facilities should have a clear breastfeeding policy, trained professionals and antenatal and postnatal care services, reaffirming the idea that supporting mothers during pregnancy, immediately after birth and once breastfeeding is initiated, has positive effects on breastfeeding outcomes. ⁽⁵⁾

The above mentioned underpins the importance of reaching mothers in the breastfeeding process with this support, overcoming existing community barriers such as literacy, geography and access to technology, and based on this, considering support strategies that are meaningful to mothers experiencing the breastfeeding process. ⁽⁴⁾

In this regard, the World Health Assembly in 2018 recognized the enormous potential of digital technologies for improving public health, and urged Member States to prioritize their development and use as a means to promote Universal Health Coverage and advance the Sustainable Development Goals (SDGs). ⁽⁶⁾

Digital health was defined by the WHO as "a broad umbrella that includes the use of information and communication technologies (ICTs), as well as emerging areas, such as the use of advanced computer science in big data and artificial intelligence". ⁽⁷⁾

The use of ICTs in support of health is called eHealth, a term which in turn includes, as a subset, the use of mobile wireless technology (mHealth), so that the use of video calls, text messages, remote monitoring as a means of delivering care would be included in this group, among others. ⁽⁷⁾

In 2019, the WHO reiterated the great contribution of digital technologies in strengthening health systems and stressed that the use of eHealth had transformed health, allowing, among other things, the delivery of care remotely in people's homes, making it essential to harness the potential of digital technologies not as an end in themselves, but as essential tools for achieving universal health coverage. ⁽⁷⁾

However, the WHO recognizes the overwhelming diversity of digital tools and the limited understanding of their impact on people's health and well-being. Thus, there is a need to demonstrate the benefits of including digital technologies in health systems so that their incorporation is sustainable over time (6,7). Therefore, the research question posed is the following: Is professional support through eHealth a strategy that favors the accompaniment of mothers in the breastfeeding process and improves their breastfeeding outcomes?

Methodology

Research question broken down

- P: Mothers who are experiencing breastfeeding
- I: Professional support through eHealth
- C: On-site accompaniment
- O: Accompanying mothers in the breastfeeding process | Breastfeeding outcomes

To answer the research question, the integrative review method was chosen, as it includes both empirical and theoretical publications, thus allowing the understanding of the phenomenon or topic of interest from different perspectives, so the information extracted will be synthesized in a narrative and critical way. ⁽⁸⁾

A search was conducted in the Pubmed, Scopus, CINAHL, ProQuest, ClinicalKey and Science Direct collections with the MeSH and DeCS descriptors: Breastfeeding, Telehealth and Telemedicine.

The search strategy incorporated the Boolean operators AND and OR, and automatic filters were used to obtain the primary articles available in full text, published between 2016-2021.

The inclusion criteria for the articles also considered that the research population included pregnant women, healthy women and infants who were recipients of care through eHealth in all or some of the stages of their breastfeeding process.

Subsequently, and once the articles had been selected by title and abstract, a critical reading was carried out using the instruments for the analysis of clinical trials, qualitative and observational studies of the Critical Reading Skills Program in Spanish (CASPe), so that all those that did not meet the established criteria of methodological rigor were eliminated from the sample, triangulating the information between authors in the event of controversy.

Results and discussion

The initial search yielded 539 available articles from which only primary research articles were selected, resulting in a total of 240 studies. After reading the title and abstract, 32 articles were selected that met all the established inclusion criteria.

After a critical reading of the full version of the selected studies, a total sample of 19 was obtained.

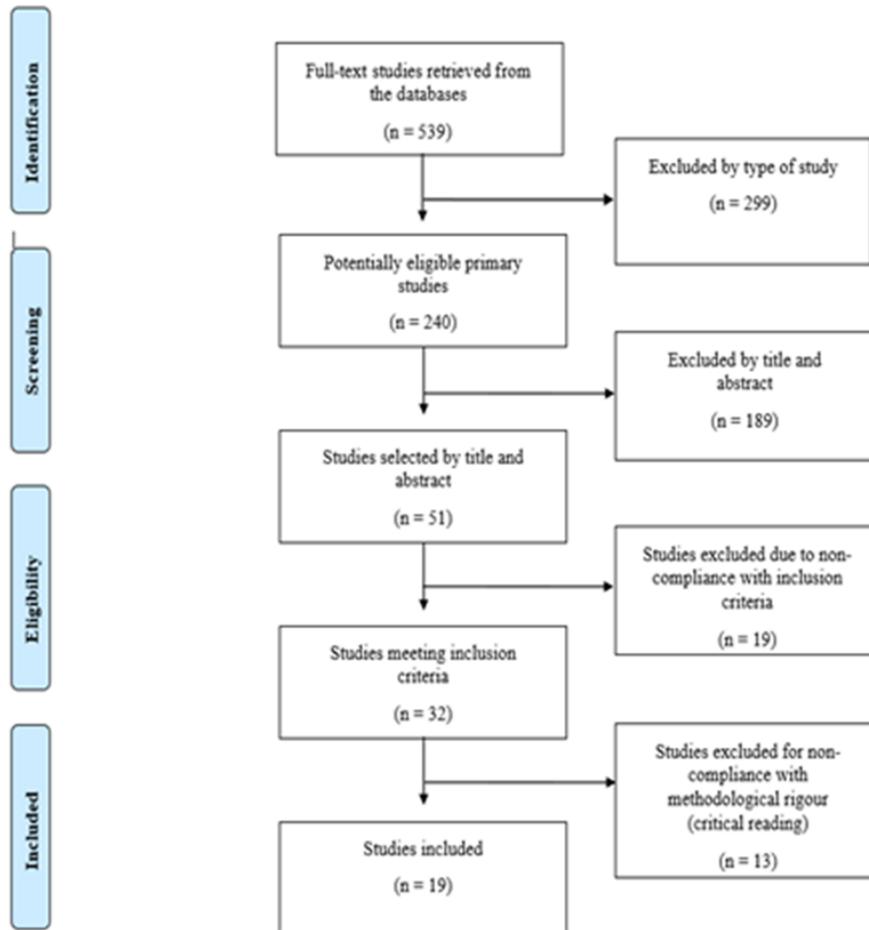


Figure 1. Flux Diagram. Own elaboration (2020)

The articles included in this review come from 15 different journals, 79 % ($n=15$) of which are quantitative studies.

The United States is the country where 58 % ($n=11$) of the selected articles were published, followed by 11 % ($n=2$) of articles published in Australia. In this review only 11 % ($n=2$) of the articles contain data from Latin America, with Brazil and Ecuador being the countries where this research was conducted.

Table 1. Summary of included studies

Title	Author/Year/Country	Design	Objective	Results
Exclusive Breastfeeding Increased by an Internet Intervention	Giglia et al. ⁽⁹⁾ (2015) Australia	Cohort Study	To assess the effect of a breastfeeding support internet intervention on breastfeeding outcomes in women living in regional Western Australia.	In total, 414 women participated in the study and were randomly assigned to either the control group ($n=207$) or the intervention group ($n=207$). Women in the intervention group were significantly more likely to be exclusively breastfeeding at 6 months postpartum compared to participants in the control group. Women experiencing problems with breastfeeding were more likely to access the internet.
Use of new technologies and telemedicine in the follow-up of healthy newborns	Cervantes et al. ⁽¹⁰⁾ (2014) Spain	Non-randomized controlled trial	To demonstrate the impact of eHealth on primary care medicine for healthy infants during their first 6 months of life.	The use of new technologies showed a decrease in pediatric and nursing consultations in person ($p<0.05$). Increase in exclusive breastfeeding up to six months: control 18.5 %, case 36 %. Web tracker 72.5 %, social networks 58.8 %, telemedicine 88.3 % and telemedicine patient groups 78.4 %. There was change in behavior for attending emergency consultations in relation to newborn care, before 58.62 % after 0 %, ($p<0.05$). Safe sleeping position, to sleep on the back, before 73.68 % after 100 % ($p<0.05$).
Effectiveness of weekly cell phone counselling calls and daily text messages to improve breastfeeding indicators	Patel et al. ⁽¹¹⁾ (2018) India	Pilot study	To evaluate the effectiveness of mobile phones for personalized breastfeeding consultation to improve breastfeeding practices.	Rates of timely initiation of breastfeeding were significantly higher in the intervention compared to the control. The rate of exclusive breastfeeding was similar between groups at 24 h after delivery, but significantly higher in the intervention at all subsequent visits. Adjusting for covariates, women in intervention were more likely to breastfeed exclusively than those in the control group.
Effects of postpartum mobile phone-based education on maternal and infant health in Ecuador	Maslowsky et al. ⁽¹²⁾ (2016) United States	Randomized controlled trial	To encourage mothers to exclusively breastfeed if they can in the first 6 months postpartum	At 3 months, intervention participants were more likely to attend postnatal infant check-up ($p=0.022$), breastfeed exclusively ($p=0.005$), and less likely to formula feed ($p=0.016$). They used more effective contraceptive methods (more implants $p=0.023$; fewer condoms $p=0.036$) and reported fewer childhood illnesses ($p=0.010$).

Telelactation Via Mobile App: Perspectives of Rural Mothers, Their Care Providers, and Lactation Consultants	Demirci et al. ⁽¹³⁾ (2019) United States	Thematic content analysis	To assess the feasibility, acceptability, strengths and limitations of DTC telenursing services for rural mothers.	Interviewees reported that telelactation was convenient and efficient, it provided a needed service in rural areas that lack breastfeeding support services, and increases maternal confidence in breastfeeding. Telelactation was found to have several advantages over face-to-face and telephone support. Barriers for its use included maternal reluctance to make video calls with an unknown provider, preference for community-based breastfeeding resources, and technical problems, including limited WiFi in rural areas.
The Use of and Experiences with Telelactation Among Rural Breastfeeding Mothers: Secondary Analysis of a Randomized Controlled Trial	Kapinos et al. ⁽¹⁴⁾ (2019) United States	Randomized controlled trial	To identify maternal characteristics associated with demand for and use of telelactation and describe the characteristics of the visit.	Participants who used telelactation were more likely to be working at 12 weeks postpartum (21/31, 68%; $p = .02$) compared to mothers who did not use telelactation (26/63, 41%). The mean duration of video calls was 7 minutes and 19 seconds (SD 5.5 minutes). Most of the calls (58/83, 70%) occurred during the first month of the baby's life. Overall, 41% (34/83) of the video calls occurred outside of normal business hours. The majority of telelactation users indicated that the breastfeeding assistance they received through the app was helpful (41/47, 87%) and expressed satisfaction with the help received (43/47, 91%).
Online participatory intervention to promote and support exclusive breastfeeding: Randomized clinical trial	Silva et al. ⁽¹⁵⁾ (2019) Brazil	Randomized clinical trial	To evaluate the effectiveness of a participatory intervention promoted by health professionals on the duration of EBF during the first six months of a child's life using an online social network.	Exclusive breastfeeding frequencies were higher in the intervention group, reaching 33.3% in the sixth month versus 8.3% in the control group. The median duration of exclusive breastfeeding was 149 days (95% CI [129.6, 168.4]) in the intervention group and 86 days (95% CI [64.9, 107.1]) in the control group ($p < 0.0001$). The proportional hazard of early discontinuation of exclusive breastfeeding was 0.38 (95% CI [0.28, 0.51], $p < 0.0001$). This intervention had a positive impact on the duration and frequency of exclusive breastfeeding.
The effectiveness of using a WeChat account to improve exclusive breastfeeding in Huzhu County Qinghai Province, China: protocol for a randomized control trial	Wu et al. ⁽¹⁶⁾ (2019) China	Protocol Randomized controlled trial	To evaluate the effectiveness of a WeChat educational intervention to improve the rate of exclusive breastfeeding and duration of exclusive breastfeeding in rural China.	The results will provide scientific evidence of the effect of health education through WeChat on breastfeeding. Therefore, this may offer a comprehensive intervention to promote exclusive breastfeeding in China and other settings.

The effect of interactive Web-based monitoring on breastfeeding exclusivity, intensity, and duration in healthy term infants after hospital discharge	Ahmed et al. ⁽¹⁷⁾ (2015) United States	Two-arm randomized controlled trial.	To determine whether an interactive web-based breastfeeding monitoring system increased the duration, exclusivity and intensity of breastfeeding and decreased symptoms of postpartum depression as a secondary outcome.	Members of the intervention group had higher rates of exclusive breastfeeding at 1, 2 and 3 months. By the end of the third month, 84 % of the intervention group were breastfeeding compared to 66 % of the control group. Postpartum depression symptom scores decreased for both groups at 1, 2 and 3 months.
Effect of telephone follow-up on postdelivery breastfeeding and maternal attachment	Adib-Hajbaghery et al. ⁽¹⁸⁾ 2017 United States	Randomized controlled trial	To assess the impact of postpartum telephone follow-up on breastfeeding and maternal attachment to the newborn.	BFT telephone follow-up could increase breastfeeding mothers' scores. However, it could not affect maternal attachment scores. The mean attachment score was significantly higher in mothers with a planned pregnancy ($p<0.001$), higher income ($p<0.01$) and a girl ($p<0.014$).
Lactation Advice through Texting Can Help: An Analysis of Intensity of Engagement via Two-Way Text Messaging	Martínez-Brockman et al. ⁽¹⁹⁾ (2018) United States	Randomized controlled trial	To describe text message engagement in the context of LATCH; To assess the association between engagement variables and exclusive breastfeeding status	In the multivariable model, intensity of engagement during the first 2 weeks postpartum was the strongest predictor of exclusive breastfeeding status. LATCH is an innovative intervention and has great potential to improve exclusive breastfeeding rates in this population. Intensity of engagement during the first 2 weeks postpartum was the strongest predictor of exclusive breastfeeding.
Can a phone call make a difference? Breastfeeding self-efficacy and nurse responses to mother's calls for help	Gallegos et al. ⁽²⁰⁾ (2018) Australia	Thematic analysis	To identify effective helpline support assessed using a self-efficacy framework	Telephone helplines have the potential to improve mothers' confidence and sustain breastfeeding. This study highlights that interaction style is critical. The findings identify the need for specific training to increase knowledge of interaction styles and delivery of counselling through telehealth formats.
Using Telemedicine to Improve Breastfeeding Outcomes in the Primary Care Setting	Burkhart ⁽²¹⁾ (2017) United States	Pre/post study	To determine whether the use of telemedicine technology to provide breastfeeding support would increase breastfeeding duration and exclusivity in mother-infant dyads in a primary care setting.	Breastfeeding duration and exclusivity rates were found to be similar between the pre- and post-intervention groups.
Using Videoconferencing Technology to Provide Breastfeeding Support to Low-Income Women: Connecting Hospital-Based Lactation Consultants with Clients Receiving Care at a Community Health Center	Friesen et al. ⁽²²⁾ (2015) United States	Pilot study	To explore the feasibility of using videoconferencing to facilitate access to breastfeeding education and support by Consultants (IBCLC)	In total, 35 mothers were seen by the TLPP during the 9-month project period. There were 134 visits (30-45 minutes each) (3.8 sessions per woman). At the end of the project, interviews with key participants indicated that the telelactation videoconferencing sessions were easy to implement, allowed the IBCLC to reach a broader client base, and enabled women to receive expert support that they would not otherwise have received.

Statewide Breastfeeding Hotline Use Among Tennessee WIC Participants	Mullen et al. ⁽²³⁾ 2017 United States	Cross-sectional descriptive	To examine the use of the Tennessee Breastfeeding Hotline (TBH)	TBH is a resource to address breastfeeding concerns, particularly among women who may face barriers to seeking professional breastfeeding counselling. Special Supplemental Nutrition Program for Women, Infants and Children agencies may consider implementing initiatives outside the standard scope of clinical practice to address participants' breastfeeding support needs.
A formative study to inform mHealth based randomized controlled trial intervention to promote exclusive breastfeeding practices in Myanmar: incorporating qualitative study findings	Hmone et al. ⁽²⁴⁾ (2016) Burma	Formative study	To explore perceptions and practices related to exclusive breastfeeding, and barriers and facilitators to the use of mobile communications for exclusive breastfeeding counselling.	Women knew how to make phone calls, most could read text messages and owned mobile phones. They preferred to receive text messages 2-3 times a week in the evening. Institutional staff suggested that messages should be simple, easily understandable and culturally appropriate. Perceived barriers included limited mobile network coverage, affordability of phone and mobile phone bills, literacy and familiarity with text messaging.
Breastfeeding and Use of Social Media Among First-Time African American Mothers	Asiodu et al. ⁽²⁵⁾ (2015) United States	Critical Ethnography	To describe the use of social networks during the pre- and postpartum periods among first-time African American mothers and their support persons.	Participants frequently used social networks for education, social support and searched the internet for perinatal and parenting information. Social networks are generally accessed through smartphones and computers using different websites and applications. Although participants obtained considerable information about child development from these apps, they had difficulty finding and remembering information about infant feeding. Using specific messages, images and content that are culturally tailored to the African American community could increase African American women's feelings of inclusion.
The development and evaluation of a text message program to prevent perceived insufficient milk among first-time mothers: Retrospective analysis of a randomized controlled trial	Demirci et al. ⁽²⁶⁾ (2020) United States	Randomized controlled trial	To examine user participation and feedback on a theory-based SMS text messaging intervention aimed at preventing perceived insufficient milk (PIM), the main modifiable cause of breastfeeding reduction and unintended cessation.	Participants randomized to MILK (87/124, 70.2% white and 84/124, 67.7% college educated) reported that MILK text messages increased their confidence in breastfeeding and helped them persevere in the face of breastfeeding problems. There were 46 text messages through the MILK system for individualized assistance from the study lactation consultant (25/46, 54% on weekends or after hours). Text messages for more detailed information occurred during weeks 4-6 postpartum and addressed milk volume intake and breastfeeding and sleep patterns. MILK participants expressed a preference for anticipatory guidance on potential breastfeeding problems and less content addressing the benefits of breastfeeding.

Proactive telephone support provided to breastfeeding mothers of preterm infants after discharge: a randomized controlled trial.	Ericson et al. ⁽²⁷⁾ (2018) Sweden	Randomized controlled trial	To evaluate the effectiveness of proactive telephone support provided to breastfeeding mothers of preterm infants after discharge from neonatal intensive care units.	In total, 493 mothers were randomized, 231 to the intervention group and 262 to the control group. There were no differences between groups for exclusive breastfeeding, odds ratio 0.96, 95 % CI 0.66-1.38, nor for maternal satisfaction with breastfeeding, attachment or quality of life. The intervention group reported significantly less parental stress than controls, $t = 2.44$, 95 % CI 0.03 to 0.23, effect size $d = 0.26$.
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Source: Own elaboration (2020)

The results of this study were organized into two groups: Strategies for professional accompaniment of breastfeeding mothers through eHealth and Results of eHealth as a tool for professional accompaniment of breastfeeding mothers.

Professional accompaniment strategies through eHealth for breastfeeding mothers

Within the eHealth strategies in the studies analyzed, synchronous interventions such as telephone calls and video conferences were distinguished, as well as asynchronous ones such as text messages, use of social networks, telephone applications and digital platforms.

Regarding the modalities, a greater openness to receive professional support via telephone, email and text messages was reported, compared to video calls. However, when compared to face-to-face support, they tended to be less time-consuming, which emerged as a welcome feature for mothers in more urbanized areas, who also expressed gratitude for the flexible hours. ^(9,10)

Patel et al. ⁽¹¹⁾ on strategies used to promote breastfeeding concluded that any pre- and postnatal support strategy increased exclusive breastfeeding rates by almost 6 times compared to no intervention.

Consistent with this, other research also highlighted that eHealth support interventions enabled mothers who received them to be more likely to breastfeed exclusively and even more so when interventions were implemented with mothers in rural or hard-to-reach areas. ^(9, 12–14)

Silva et al. ⁽¹⁵⁾ in their study commented that these interventions, grouped as eHealth in this research, do not require expensive technologies or large investments in infrastructure, especially considering the large number of mobile phones worldwide, as recognized by Maslowsky et al. ⁽¹²⁾

In the same vein, Wu et al. ⁽¹⁶⁾ highlighted that smartphones have become the new channels and tools for information acquisition and exchange, to which users have enthusiastically adapted and as mentioned by other authors, the use of mobile technologies and the internet are viable, innovative, accessible and increasingly popular options among people. ^(12, 15, 17, 18)

In line with the above, the research by Ahmed et al. ⁽¹⁷⁾ makes explicit the idea that the integration of mobile phones in the accompaniment of breastfeeding women is an innovative strategy to improve postpartum care, offering information and support through the creation of people networking, promoting breastfeeding and especially exclusive breastfeeding.

A number of studies have reported an increase and improvement in the practice of exclusive breastfeeding, which is directly related to the frequency of contacts and the number of difficulties encountered. ^(12, 15, 17, 19)

Regarding the above, Patel et al. ⁽¹¹⁾ reported that their mobile phone text messaging intervention substantially increased exclusive breastfeeding rates from birth to 6 months of age, where 95% of infants in the intervention group were exclusively breastfed compared to 48.5% of infants in the control group.

Silva et al. ⁽¹⁵⁾ noted that inclusion of mothers in a social network group promoted by health professionals reduced rates of early discontinuation of exclusive breastfeeding during the first 6 months of life by 62 % compared to mothers who did not participate in this group.

Improvements in exclusive breastfeeding rates are directly related to the promotion of self-efficacy. In relation to this, Gallegos et al. ⁽²⁰⁾ acknowledged in their research that professional support by telephone calls has the potential to promote breastfeeding self-efficacy, which was corroborated by other studies. ^(18, 21)

In addition to increased self-efficacy and willingness to breastfeed, the benefits of eHealth to support breastfeeding were found to include cost savings associated with seeking face-to-face support, providing greater access to care. ⁽²²⁾

These benefits are also recognized by other authors who argue that remote professional support is an innovation in care delivery that, in addition to lowering costs, increases comfort and responsiveness to breastfeeding. ^(13, 14, 23)

In line with the above, it has been mentioned that eHealth has the potential to provide personalized support to breastfeeding mothers highlighting that face-to-face and individual breastfeeding support can be slow, costly and not always available, particularly in rural and remote areas. ⁽⁹⁾

The advent of the Internet and access to technology has provided an additional domain for the provision of services by health professionals, overcoming the aforementioned barriers of cost, isolation and time, which in more urbanized areas, was highlighted as an interfering factor. ^(9, 15, 22)

It is important to mention that for this form of professional support for mothers to result in a successful breastfeeding process, studies highlight the need for organization and training of professionals for online monitoring. ^(15, 18, 20)

As interfering factors for the success of exclusive breastfeeding, women's choice to supplement breast milk with other foods due to perceived insufficient milk production and the prescription of formula milk by physicians were mentioned. These reasons are amenable to counselling and support through eHealth. ^(11, 14)

With regard to the limitations of eHealth, the following were described: the need for the mother to keep the device switched on and charged, rejected calls, unanswered or received by someone other than the mother who requires accompaniment, loss of mobile phones or change of number; also, the possibility of misinterpretation of written messages, in addition to the existence of areas that do not yet have internet connection. ^(13, 14)

Results of eHealth as a tool for the professional accompaniment of breastfeeding mothers

When mothers feel supported during their breastfeeding process, they are more likely to breastfeed their children longer and exclusively. ⁽²¹⁾ This was reinforced by other studies which show that the support offered to mothers after discharge from hospital is decisive for the establishment, maintenance and exclusivity of breastfeeding. Therefore, it can be seen

that the relevant use of eHealth-based support strategies can be a great contribution to professional support and thus help mothers to experience successful breastfeeding. ^(15,19-21)

Understanding the importance of this, it is imperative to organize and train professional teams around this new form of support, because if the support is not comprehensive and even perceived as insensitive or unhelpful, it can lead to negative and potentially long-lasting consequences for both mother and child. ^(10, 20)

For interventions to be incorporated and bring about a change in health behaviors, evidence indicates that care must be person-centered, addressing the needs and particularities of the individual, leading to the delivery of culturally congruent care. ^(24, 25)

Related to this, for example, a study targeting African American women highlights that this population may be less receptive to forums that do not recognize their history and culture. Particularly in relation to the impact of slavery on African American understanding of the meanings related to breastfeeding, the use of culturally tailored messages, images, and content, could increase African American women's feelings of inclusion and consequently improve their adherence to support. ⁽²⁵⁾

For there to be a real and positive influence on breastfeeding through eHealth, interventions must be mother-centered by responding to her beliefs, preferences, requests and concerns, contributing to the promotion of self-efficacy and thereby influencing the foundation for successful breastfeeding. ^(9, 20, 22, 26)

There are studies that highlight that breastfeeding support strategies that are oriented towards transmitting only technical-scientific knowledge and do not address the subjectivities and realities of each woman are superficial. Consequently, they do not meet the comprehensive care needs of women in the breastfeeding process. ^(13, 15, 19, 21)

In accordance with the above, it is also necessary to identify access to devices and internet, technological literacy and beliefs regarding the digital strategies that will be used to provide accompaniment. ^(10, 20, 24)

The mobile phone, in particular the use of SMS text messaging, may provide an opportunity not only to improve breastfeeding rates, but also to improve health behaviors. ⁽²⁴⁾

Regarding this last point, other research also considered that monitoring through different eHealth strategies is a good method, not only to support mothers, increase their knowledge and improve their breastfeeding practice, but also to improve maternal and child health. ^(11, 12, 18)

This refers to the fact that mothers who received this support showed greater satisfaction, lower incidence of stress and depression; and children showed better weight gain at each check-up, reduced morbidity and limited further deterioration of health, which reduced infant hospitalization, contributing to the reduction of infant mortality. ^(11, 12, 18, 27)

This form of interaction could help overcome emotional difficulties, and increase mothers' peace of mind, confidence in breastfeeding and sharing of knowledge and experiences, improving communication between professionals and mothers, making support more effective and humanized. ^(15, 17, 18)

For support to have positive results, the evidence recommends initiating it in the first few days after discharge and maintaining it continuously for at least 6 months. In addition, to achieve greater adherence to this form of professional support, it was described as necessary to generate intervention strategies developed in a pedagogical and participatory manner by health professionals. In this way they stimulate dialogue and interaction between the subjects, requiring that the generation of instances of support comes mostly from the

professionals; notwithstanding always having the capacity to respond to the urgent needs of the mothers. (11, 14, 15, 18, 27)

Conclusion

Considering the objective of this research, eHealth was found to be an effective tool to provide professional support to women in the process of breastfeeding, as well as to promote breastfeeding.

This new way of providing support is characterized by continuity of care, convenience associated with the absence of travel, greater satisfaction with the time spent, and improved accessibility.

eHealth can be used successfully in low-, middle- and high-income settings, as the use of mobile devices is almost universal. However, professionals need to be trained to better manage resources and acquire the skills to provide quality, safe and proactive care that is meaningful to the people receiving it.

The positive effects of this type of accompaniment and the increased acceptance of these interventions make eHealth a powerful and efficient tool that contributes to the maintenance and improvement of breastfeeding, as well as comprehensive maternal and child health.

This study seeks to contribute to the strengthening of the tenth step for happy and natural breastfeeding, which is "To coordinate hospital discharge so that parents and their new-borns continue to have access to care and support services when needed".

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