



OPEN Effect of Teté dance on lactation session duration in irritable infants in Peru assessed in a randomized controlled trial

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Infant irritability often shortens breastfeeding sessions, contributing to early weaning. The “Teté Dance,” inspired by Peruvian Amazonian traditions, combines rhythmic maternal movements with cheerful music to soothe infants and extend feeding sessions. Objective To evaluate the impact of the “Teté Dance” on breastfeeding session duration. Design Single-blind, parallel, randomized controlled trial within a volunteer initiative providing virtual breastfeeding counseling to Peruvian mothers. Infants aged 4–20 weeks (N = 150) with unexplained irritability were randomized (1:1) to the intervention (n = 75) or control (n = 75) groups. The intervention group practiced the Teté Dance, while controls used usual consolation methods. Mothers recorded breastfeeding durations in diaries. The primary outcome was the change in breastfeeding session duration from baseline to 7 days. Staff blinded to group assignments verified entries. Compared to baseline, the intervention group showed a significant increase in breastfeeding session duration after 7 days (36.4 vs. 29.6 min; mean difference + 6.8, 95% CI 4.7–8.9). The “Teté Dance” increased breastfeeding duration by 23%, offering a community-based, low-cost intervention to support lactating mothers. Future studies should explore its long-term effects and applicability in diverse settings.

Keywords Breastfeeding, Breastfeeding duration, Cultural interventions, Teté dance, Infant irritability

Abbreviations

EBF	Exclusive Breastfeeding
CRED	Crecimiento y Desarrollo (Growth and Development)
COMETIC	(Crianzamor Ethics Committee)
LCP	Lactisoporte Clinical Program

Background

Each year, thousands of preventable infant deaths are linked to early cessation of breastfeeding, a practice that could be significantly reduced if global breastfeeding recommendations were met. Only 48% of infants worldwide are exclusively breastfed during their first six months of life, as recommended by the World Health Organization¹. In low-income countries, this early cessation increases infant mortality tenfold². In Latin America, where breastfeeding rates are even lower, mothers face barriers such as stress, perceived insufficient milk, and infant irritability³. These challenges contribute to premature weaning, leading to higher risks of infections, malnutrition, and developmental delays in infants, as well as postpartum depression and chronic diseases in mothers⁴.

In Peru, while 67.6% of infants under six months are exclusively breastfed⁵, aggressive formula marketing undermines maternal confidence and imposes significant financial burdens, particularly for low-income families⁶. Malnutrition remains a concern, with 11.5% of children under five chronically malnourished, a figure that rises to 24.4% in rural areas⁷. Workplace barriers further restrict breastfeeding opportunities, accelerating early weaning⁵.

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Evidence suggests that culturally tailored interventions can significantly enhance breastfeeding rates, offering a remarkable impact on maternal and infant health. The “Teté Dance” is an example of such innovation, inspired by traditional Amazonian dances observed in Pucallpa, Peru, where women rhythmically danced while breastfeeding to soothe their infants and create an engaging feeding environment. By integrating these cultural practices with modern insights, the Teté Dance offers a unique approach to supporting lactating mothers. By combining these interventions with standard health services, exclusive breastfeeding rates can increase by up to 150%^{8,9}, while mobile health (mHealth) solutions have improved maternal confidence and infant feeding practices¹⁰.

This study evaluates the impact of the Teté Dance on breastfeeding session durations in irritable infants, proposing it as a culturally sensitive, low-cost intervention to support mothers and improve breastfeeding outcomes.

Methods

Study design

A single-blind, randomized, controlled clinical trial was conducted between November 29, 2022, and January 28, 2023, as part of the Lactisoporte Clinical Program (LCP), a volunteer initiative providing virtual breastfeeding counseling to Peruvian mothers. Lactisoporte operates under the support of Crianzamor, an organization committed to promoting breastfeeding through training, research, and assistance. The study aimed to evaluate the effectiveness of the Teté Dance intervention on the duration of breastfeeding sessions among irritable infants. The trial was registered in ClinicalTrials.gov with registration number NCT06751186 on 27/12/2024, approved by the Crianzamor Ethics Committee (COMETIC), and written informed consent was obtained from all participants at recruitment. No changes to the methods were made after the trial commenced.

Participants and recruitment

Infants aged 4 to 20 weeks (mean = 12 weeks) were recruited during growth and development checkups (CRED) at three hospitals in Peru by Lactisoporte staff. A total of 200 infants were initially enrolled, of whom 150 completed the study, a detailed explanation is provided in Fig. 1. Participants were randomly assigned to the intervention ($n=75$) or control ($n=75$) groups. Inclusion criteria included infants without significant clinical conditions, identified as “demanding,” meaning they exhibited frequent irritability, restlessness, or excessive crying during breastfeeding attempts without any underlying medical cause. Additionally, their mothers had completed secondary education. Exclusion criteria included inadequate growth or exclusive formula feeding. However, infants undergoing growth spurts were not excluded. Recruitment and data collection were conducted as part of the LCP.

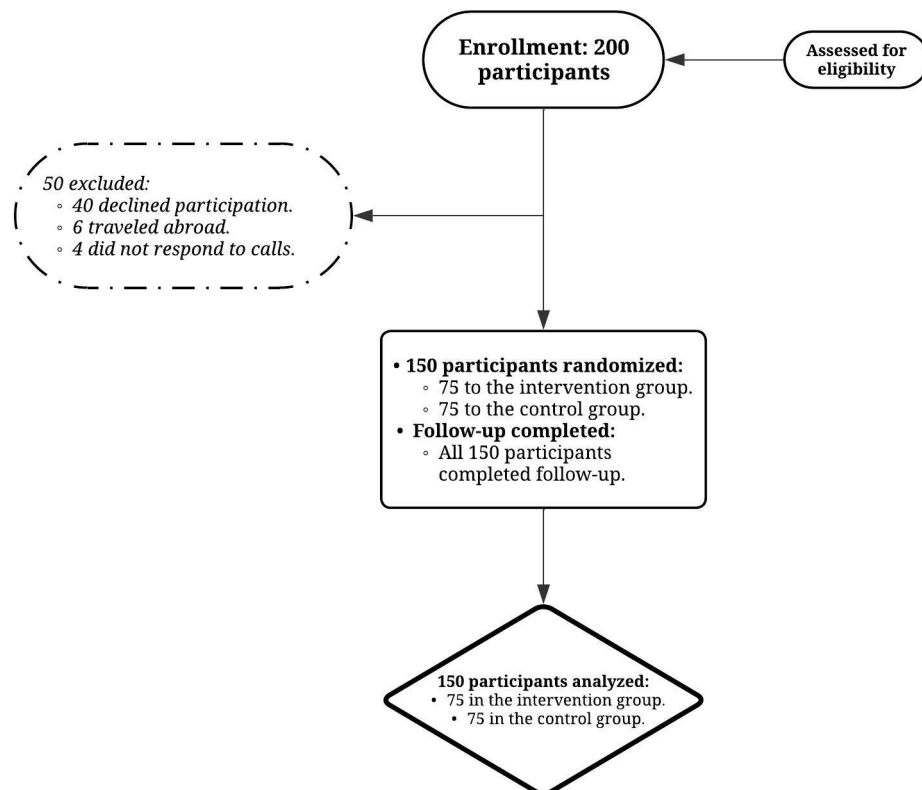


Fig. 1. Flowchart of participant enrollment, randomization, and follow-up.

Infants classified as ‘demanding’ were identified based on behavioral criteria assessed using the q-BIRS (Quick Breastfeeding Irritability Rating Scale), a structured observational tool developed for this study. The scale evaluates breast acceptance, irritability, and response to soothing techniques, ensuring a standardized approach to measuring infant distress during breastfeeding.

Sample size

The sample size was calculated to detect a mean difference of 5 min in breastfeeding duration between the intervention and control groups, with a standard deviation of 10 min. Using a two-tailed test with a significance level of 5% ($\alpha = 0.05$) and a power of 80% ($\beta = 0.20$), the required sample size was determined¹¹ using the formula:

$$n = 2 \frac{(Z_{\alpha/2} + Z_{\beta})^2 \times SD^2}{Difference^2}$$

Substituting the values ($Z_{\alpha/2} = 1.96$, $Z_{\beta} = 0.84$, $SD = 10$, $Difference = 5$), the required sample size per group was calculated to be 63 participants. To account for potential dropouts and ensure robust results, the final sample size was increased to 75 participants per group, resulting in a total of 150 participants.

Randomization and allocation concealment

The random allocation sequence was generated using R software (version 4.4.0) through a random number sampling method to ensure unbiased group assignment. An independent statistician, who was not involved in participant recruitment or data collection, created the sequence. Group assignments were concealed in sequentially numbered, opaque, sealed envelopes, which were opened only after participants provided informed consent. Participants were then randomly allocated to the intervention or control groups in a 1:1 ratio.

Blinding

Staff verifying breastfeeding diaries were blinded to group assignments. Due to the nature of the intervention, mothers were not blinded.

Intervention group

The intervention consisted of the Teté Dance, a strategy based on performing a dance with rhythmic and quick movements inspired by traditional Amazonian dances of Peru. Mothers were instructed to dance with rhythmic and quick movements while holding their babies close to their chests, synchronized with cheerful and rhythmic music designed to create a happy and engaging environment whenever their children became irritable and refused to nurse. This technique was designed to manage infant irritability and extend breastfeeding sessions, reflecting natural maternal practices observed in communities of the Peruvian jungle. Mothers in the intervention group received a tutorial video demonstrating the Teté Dance technique¹², along with access to a playlist of music adapted to the culture with which each mother most closely identified.

Participants were given opportunities to practice the technique during their babies’ CRED check-ups, as well as virtually through Zoom videoconferences. During these sessions, four Lactisoportistas (LCP staff members) provided personalized guidance, answered mothers’ questions, and offered suggestions to improve the application of the technique.

Control group

Mothers in the control group used usual consolation strategies to manage infant irritability during breastfeeding. These strategies included walking, singing, and returning the infant to the breast as needed. The control group did not receive training on the Teté Dance or access to music playlists.

Outcome measures

The primary outcome measure of the study was the duration of breastfeeding sessions before and after the intervention. Mothers recorded the number of breastfeeding sessions and their respective durations daily in a diary provided at the beginning of the study. During the pre-intervention stage, mothers recorded the duration of breastfeeding sessions over two days. The intervention lasted 7 days, during which Lactisoposte staff members verified diary entries on a daily basis. To ensure impartiality, the staff responsible for verifying the diaries was blinded to group allocation (control or intervention). In order to minimize bias, different teams handled training and diary verification, and neither group communicated about participant assignments.

Additionally, mothers were instructed not to share the specific instructions they received during their training to maintain the integrity of the study design. All mothers received standardized guidance on how to record breastfeeding sessions, ensuring consistency across both groups. The information gathered focused on the frequency and duration of breastfeeding sessions. A template of the daily breastfeeding log used by participants is included as an annex (Annex 1).

Statistical analysis

Statistical analyses were performed using R software (version 4.4.0). A Student’s t-test was conducted to compare the baseline breastfeeding durations between the intervention and control groups, ensuring their comparability at the start of the study. To assess the effect of the intervention, a t-test was applied to compare breastfeeding durations between groups at 7 days. Mean durations and their 95% confidence intervals were calculated for both groups. The adjusted R-squared value indicated the proportion of variation explained by the model.

	Control	Intervention
Participants (n)	75	75
Sex (M) *	45	36
Age (weeks) (mean \pm SD)	18.3 \pm 9.4	17.0 \pm 9.4
Breastfeeding (min) Duration (mean \pm SD)	29.0 \pm 7.7	31.3 \pm 8.0
Breastfeeding (min) frequency (mean \pm SD)	7.1 \pm 1.4	7.5 \pm 1.5

Table 1. Baseline characteristics of participants. *(M): male.

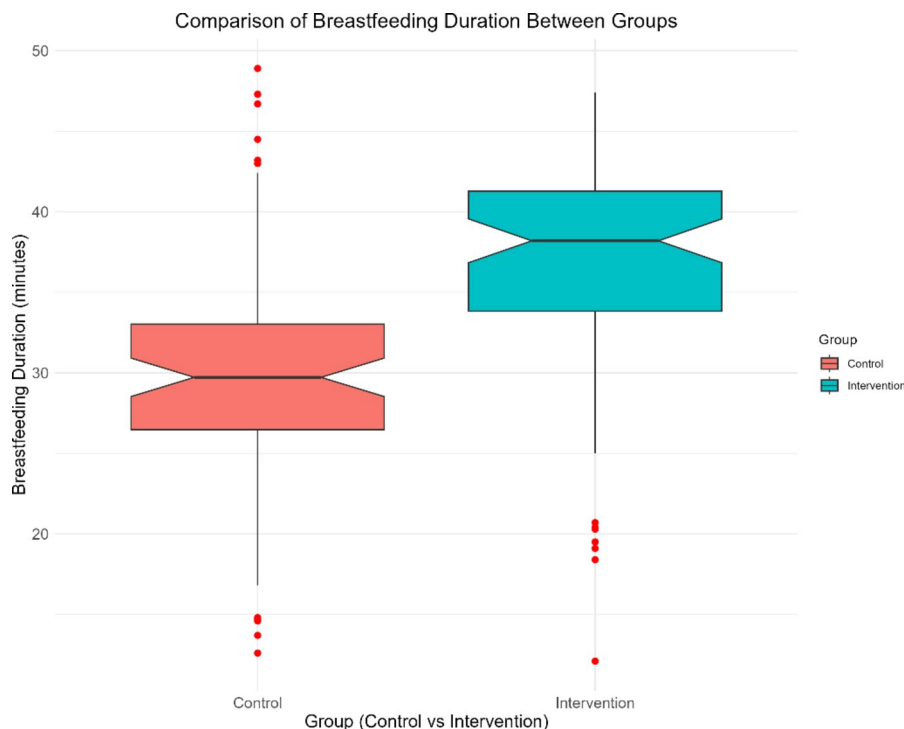


Fig. 2. Duration of Breastfeeding by Intervention Group: This boxplot depicts the duration of breastfeeding (in minutes) at the end of the intervention period (7 days) for the control and intervention groups. The intervention group shows a higher median duration of breastfeeding compared to the control group, with a broader interquartile range indicating increased variability among participants.

Additionally, a linear regression model was used to estimate the effect of the intervention while accounting for potential confounders. The adjusted R-squared value indicated that the model explained 18.9% ($R^2 = 0.189$) of the variability in breastfeeding duration.

Results

At baseline, the mean difference in breastfeeding duration between groups was minimal (-1.8 min; 95% CI: -4.8 to 0.3). Additionally, no substantial differences were observed in the recorded baseline variables (Table 1).

The 75 participants in the intervention group were evaluated by Crianzamor personnel during the execution of the Teté Dance at least once, either virtually or in person, with each session lasting 20 min. Of these, 21 participants requested additional practice opportunities, with the most common reason being a feeling of insecurity when moving the infant with fast and rhythmic motions. None of the participants requested more than two practice sessions.

In total, 150 participants were included in the study, with 75 in the intervention group and 75 in the control group. At the end of the intervention period (7 days), the mean breastfeeding duration was 36.4 min in the intervention group and 29.6 min in the control group. The mean difference between groups was 6.8 min (95% CI: 4.3 to 9.4, $p < 0.001$), indicating a significantly longer breastfeeding duration in the intervention group, as shown in Fig. 2. No unintended effects were reported.

Discussion

Exclusive breastfeeding (EBF) is recognized as one of the most beneficial practices for infant health, as it contributes to the proper development of the child and reduces the incidence of infectious diseases^{13,14}. However,

globally, EBF rates remain low, and in many developing countries, various cultural and structural factors hinder its implementation^{15,16}.

The present study showed that mothers in the intervention group increased their breastfeeding session duration by an average of 6.8 min (36.4 vs. 29.6 min in the control group), consistent with prior findings on the effectiveness of culturally adapted interventions^{16,17}. In the Peruvian Andes, beliefs about breast milk and family support networks were critical for breastfeeding success¹⁷, while in Mexico, factors such as emotion, knowledge, attachment, and social inequality significantly influenced breastfeeding practices^{16,18}. Unlike interventions that rely solely on informational campaigns or traditional support groups, the Teté Dance engages participants in an active, community-based approach that fosters emotional and cultural connections¹⁹. This strategy not only strengthens social bonds but also creates a sense of ownership and pride, significantly improving adherence to breastfeeding recommendations compared to standard interventions^{20,21}.

The statistical analysis of this study showed that the model explained 18.9% of the variability in breastfeeding session duration, indicating that other factors also influence the results. For instance, research in Vietnam has highlighted the role of paternal support in improving breastfeeding practices, emphasizing the importance of involving fathers as active participants in breastfeeding interventions¹⁸. Similarly, in China, cultural beliefs and traditional practices have been shown to shape the perception and feasibility of exclusive breastfeeding, often serving as both facilitators and barriers depending on the context²². Additionally, maternal education, social support networks, and accessibility to healthcare services are recognized as critical determinants of breastfeeding outcomes in various settings^{20,22}. Building on these findings, Torres-Montalvo et al.²³ further emphasized that understanding these dynamics is essential to design strategies that enhance informed decision-making in breastfeeding practices. These findings suggest that multifaceted approaches, combining educational interventions with culturally sensitive strategies, are essential to address the diverse factors that impact breastfeeding practices.

Rodríguez and Tapia²¹ underscore the importance of adopting a biopsychosocial approach to breastfeeding research, which considers the intricate interplay of cultural, psychological, and social factors. Future studies could benefit from incorporating a larger and more diverse sample, extending the observation period, and integrating qualitative methods to explore the lived experiences of mothers. Such enhancements would provide a more comprehensive understanding of the barriers and facilitators of breastfeeding, paving the way for more effective and inclusive interventions.

Despite the promising results of this study, certain limitations should be acknowledged. The short intervention duration may have limited the assessment of long-term behavioral changes, making it unclear whether the observed effects would persist over time. Additionally, variations in maternal adherence to the Teté Dance technique were not evaluated. Factors such as fatigue, motivation, or environmental constraints could influence its consistency and effectiveness. Future research should explore long-term adherence and barriers to sustained use.

Conclusions

The Teté Dance effectively increased breastfeeding duration by approximately 23%, showcasing the potential of culturally tailored interventions that integrate traditional practices with modern lactation support. Addressing biopsychosocial factors, such as cultural norms, social support networks and maternal well-being is crucial for enhancing breastfeeding outcomes. Future research should include larger, more diverse populations and extended observation periods to better understand and refine such interventions, ultimately supporting exclusive breastfeeding and reducing early weaning globally.

Data availability

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

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Author contributions

JRA conceptualized the study and contributed to the methodology alongside MYR. JRA and MYR were responsible for the design and execution of the methodology. JAV prepared the introduction and background sections. All three authors (JRA, MYR, and JAV) collaboratively wrote the discussion and conclusions. All authors reviewed and approved the final manuscript.

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Declarations

Competing interests

The authors declare no competing interests.

Ethics approval and consent to participate

The study protocol was reviewed and approved by the COMETIC under approval number CAE000015, in compliance with the Declaration of Helsinki, GCP-ICH guidelines, and Peruvian regulations. Written informed consent was obtained from all participants, including legal guardians for minors. The “Teté Dance,” a culturally adapted intervention, was justified as a low-cost, innovative approach to manage infant irritability and extend breastfeeding sessions, implemented within an ethically approved framework.

Consent for publication

Consent for the publication of non-identifiable data was obtained as part of the informed consent process.

Additional information

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1038/s41598-025-95236-y>.

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