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A Multimethod Evaluation of the *Futuros Fuertes* Intervention to Promote Healthy Feeding, Screen Time, and Sleep Practices

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Abstract

Objective: 1) To evaluate the impact of the *Futuros Fuertes* intervention on infant feeding, screen time, and sleep practices and 2) To use qualitative methods to explore mechanisms of action.

Methods: Low-income Latino infant-parent dyads were recruited from birth to 1 month and randomized to *Futuros Fuertes* or a financial coaching control. Parents received health education sessions from a lay health educator at well-child visits in the first year of life. Parents received two text messages per week that reinforced intervention content. We assessed infant feeding, screen time, and sleep practices via surveys. body mass index z-score (BMI-z) was measured at 6 and 12 months. Seventeen parents from the intervention arm participated in a semi-structured interview that explored parental experiences with the intervention.

Results: There were $n = 96$ infant-parent dyads randomized. Fruit intake was higher in the intervention group at 15 months (1.1 vs 0.86 cups $p = 0.05$). Breastfeeding rates were higher in intervention participants at 6 months (84% vs 59% $p = 0.02$) and 9 months (81% vs 51% $p = 0.008$). Mean daily screen time was lower among intervention participants at 6 months (7 vs 22 min $p = 0.003$), 12 months (35 vs 52 min $p = 0.03$), and 15 months (60 vs 73 min $p = 0.03$). Major qualitative themes include 1) parental trust in intervention messaging 2) changes in feeding

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and screen time parenting practices, 3) text messages supported behavior change for parents *and* family members, and 4) varying effectiveness of intervention on different health behaviors.

Conclusions: Low-income Latino infants participating in the *Futuros Fuertes* intervention had modestly healthier feeding and screen time practices compared to control participants.

Keywords

Latino children; mobile health; obesity prevention; primary care

Latino Children are disproportionately impacted by the childhood obesity epidemic.[1] Greater than one out of four Latino children have obesity, a rate that is nearly twice that of non-Hispanic white children, and this disparity emerges by the age of five.[1] Disparities in early childhood obesity are concerning as children diagnosed with obesity in the preschool period are unlikely to revert to normal weight status,[2] increasing the risk for adverse health outcomes.[3–5] Health behaviors that contribute to childhood obesity begin in the infant and toddler period. These include energy-dense diets,[6,7] consuming sugar-sweetened beverages (SSB)[8,9] and 100% fruit juice,[10] excessive screen time,[11–14] and short sleep duration.[15,16] Educational interventions for parents of infants and toddlers addressing feeding, screen time, and sleep have led to healthier behaviors and lower weight in the preschool period.[17–19] However, most positive studies in this area have relied on highly trained health professionals to deliver interventions, an approach that may be difficult to sustain and scale. In addition, few interventions focus on Latino children whose parents are Spanish speaking.

To address these gaps, we developed *Futuros Fuertes* (Strong Futures), a primary care-based, culturally tailored intervention to promote healthy feeding, screen time, and sleep practices among low-income Latino infants whose parents speak Spanish. *Futuros Fuertes* was developed based on extensive qualitative research with Spanish-speaking Latino parents,[20–22] including iterative parental input on intervention content and delivery. The *Futuros Fuertes* intervention is delivered through 1) individual health education sessions from a bilingual, bicultural lay health educator in the primary care clinic just after well-child visits *and* 2) two text messages per week from age 2 weeks to 15 months that reinforce intervention content. Our objectives were to evaluate acceptability, feasibility, and intervention effect on select health behaviors using a randomized controlled trial design. We hypothesized that *Futuros Fuertes* participants would have healthier behaviors at 15 months compared to attention control participants. In addition, we conducted qualitative interviews with parents who participated in the pilot to explore mechanisms of action. In this multi-method study, we report the impact of *Futuros Fuertes* on infant feeding, screen time, sleep duration, and body mass index z-score (BMI-z) score, as well as the findings from the qualitative analysis.

Methods

Intervention

The *Futuros Fuertes* intervention consisted of two components: 1) individual health education sessions delivered by a paid bilingual, bicultural lay health educator just after well-child visits at infant ages 2 weeks, 2, 4, 6, 9, and 12 months of age and 2) two text

messages per week from infant age 2 weeks to 15 months. The three health educators had bachelor's degrees and prior experience in healthcare settings, but no advanced training in a healthcare discipline. Two were native Spanish speakers (one was born in Peru and one in Honduras), and one was of Mexican heritage raised in a bilingual household. The health educators received training from the principal investigator (PI) on infant and toddler feeding, sleep, and development as well as training on how to deliver each module and answer common questions. Each session was recorded, and the PI listened to 2–3 sessions per month for each of the health educators to monitor for intervention fidelity and provide feedback. The intervention was based on the Information-Motivation-Behavioral Skills (IMB) model of health behavior change.[23,24] Each health education session was designed based on foundational qualitative research. Prior to starting the trial, sessions were tested iteratively with 5–6 Spanish-speaking Latino parents and modified based on parental feedback. The education sessions took place in a private room adjacent to the pediatric clinic and were designed to last 20–25 min. Each session included 1) a didactic component to introduce new concepts (*information*), 2) a discussion with parents of how health behaviors could improve child health (*motivation*), and 3) skill-building exercises such as identifying the sugar content of different beverages and toddler menu planning (*behavioral skills*) (Table 1).

While only one parent was officially enrolled in the study, anyone who accompanied the infant to the visit was invited to participate in the sessions. The text messages, consisting of text and emojis, were brief reminders of content from the most recent sessions as well as content from earlier sessions that remained developmentally appropriate. The messages were all written originally in Spanish and were revised iteratively based on feedback from native speakers on the research team. Three Spanish-speaking Latino parents of infants and toddlers also provided feedback on the texts. The texting system had a unidirectional design; parents received messages twice per week, but no response was requested. The system also tracked message delivery. Beginning in March 2020, all health education sessions were delivered by telephone due to COVID-19-related restrictions.

Setting, Recruitment, and Randomization

This study took place in the San Francisco General Hospital Children's Health Center (CHC) an academically affiliated federally qualified health center (FQHC) serving a majority Latino population. Parents of infants ages 0–1 month were approached by research personnel at clinic visits between April 2018 and November 2019. Parents were eligible to participate if the parent identified as Latino, spoke Spanish, or was bilingual, had a cell phone that could receive text messages, and intended to receive primary care for the infant at the CHC. Infants were eligible if they were singletons, less than 1 month of age, born at 37 weeks gestation or greater, had a birth weight of at least 2500 g, and had no significant medical problems that were likely to affect feeding or weight gain. If two parents were present, they were asked which parent was most likely to bring the infant to their well-child checks, and this parent was enrolled in the trial. Participants were recruited, consented, and enrolled at any CHC visit before 1 month. Randomization was conducted at enrollment if the infant was 2-weeks of age or older. Otherwise, participants were randomized at their 2-week well-child visit. Infant-parent dyads were randomized

to *Futuros Fuertes* or a financial coaching control of the same intensity (six coaching sessions after well-child visits and two text messages per week). Financial coaching is a standardized, evidence-based approach to identifying and addressing client-identified financial goals through motivational interviewing facilitated by a trained "coach." The lay health educators were trained in financial coaching through a certified financial coaching training program and used a toolkit of structured financial coaching materials to deliver the control condition.[25] We used the randomization function in Excel to generate the randomization scheme in blocks of ten. While the principal investigator is a pediatrician at the study site, she was not the primary care provider for any of the study participants. Participants received gift cards upon completion of the study questionnaires. The study was approved by the University of California San Francisco Institutional Review Board. Parents provided written informed consent for participation and were informed of the potential for being in either the intervention or control group as part of the consent process. The trial was registered on clinicaltrials.gov with registration number NCT03438721.

Quantitative Measures and Analysis

We determined intervention dose by the number of health education sessions delivered and the total text messages marked as received. All health behavior data were assessed by verbal questionnaires conducted with parents in Spanish. Surveys were conducted in-person at well-child visits through March 2020. Beginning in March 2020, all health behavior questionnaires were conducted over the phone.

Our *primary behavioral outcomes* were assessed at 15 months and included parental reports of 1) total daily screen time in minutes, 2) 7-day SSB and 100% fruit juice intake in ounces, and 3) total daily intake of fruits and vegetables in cups. Additional outcomes assessed included 1) total daily screen time at 6 and 12 months, 2) breastfeeding at 6 and 9 months, and 3) sleep duration at 6 and 12 months and child BMI-z at 6 and 12 months. We assessed demographics at baseline and extracted infant birthweight from the medical record. We assessed screen time with the following two questions 1) "How much time does [baby's name] spend watching television each day?"[26,27] and 2) "How much time does [baby's name] spend using a telephone or tablet each day? Please include anytime that [baby's name] is looking at the phone or tablet such as to watch a video, to watch a television program, to watch an app, or to play with an app or game." The question on television came from a prior childhood obesity prevention trial.[26,27] The study team created the question on handheld device use. The responses to questions 1 and 2 were summed together to determine the total daily screen time in minutes. We determined fruit and vegetable consumption at 15 months via three 24-hour dietary recalls that were conducted verbally with parents and then entered into the ASA24 dietary analysis program, a validated 24-hour recall tool.[28] We averaged fruit and vegetable intake in cups over the three recalls (or fewer for those who did not complete all three) to determine daily intake. We determined SSB and 100% fruit juice intake at 15 months through a culturally tailored survey developed by the research team. Parents were asked on how many of the past seven days the child had consumed any of the following beverages: 1) soda, 2) store-bought fruit-flavored drinks, 3) flavored milk, 4), *agua fresca*, 5) *horchata*, 6) homemade lemonade, 7) store-bought 100% fruit juice, and 8) homemade 100% fruit juice. If the answer was greater than zero, they were asked how

many ounces the child consumed of the beverage on the days that he/she consumed any. We determined hours per day of sleep duration at 6 and 12 months with the following questions from the *Brief Infant Sleep Questionnaire*:[29] 1) "How much time does your child spend in sleep during the NIGHT between 7 in the evening and 7 in the morning?" and 2) "How much time does your child spend in sleep during the DAY between 7 in the morning and 7 in the evening?." Responses were summed to determine 24-hour sleep duration. We assessed breastfeeding at infant age 6 and 9 months by asking parents if infants breastfed, if they took pumped breast milk in a bottle, and if they drank any formula. Child length and weight were recorded from the medical chart at 6 and 12 months and used to calculate BMI-z scores using the WHO growth curves.[30,31] We were not able to obtain data on BMI-z at 15-months, as most participants turned 15 months during the COVID-19 pandemic and were not seen in person. We used a chi-square test to compare differences between intervention and control for dichotomous variables. We used t-test and Wilcoxon rank sum (for normal and skewed distributions respectively) to compare means for continuous variables.

Qualitative Interviews and Analysis

Parents in the *Futuros Fuertes* arm who completed the 15 month study visit were invited to participate in a semi-structured interview to better understand their experience with the intervention, including how the intervention did or did not affect health behaviors, which components were most impactful, and suggestions for improvement (Table 2). The interviews were conducted in-person through March 2020, and subsequently over the phone by the study principal investigator (AB). We continued to recruit parents until thematic saturation was reached. The interviews were conducted in Spanish, audio recorded, and transcribed. We used a grounded theory-informed, inductive approach to analyzing the interview transcripts,[32] and *Dedoose* software for coding. Two study team members (AB and RM) read each transcript independently, identified segments of text with significance to the study objectives, and created a code to describe the meaning of each text segment. Study team members AB and RM met weekly during the coding to compare codes and text segments. At each meeting, they engaged in active discussion and resolved coding differences through consensus. As new codes emerged, they independently reread previous transcripts and applied the new codes. Throughout this process, codes that were conceptually linked were grouped together and a summative code was created. When the coding scheme was complete, GJ and AF reviewed the codes and associated quotes; and through iterative group discussion among AB, RM, GJ, and AF, major themes emerged.

Results

A total of 342 infant-parent dyads assessed met eligibility criteria, of whom 96 were randomized (Figure). Participants completed 72% of intended educational sessions, including 75% of all intervention sessions and 69% of the control sessions. Of the health education sessions, 17% were delivered by phone due to COVID-19 restrictions. Of the study text messages, 96% were marked as received by the text messaging system. We assessed primary behavioral outcomes in 81% of participants at 15 months. Mothers were predominantly Spanish speaking, born in Central America, and had less than a high school education (Table 3). Total daily screen time was lower in the intervention group versus the

control at 15 months (60 min vs 73 min $p = 0.03$), while fruit intake was higher (1.1 cups vs 0.85 cups $p = 0.05$, Table 4). There were no differences in beverage or vegetable intake. Breastfeeding was significantly higher in the intervention group at 6 months (84% vs 59% $p = 0.02$) and 9 months (81% vs. 51% $p = 0.008$).

A total of 17 mothers completed a qualitative interview, seven in-person and ten by phone. All interviews were conducted in Spanish. Among mothers who were interviewed, all were born outside of the United States, 56% had older children, and 59% had less than a high school education (Table 3). The interviews ranged in duration from 18 to 55 min (mean of 35 min). Four major themes emerged (Table 5). First, *parents valued the intervention and trusted the information received from the health educator*. Parents described looking forward to the health education sessions and feeling supported by the intervention in their parenting. They explained that the sessions were an opportunity for them to ask questions. Parents described trusting the expertise of the health educator relative to other sources.

Second, the *intervention led to changes in parenting behaviors related to feeding and screen time*. Parents described changes in screen time parenting behaviors for the enrolled child relative to older children. Several explained that they had allowed older children to engage in regular handheld device use but had not introduced any handheld devices to the enrolled child due to the intervention. Parents described behavioral and developmental differences that they perceived in the enrolled child from not introducing handheld device use as well as pride in children's ability to entertain themselves with toys and books rather than screens. Parents also described differences in feeding practices for the enrolled child in contrast to older children, including introducing a variety of vegetables from a young age, allowing self-feeding, and not insisting that the child finish all their food. Some parents described no longer purchasing SSB for any members of the household or not consuming them in front of children.

Third, the *text messages supported healthy caregiving behaviors for enrolled parents and other family members*. Parents noted that the texts were important reminders of intervention content as they often found it difficult to recall what they had learned. Several described saving the texts and rereading them. In addition, parents appreciated that the texts provided anticipatory guidance for the developmental stage of the child. Most parents reported sharing the text messages with others, including their partners/spouses and other family members. Parents also used text messages as a strategy to convince their partners to adopt certain parenting behaviors.

The final major theme was that *parents interpreted some messages differently than intended and in varying ways*. For example, parents described varying opinions and practices regarding handheld device use and television viewing (both of which were addressed in the intervention and discouraged). A few parents explicitly described greater concern for handheld devices than television, describing the latter as more benign, such as one mother who explained that with the television, children cannot take it with them. Parents also expressed concern about the addictive properties of handheld device use noting that with television, their children were only intermittently attentive to the screen. Another area of tension between intervention messaging and behaviors related to beverage intake. Parents

described taking care to avoid offering children store-bought SSB. However, many noted that they offered 100% fruit juice that was homemade, in contrast to intervention messaging which recommended against all forms of SSB and juice.

Parents offered several suggestions to improve the intervention including sending text messages directly to partners/spouses and other family members, incorporating more recipes and meal planning ideas into the text messages, and including ideas for child physical activity. Only a few parents recalled receiving written brochures and several expressed that text messages were a better strategy given the likelihood of misplacing paper materials.

Discussion

Our pilot randomized controlled trial established the acceptability and feasibility of the *Futuros Fuertes* intervention in an academically affiliated primary care clinic. We found that infants, who participated in the intervention engaged in less screen time at 6, 12, and 15 months, had higher rates of breastfeeding at 6 and 9 months and consumed more fruit at 15 months relative to control participants. While the study was not powered to detect anthropometric differences, the differences seen in BMI-z score at 6 months (−0.33, $p = 0.2$) and 12 months (−0.38, $p = 0.19$) were comparable to other studies that have sought to reduce the risk of childhood obesity.[17,18] Our qualitative findings underscore the acceptability of a lay health educator model for interventions to prevent childhood obesity among Latino infants and toddlers. We found that parents valued and trusted the expertise of the lay health educator and could describe changes in their parenting practices resulting from the intervention. The qualitative results also highlighted the importance of the text messages, which parents valued because they supported recall of intervention content and dissemination of information to other family members.

Prior studies of primary care-based approaches to reducing childhood obesity suggest the potential for benefit. A primary care-based intervention for low-income infants (50% Hispanic) delivered by pediatric residents at well-child visits that promoted breastfeeding, avoidance of sweetened beverages and television, responsive feeding, and physical activity led to lower weight-for-length z-score through 18 months, but no difference at 24 months.[33] Another intervention, tested in a low-income Latino population, consisted of individualized counseling in the prenatal period and group sessions paired with well-child visits led by a registered dietician.[34] This intervention led to lower weight-for-age z-score at 2 years, but no difference in weight outcomes at 3 years. Taken together, these studies suggest that interventions embedded in pediatric primary care may be most impactful during infancy and early toddlerhood when visits occur very frequently.

Two home-based interventions delivered by nurses during infancy and toddlerhood have led to lower BMI in the preschool period.[17,18] One study was conducted among low-income children in Australia,[17] while another enrolled mostly white infants in Pennsylvania.[18] In contrast, a home-based intervention for low-income Latino mothers and infants delivered by a community health worker did not impact weight at 12 months,[35] while a home-based intervention for Black mothers and infants offered by a peer educator had no impact on weight at 15 months.[36] These differing outcomes suggest greater effects from interventions

delivered by health professionals. The *Futuros Fuertes* model may offer a hybrid solution; it is embedded in primary care, which may increase parental confidence in the intervention. However, it is delivered by lay health educators, a model that may be more sustainable than relying on clinicians.

Regardless of the primary delivery model, text messaging may be useful for increasing intervention dose for childhood obesity prevention programs. Nonetheless, the evidence base for text messaging to prevent childhood obesity remains limited.[37] Our qualitative results suggest that text messaging may be important to support the primary caregiver but also as a way of disseminating information to others and that sending messages directly to multiple family members may have benefits. This is an important area for study as it is often not realistic for multiple family members to attend well-child visits.

Limitations

Our study has several limitations. It was a pilot trial and not powered to detect anthropometric differences. We did not adjust our statistical analysis for repeated measures. Much of the primary outcome data were collected during the COVID-19 pandemic, at a time when stay-at-home orders were in place. This may have impacted both data quality, as some questionnaires were conducted by phone, as well as health behaviors. Other studies have found increases in child screen time and decreases in outdoor physical activity during stay-at-home orders.[38] Parent participants were mostly recent immigrants from Mexico and Central America, and results may not be generalizable to more acculturated Latino parents and those from other regions. In addition, 65% of eligible parents did not participate in the study which may limit generalizability. Finally, both recall and social desirability bias may impact reports of child health behaviors, which were not otherwise verified.

Conclusions

We have demonstrated that a primary care-based, lay health educator led intervention to prevent childhood obesity among low-income Latino children is acceptable and feasible and can positively impact health behaviors including breastfeeding and screen time. Our qualitative findings highlight parental trust in a lay health educator embedded in primary care and point to the text messages as contributing to efficacy. Future research should evaluate similar interventions in diverse pediatric care settings with adequate power to detect anthropometric differences and incorporate text messaging directly to multiple family members.

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The study sponsors had no role in the study design, collection, analysis, interpretation of data, the writing of the manuscript, and the decision to submit the manuscript for publication.

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What's New

Low-income Latino infants and toddlers, whose parents received a primary care-based educational intervention delivered by lay health educators and text messaging, had healthier feeding and screen time practices compared to controls. Interviews with participating parents highlighted aspects of the intervention that may have been impactful.

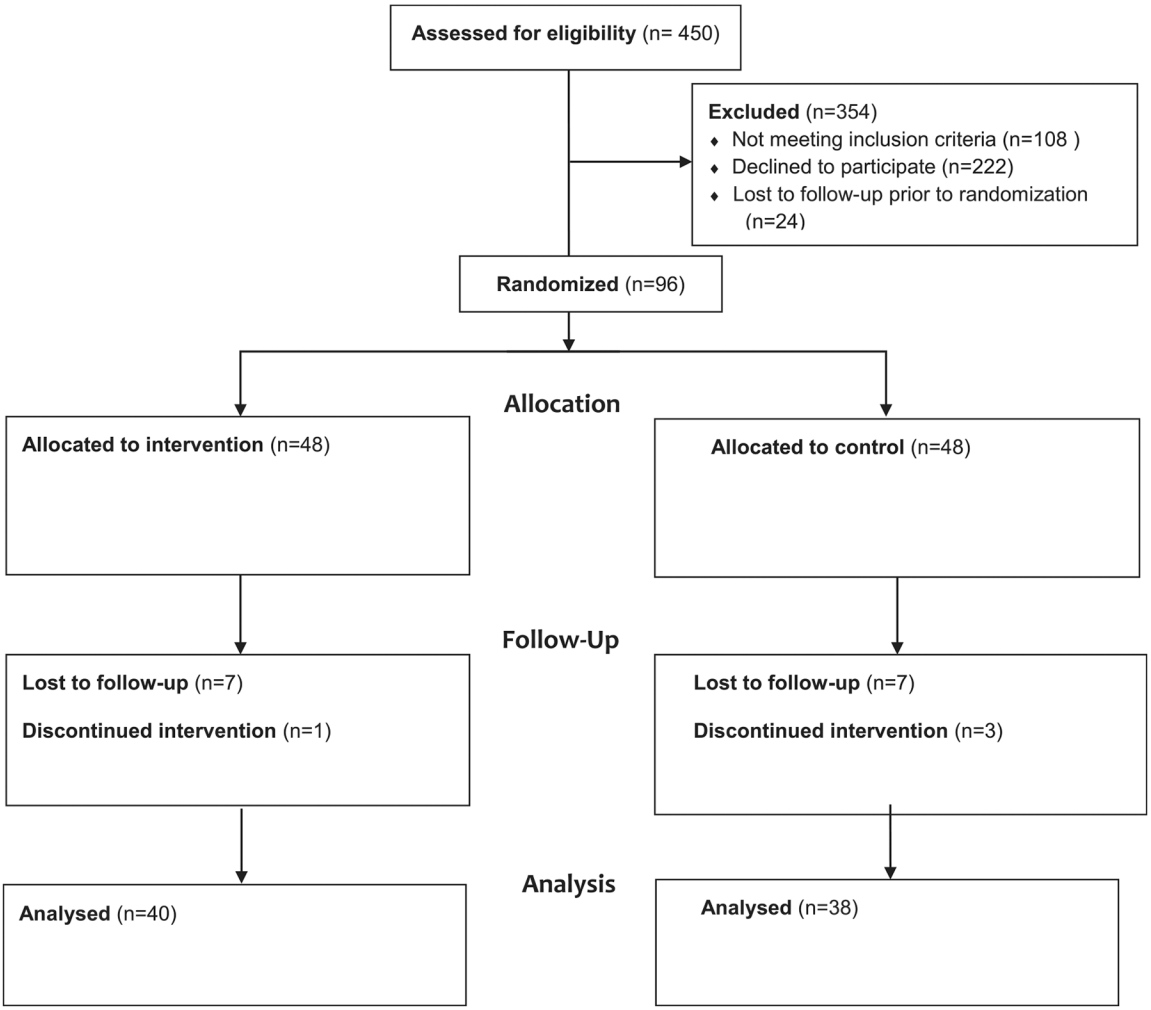

Figure.
Consort Flow Diagram for Futuros Fuertes Pilot Randomized Controlled Trial.

Table 1.

Overview of *Futuros Fuertes* Intervention Content Areas at Each Age

Infant Age at Visit	Major Intervention Content	Sample Text Messages
2 weeks	• Health effects of sugary beverages • Identifying hunger and satiety signs • Alternate soothing strategies (other than feeding) for fussiness	Babies cry for many reasons and crying does not always mean that your baby is hungry. If your baby is crying and not showing other signs of hunger, look for what else might be bothering her.
2 months	• Impacts of screen time on infant development • Alternative activities to screen time (i.e. tummy time) • Sleep needs and strategies for promoting sleep	Pay attention to signs that your baby gives when she is sleepy such as rubbing her eyes, pulling on her hair or ears, yawning, or fussing. To help your baby get enough sleep, try to put her to sleep as soon as she starts to show signs of being tired.
4 months	• Identifying readiness for introduction of solids • Responsive feeding strategies including gentle repeated introduction of new foods • Health benefits of green and orange vegetables	Pureed cooked vegetables are healthy for your baby because they contain lots of vitamins! Offer your baby both green vegetables (such as zucchini, broccoli, peas, spinach, or green beans) and orange-yellow vegetables (such as carrots and sweet potatoes).
6 months	• Best foods and beverages for infants and those to avoid • Bedtime routines and strategies to promote nighttime sleep	Whole fruits are very healthy for your baby because they contain vitamins and fiber. Fruit juice though is high in sugar and has no fiber. For this reason, it's best to offer your baby fruit but avoid all juices, even juice that you receive from WIC or make at home.
9 months	• Identifying and avoiding hidden sugars (in yogurt, cereals, etc.) • Promotion of self-feeding • Reduction in formula to no more than 24 ounces for formula fed	Remember that your baby knows how much she needs to eat. A great way to allow your baby to control how much she eats is to offer her small pieces of soft foods and let her feed herself.
12 months	• Managing normal appetite decrease and onset of pickiness in toddlers • Planning healthy meals for toddlers using MyPlate • Milk intake recommendations for toddlers • Toddler sleep needs and approach to bedtime routines	After children turn one, many will have a decrease in their appetite. This is completely normal and not a cause for concern.

Table 2.

Interview Prompts for Semi-structured Interview

1	Tell me about a typical day in the life of your child from the time he/she wakes up until the time he/she goes to sleep.
2	Tell me about any experiences you had caring for other children before [name of child] was born.
3	Tell me about your experiences with the health education classes you received from [name of health educator] after your baby's doctor visits.
4	Tell me about the experience of receiving text messages.
5	Tell me your thoughts about the brochures that were offered after each education session.
6	Can you tell me a little bit about what you heard in the classes and read in the texts regarding beverages?
7	Can you tell me a little bit about what you heard in the classes and read in the texts regarding feeding your baby?
8	Can you tell me a little bit about what you heard in the classes and read in the texts regarding sleep?
9	Can you tell me a little bit about what you heard in the classes and read in the texts regarding screen time?
10	Thinking about the classes, texts, and brochures, do you have any suggestions for how to make them better for other parents?

Table 3.

Maternal and Infant Demographics and Infant Birth Data Among Participants in a Pilot Randomized Controlled Trial of the *Futuros Fuertes* Intervention ($n = 96$) and Intervention Group Participants Who Completed a Qualitative Interview About the Experience ($n = 17$)

	Intervention		Control	
	Mean (SD)	**n (%)**	**Mean (SD)**	**n (%)**
Infant variables				
Sex				
Male		23 (48)		25 (52)
Female		25 (52)		23 (48)
Birthweight (g)	3359 (515)		3385 (373)	
Maternal gestational diabetes		10 (21)		7 (15)
Insurance				
Medicaid		100		100
Maternal variables				
Age	28 (5.5)		29.3 (5.7)	
Highest level of education				
Less than high school		32 (68)		30 (64)
High school graduate		10 (21)		9 (19)
Technical or associate degree		4 (9)		3 (6)
Bachelor’s degree		1 (2)		5 (11)
Country of origin				
Mexico		13 (28)		16 (34)
Guatemala		17 (36)		6 (13)
El Salvador		8 (17)		11 (23)
Honduras		7 (15)		6 (13)
Nicaragua		0 (0)		2 (4)
United States		2 (4)		3 (6)
Other		0		3 (6)
Mean years in US if born abroad	7.9 (6.1)		8.4 (7.6)	
Preferred language				
Spanish		42 (89)		36 (77)

	Intervention		Control	
	Mean (SD)	n (%)	Mean (SD)	n (%)
Both English and Spanish		5 (11)		11 (23)
First time mother		16 (35)		12 (26)
Lives with partner		39 (83)		38 (81)
Maternal variables for qualitative interviewees				
Age	30.5 (5.1)			
Highest level of education				
Less than high school		10 (59)		
High school graduate		5 (29)		
Technical or associate degree		2 (12)		
Bachelor's degree		0 (0)		
Country of origin				
Mexico		8 (47)		
Guatemala		6 (35)		
El Salvador		2 (12)		
Honduras		1 (6)		
Nicaragua		0		
United States		0		
Other		0		
Mean years in US if born abroad	8.6 (6.2)			
Preferred language				
Spanish		16 (94)		
Both English and Spanish		1 (6)		
First time mother		7 (44)		
Lives with partner		15 (88)		

Table 4.

Behavioral and Anthropometric Outcomes of the *Futuros Fuertes* Pilot Randomized Controlled Trial at 6, 12, and 15 Months (n = 75 at 6 Months, n = 76 at 12 Months, and n = 78 at 15 Months)

Outcome	Age	Intervention	Control	*p*-value
Primary behavioral outcomes	15 months			
Mean daily screen time (SD) in minutes		60 (98)	73 (61)	*0.03*
Mean daily fruit intake (SD) in cups		1.1 (0.66)	0.86 (0.43)	*0.05*
Mean daily vegetable intake (SD) in cups		0.72 (0.67)	0.53 (0.42)	0.14
Mean 7-day sugar-sweetened beverage and 100% fruit juice intake in ounces (SD)		17.4 (26)	19 (21)	0.76
Additional outcomes				
Mean daily screen time (SD) in minutes				
	6 months	7 (11)	22 (27)	*0.003*
	12 months	35 (54)	52 (53)	*0.02*
Any breastfeeding				
	6 months	84%	59%	*0.02*
	12 months	81%	51%	*0.008*
Mean total sleep hours in 24-hours (SD)				
	6 months	12.9 (1.9)	12.5 (2)	0.43
	12 months	12.6 (1.7)	12.1 (1.7)	0.07
Mean BMI-z (SD)				
	6 months	0.15 (1.2)	0.48 (1.1)	0.2
	12 months	0.51 (1.1)	0.89 (1.2)	0.19

Table 5.

Major Qualitative Themes With Representative Quotes

Themes	Quotes
Theme 1: Parents valued the intervention and trusted the information received from the health educator	*"With the text messages and the sessions with [name of health educator], I felt supported in the growth of my child. She always tried to explain things so that I could understand and you could tell that she knew what she* was *talking about."* "*In the health education sessions, all my questions would come pouring out, all my doubts, and she would resolve them for me." "Every time I came to the doctor, I* was *attentive to whether we would see each other. I would be thinking 'last time I learned this, what will I learn this time?' It* was *exciting for me."*
Theme 2: The intervention led to changes in parenting behaviors related to feeding and screen time	*"From my family, I think that I had the custom that all of the food that I took out, you have to eat it. But [name of health educator] explained to me that no, they know when they are satisfied. If they say that they don't want more, I don't have to insist that they finish."* *"Because before, I would even give Coke to the kids, to my older ones. But with this one I know that if I am having soda or juice, not to give it to him, so that he doesn't start liking sweet things."* *"This experience has really helped me so that she doesn't have a phone like my older one, who we used to give the phone so that she wouldn't bother us. We have stopped all of that because the program helped me to see that we shouldn't do that with her."*
Theme 3: Text messages supported healthy caregiving behaviors for parents *and* other family members	*"I like receiving the messages because then I learn more about what I shouldn't give the baby and what I can give him."* *"Whenever I receive the messages, I read them and put the information into practice."* *"With my husband, I would say 'look [at the text message], this is what we have to do for [daughter].' And he would say 'Yes, you are right. And when you go out, I will give her what it says in the message.'"* *"In fact, my husband* was *saying 'I'll make him his milk so that he can go back to sleep.' And I told him 'No, this time don't make it. He's going to fall asleep in a few minutes. You just need to pat him a little bit.' And he said 'Really? Who told you?' And I told him 'Oh, it* was *in the text messages they sent me.'"*
Theme 4: Parents interpreted some messages differently than intended and in varying ways	*"For television, I'm not going to lie, we do watch television. But I do not give him the phone."* *"Up to now [name of child] has only had water and milk, and sometimes I give her juice, but we squeeze it freshly at home from fruits."*

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