

Trial collaborators' perceptions of the process of delivering Healthy Beginnings advice via telephone calls or text messages

Mahalakshmi Ekambareshwar^{1,2}  | Sarah Taki^{1,3} | Seema Mihrshahi^{1,4} | Louise Baur^{1,2,5,6} | Li Ming Wen^{1,2,3} | Chris Rissel^{1,2} 

¹NHMRC Centre of Research Excellence in the Early Prevention of Obesity in Childhood, Sydney School of Public Health, University of Sydney, Camperdown, New South Wales, Australia

²Sydney School of Public Health, Faculty of Medicine and Health, The University of Sydney, Camperdown, New South Wales, Australia

³Health Promotion Unit, Population Health Research and Evaluation Hub, Sydney Local Health District, Camperdown, New South Wales, Australia

⁴Department of Health Systems and Populations, Faculty of Medicine, Health and Human Sciences, Macquarie University, Sydney, New South Wales, Australia

⁵Sydney Medical School, The University of Sydney, Sydney, New South Wales, Australia

⁶The Children's Hospital at Westmead, Westmead, New South Wales, Australia

Correspondence

Mahalakshmi Ekambareshwar, NHMRC Centre of Research Excellence in the Early Prevention of Obesity in Childhood, Sydney School of Public Health, University of Sydney, Camperdown, NSW 2006, Australia.

Email: mahalakshmi.ekambareshwar@sydney.edu.au

Funding information

The CHAT RCT is a partnership project funded by the New South Wales Health Translational Research Grant Scheme

Handling editor: Rosie Nash

Abstract

Issue addressed: One in four Australian children aged between the ages of two and four are affected by overweight. In New South Wales, the Communicating Healthy Beginnings Advice by Telephone (CHAT) trial delivered an intervention to pregnant women and women with infants via telephone calls and text messages. The focus of the intervention was on infant feeding and establishing healthy habits for infants by building the capacity of mothers. This study investigates trial collaborators' perspectives concerning the implementation of this intervention, to obtain insights that will support future translation and scale-up.

Methods: This research was undertaken during the intervention phase of the trial. Twenty trial collaborators involved in the planning, implementation or delivery of the CHAT trial were invited to participate. Qualitative interviews were conducted with collaborators using open-ended questions based on Steckler and Linnan's process evaluation framework and the Consolidated Framework for Implementation Research. Inductive thematic analysis was employed to identify themes from the interview data.

Results: Fourteen trial collaborators were interviewed. Collaborators included child and family health nurses (intervention providers), nurse managers with extensive child and family health nursing experience, a paediatrician, dietitians, health promotion experts, health service managers, health and nursing executives, program personnel (project coordinator, research fellow and evaluation officer) and university researchers. Following coding of qualitative data, themes were realised from the data as a result of active co-production on the part of the researcher. Five themes were identified: (a) context (organisational support, engagement and partnerships, communication and project leadership); (b) program receipt, benefit and reach; (c) program delivery (intervention providers' experience and skills, mode of intervention delivery, referral to other services, support and training for intervention providers); (d) implementation (program delivered as planned); (e) opportunities for scale-up. Collaborators perceived

Abbreviations: BMI, body mass index; CFHNS, child and family health nurses; CFIR, Consolidated Framework for Implementation Research; CHAT, Communicating Healthy Beginnings Advice by Telephone; LHD, local health district; NSW, New South Wales; RCT, randomised controlled trial; WHO, World Health Organization.

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2021 The Authors. *Health Promotion Journal of Australia* published by John Wiley & Sons Australia, Ltd on behalf of Australian Health Promotion Association

2016 (TRGS 200) and Sydney Local Health District (SLHD). ME is a PhD scholar funded by the University of Sydney Postgraduate Award scheme.

that the program was implemented and delivered as planned. This specific research addresses the success of the process of implementing and delivering interventions for infant feeding and establishing healthy habits for children by building the capacity of mothers. Collaborators attributed successful program implementation to contextual factors: strong support by the host organisation; good project leadership; clear communication; collaborative internal and external partnerships; intervention provision by experienced nurses. Remote delivery was convenient to program participants and participants were able to resolve other personal concerns in addition to direct immediate benefits. Because of their capacity to influence policy decisions, the absence of policymakers at project meetings was a shortcoming. Collaborative partnerships with health and research partners, understanding of contextual issues and consumer involvement could lead to program expansion. The program has the potential to be scaled up through integration with existing services and gradual expansion into other health districts prior to state-wide rollout.

Conclusions: The CHAT trial delivered the Healthy Beginnings intervention which resulted in improvements in infant feeding, active play and sedentary behaviours. This evaluation demonstrated that the involvement of key stakeholders from early planning stages through to implementation of the program and the partnerships that evolved contributed to the successful implementation of the program. An unintended benefit to participants from this program was the social support that was provided. Intervention delivery via telephone and text messages enabled easy access to the program. Most importantly, the program has the potential to be scaled up through integration into existing services and gradual expansion prior to state-wide rollout.

So what?: Strong internal and external partnerships, effective communication systems and integration with existing services create the context for potential translation and scaling up of the program to other health promotion settings.

KEYWORDS

health promotion, infant obesity prevention, process evaluation, scaling up, stakeholder perception, telephone, text messages

1 | INTRODUCTION

Overweight and obesity are major risk factors for several chronic diseases, including diabetes, cardiovascular diseases and cancer.^{1,2} The number of children affected by overweight is increasing rapidly. For example, globally, overweight affected over 18% of children and adolescents aged 5-19 in 2016,³ and 38.9 million children under the age of five in 2020.⁴

In 2017/2018, 25% of all Australian children aged between two and four were in the overweight category.⁵ Interventions delivered to parents or primary carers of children to promote healthy behaviours from a very early stage in life (birth to 2 years of the child's age) has become the focus of public health researchers over the past two decades.⁶⁻¹⁰ Interventions were mostly delivered face-to-face at clients' homes⁶ or in group settings.⁷ However, there were significant costs associated with home visits¹¹ and there is an increased burden on women with newborns and infants to attend group sessions.¹²

To overcome the barriers associated with face-to-face delivery of interventions, public health researchers have turned towards more cost-effective and convenient delivery modes.⁸⁻¹⁰ In Australia, an estimated 95% (~18.72 million) of adults owned a mobile phone in 2019 with the usage rate increasing.¹³ Trials that delivered interventions remotely for healthy growth in early childhood include the MumBubConnect trial that delivered breastfeeding interventions via text messages,¹⁴ the Growing Healthy trial that delivered infant feeding messages via a mobile application (App),⁸ Baby's First Bites that delivered interventions via telephone with print materials to improve child eating behaviours.¹⁵ There is a lack of research on reporting of stakeholders' perspectives and a need to understand the contextual influences upon intervention processes for future translation or scale-up.¹⁶

This research was one of four studies conducted during the intervention phase, to evaluate the process of delivering the Communicating Healthy Beginnings Advice by Telephone (CHAT)

trial. These were solely for the process evaluation of the CHAT trial, there were other studies that evaluated the outcomes of the CHAT trial. The CHAT trial delivered interventions via telephone calls or text messages with booklets, to promote healthy feeding behaviours, nutrition and physical activity from the third trimester of pregnancy to two years of child's age.⁹ There were 1155 pregnant women recruited to the CHAT trial.^{10,17} The trial was delivered to pregnant women and mothers with infants at a busy time of their lives. A key aspect of intervention research is to explore the utility of the intervention and program delivery through qualitative inquiry.¹⁸ Real-world prevention trials are dissimilar to controlled clinical trials with high internal validity, and therefore require different types of evidence, such as informed opinions of stakeholders to understand external validity and contextual relevance.¹⁹ Therefore, it is necessary to obtain stakeholders' insights into the implementation process, to understand resource requirements, whether there were intra- or inter-organisational partnerships that enhanced intervention delivery and whether they were appropriate to participants' needs.²⁰ The information obtained from stakeholders has the potential to inform future implementation and scale-up. It is imperative to include stakeholders involved in the various aspects of the program - project planners, health professionals/executives, researchers, intervention providers and participants, for evaluation of practice-based health promotion such as the CHAT program.^{19,21} The study protocol for the CHAT trial outlined that qualitative interviews would be conducted with stakeholders involved to gain a better understanding of their experience, acceptability, barriers and enablers of program delivery and suggestions for improving the program to be delivered to the broader community.²²

Process evaluation literature suggests that understanding the context within which interventions are delivered is critical to interpret findings and to support future translation of research into practice. Process evaluation frameworks emphasise the importance of evaluation of the larger physical, social and political environment that affects the program and hence a need to understand the context within which programs are delivered.²³ Researchers argue that even a simple intervention may have highly complex interactions with its context.²⁴⁻²⁶ The preliminary step in process evaluation involved understanding participants' and recruiters' perceptions of the facilitators and challenges during the recruitment phase of the CHAT program.²⁷ Facilitators and challenges in recruiting pregnant women to the CHAT trial were identified. In total, 1155 women were recruited out of 3217 women who were eligible. Pregnant women's interest in receiving information via telephone calls or text messages was an indication that women valued the trial.¹⁷ During the intervention phase, a quantitative survey to measure participants' satisfaction with the program was administered to women who participated in the CHAT trial when their infants were aged six months. This was followed by qualitative interviews with participants (mothers) to explore their perception of the program, interviews were conducted when the child was about 12 months of age, during the 2-year CHAT

trial intervention. Of the 1155 CHAT trial participants, 947 (82%) completed the 6-month survey. Sixty-one participants were approached for the qualitative interviews of whom 34 were interviewed.²⁸ Participants' responses indicated their appreciation of the program and were suggestive of a clear need for stage-based information provision with the preference of choice and flexibility in the mode of intervention delivery due to their changing needs.²⁸ It has been demonstrated that there is a lack of evidence that existing studies have examined the perceptions of intervention deliverers and health professionals.¹⁶

The aim of this study was to explore the perceptions of trial collaborators who were involved in the delivery or planning of the CHAT program, to inform future researchers and policymakers about implementation, scaling up and translation of the CHAT program or similar programs. This investigation of trial collaborators' perceptions of the CHAT trial was conducted during the intervention phase after 12 months of intervention provision, to allow collaborators to gain adequate knowledge of the trial. The trial duration was from the third trimester of pregnancy until 2 years of the child's age. Specifically, we investigated the following three research aims: (a) Was the CHAT program implemented and delivered to the intended audience as planned? (b) What were some of the contextual factors that played a role during the delivery of the program? (c) What were some of the facilitators and challenges of delivering the program to women via telephone calls and/or text messages?

2 | METHODS

2.1 | Study context

Healthy Beginnings was an evidence-based program that was tested through randomised controlled trial (RCT) of a staged home visiting program in the most socially and economically disadvantaged areas of Sydney, New South Wales, Australia.^{6,29} Healthy Beginnings delivered interventions for infant feeding and for establishing healthy habits for infants by building the capacity of mothers. In 2017, The CHAT trial commenced delivery of Healthy Beginnings via telephone calls and text messages to pregnant women and women with infants. The CHAT trial is a three-arm randomised controlled trial to communicate evidence-based Healthy Beginnings advice relating to breastfeeding, introduction of solids, feeding behaviours, active play and screen time.²⁹ Stage-based intervention messages were delivered to pregnant women from the third trimester of pregnancy to their child's age of 2 years.⁹ Interventions were provided at nine time points following key developmental milestones from the antenatal period (third trimester) until 2 years of the child's life. For the purpose of the process evaluation of the CHAT trial, each of the intervention delivery points is referred to as a dose. The CHAT trial has three arms: two intervention arms - nurse-delivered telephone calls or tailored text messages - and a control arm. The methods of the CHAT trial have been published previously.^{10,22}

2.1.1 | CHAT trial recruitment and participant characteristics

Pregnant women were recruited at eight hospital sites within four local health districts between 23 February 2017 and 27 July 2017. A total of 4429 women were approached at the time they were waiting for their antenatal clinic appointments of which 1498 consented to participate in the study, 343 women did not complete the baseline survey. A total of 1155 women remained in the study and were enrolled. The majority of participants were: first-time mothers; born overseas; spoke English at home; ≥ 30 years of age; university-qualified; household income \geq AU\$ 80,000; employed; in a married or de-facto relationship. Detailed information on the recruitment process and participant characteristics have been published elsewhere.^{17,28}

2.2 | Study design

This study has been reported in accordance with the quality assessment against consolidated criteria for reporting qualitative studies (COREQ) (Appendix C). A qualitative study design was employed using semi-structured interviews to allow the experiences, meanings, and realities of trial collaborators (intervention providers and health professionals involved with the program) to be captured and interpreted.³⁰ "CHAT RCT" has been referred to as the "CHAT trial" or "the CHAT program." Experienced child and family health nurses (CFHNs) delivered the interventions. "CFHNs" and "intervention providers" have been used interchangeably in this manuscript.

In order to address the research aims and to evaluate the process of delivering interventions via telephone calls and text messages, we sought guidance from a process evaluation framework²³; for evaluation of program implementation, we applied the consolidated framework for implementation research (CFIR) framework to this evaluation,^{31,32} due to its evidence generation in implementation and translational research.³³

Two interview guides (for intervention providers and for other health professionals) containing open-ended questions were developed (Appendices A and B). The questions broadly focused on the roles and responsibilities of trial collaborators: the decision to implement the CHAT trial (planning phase), implementation support of the CHAT trial (implementation phase), outcomes of the CHAT trial and lessons for future scaling up (evaluation phase). Several questions about the implementation and evaluation phases were included in order to capture greater detail that would increase the depth of understanding of the implementation and evaluation phases including scale-up. The questions were pilot tested with SM (one of the co-authors) to assess the appropriateness of the content, flow and duration of the interview. Questions were reworded and reduced to minimise any burden to trial collaborators. A maximum of one hour was allocated for each interview.

At least six revisions were made to improve the questionnaire. All authors reviewed the questionnaire.

2.2.1 | Participants and recruitment

Trial collaborators were recruited through emailed invitations sent by the project coordinator of the CHAT program who was not part of this research study. Expert sampling³⁴ was used to ensure expert representation from the various specialities. Invitations to participate were sent to 20 collaborators involved in the planning, implementation, delivery of the CHAT program, members of the CHAT operational and management committees and health professionals involved in the administration of the program at the Local Health District. This was followed by a formal calendar invitation, which included a participant information sheet and consent form. Trial collaborators who were interviewed included child and family health nurses (intervention providers), nurse managers with extensive child and family health nursing experience, a paediatrician, dietitians, health promotion experts, health service managers, health and nursing executives, program personnel (project coordinator, research fellow, evaluation officer) and university researchers. Women who participated in the CHAT trial are referred to as "participants."

This research was approved by The University of Sydney Human Research Ethics Committee (project approval number 2020/649). Prior to the interviews, written informed consent was obtained from each participant.

2.2.2 | Data collection

We sought guidance from two evaluation frameworks, the process evaluation framework²³ and the CFIR.^{31,32} The overall process evaluation of the CHAT trial including this evaluation of trial collaborators' perceptions was guided by the Steckler and Linnan's evaluation framework.²³ Broadly, the components of the process evaluation framework focused on context, dose delivered, reach, dose received, fidelity and implementation. Interview guide questions for this evaluation were guided by the CFIR framework and a modified CFIR questionnaire.^{31,32} The CFIR framework has validated questionnaires to assess the implementation and evaluation of behaviour change interventions.³¹ The questions specifically focussed on intervention characteristics, outer setting, inner setting, characteristics of individuals and process.

Prior to the commencement of interviews, written consent was obtained via email and recorded. Interviews were conducted using the videoconferencing software Zoom (<http://www.ZOOM.us>) for participant convenience and due to coronavirus disease 2019 (COVID-19) pandemic restrictions at the time. The importance of obtaining their perspectives and preserving their anonymity was made clear to the trial collaborators prior to the interviews. Interviews were conducted between 6 November 2020 and 23 November

2020. Interviews were audio-recorded on Zoom. Interviews ranged between 25 and 49 minutes, with an average duration of 39 minutes. All interviews were conducted by ME, a full-time researcher who is trained and experienced in qualitative research methods.

The collaborators and intervention providers who were approached for this study were involved with the CHAT trial for its entire duration and had extensive information about the trial. The concept of “information power” was applied, where the more information the sample holds, relevant for the actual study, the lower number of participants is needed.³⁵ Interviews were conducted until adequate information was obtained, and no new information and no new themes were realised.^{35,36}

2.2.3 | Data analysis

Interview data were transcribed verbatim by an external organisation and the transcripts were checked for accuracy by ME. Trial collaborators' identifying information has been removed and represented as S1, S2,... to S14. The penultimate version of this manuscript was sent to all trial collaborators who were interviewed to provide an opportunity for them to review, comment, suggest changes to the quotes and to the manuscript as a whole. Feedback from them has been incorporated into this final version of the manuscript.

ME and ST independently coded two interviews to generate initial codes following the principles of inductive thematic analysis.^{36,37} ME identified themes from the interview data primarily, and process evaluation²³ and CFIR frameworks^{31,32} to develop an initial coding framework. ME and ST met three times (online) to reflect on the initial coding framework, refinements were made following each meeting to arrive at the final coding framework. The remaining transcripts were then coded by ME.

2.2.4 | Researcher reflexivity/positionality

The first author and researcher who conducted the process evaluation of the CHAT trial and this research is a doctoral student. This researcher/doctoral student conducted all the interviews and is formally trained in qualitative research and was aware of the principles and practices underpinning qualitative research. Neutrality was maintained during the interviews with the trial collaborators, ensuring personal views were not reflected. An additional measure to eliminate bias was to follow an interview guide based on established frameworks. Furthermore, two researchers were involved at the time of initial data interpretation, coding and thematic analysis to reduce personal bias.

3 | RESULTS

Trial collaborators and intervention providers (n = 14) from various specialties were interviewed including nurses, dietitians, paediatric medical practitioners, researchers and senior executives. Two

co-authors of this manuscript were among the trial collaborators who were interviewed.

This qualitative research approach validates and privileges their experiences, making them experts and, therefore, co-researchers and collaborators in the process of gathering and interpreting data.³⁸ Collaborators indicated that they had professional or research experience in child/family health and had some involvement with the CHAT trial (Table 2).

Following coding of qualitative data, themes were realised as a result of active co-production on the part of the researcher, the data and context.³⁹ Themes were refined in an iterative manner that resulted in five main themes. These were placed within the context of the PE and CFIR frameworks.^{23,31} However, the themes concurred with the process evaluation framework components and are represented in Table 1. The five themes are: (a) context (organisational support, engagement and partnerships, communication, project leadership); (b) program receipt, benefit and reach; (c) program delivery (intervention providers' experience and skills, mode of intervention delivery, referral to other services, support and training for intervention providers); (d) implementation (program delivered as planned); (e) opportunities for scale-up (Table 1).

3.1 | Summary of findings

Each of the themes is reported below, with illustrative quotes from the interviews with trial collaborators in Table 3. The main themes and sub-themes represented in Table 3 have been identified from the data, but it should be noted that these were by no means mutually exclusive, and trial collaborators certainly reported using more than one strategy.

3.2 | Context

Context related to the larger social, political and economic environment within which the program and intervention were delivered, that may have influenced program implementation. Contextual factors include organisational support, engagement and partnerships, communication, policy and chief investigator characteristics (Table 2 theme 1).

3.3 | Organisational support

Trial collaborators perceived there was strong support from the host organisation. There was support at all levels – from the chief executive as a champion; mid-level from the departments by enabling secondments of experienced CFHNs with the skills and knowledge required to deliver the intervention for the program. The program received strong leadership at all levels. Financial support was provided by the host organisation (from where the program operated) (Table 3 sub-theme 1.1).

TABLE 1 Themes from interviews with CHAT stakeholders including intervention providers

Themes identified	CFIR constructs	Adaptation of CFIR for comparison of two studies	Process evaluation components
Context - Organisational support - Engagement and partnerships - Communication - Project leadership	- Outer setting - Inner setting	- Choice of intervention - Resourcing - Implementer characteristics - External support - Communication	Context Aspects of larger social, political, and economic environment that may influence intervention implementation
Program receipt, benefit and reach	Outer setting (patient needs and resources)	- Meeting target audience needs	Dose received The extent to which participants actively engage with, interact with and/or use materials or recommended resources. Dose received is a characteristic of the target audience and extent of engagement of participants with the interventions. Reach Reach is a characteristic of the target audience. The proportion of intended target audience that participates in an intervention/s. Often measured by attendance
Program delivery - Intervention providers' experience and skills - Mode of intervention delivery - Referral to other services - Support and training for intervention providers	- Characteristics of individuals - Process	- Implementer support - Planning	Dose delivered The number or amount of intended units of each intervention component delivered or provided. Dose delivered is a function of the efforts of the intervention providers. Fidelity The extent to which the intervention was delivered as planned. It represents the quality and integrity of the intervention as conceived by the developers. Fidelity is a function of the intervention providers
Implementation/Program delivered as planned	- Process - Inner setting	- How was the decision made? - Why was the decision made? - Organisational/management support - Internal support - Competing priorities - Implementation - Meeting intervention goals	Implementation The extent to which the intervention has been implemented and received by the intended audience
Opportunities for scale-up			

3.4 | Engagement and partnerships

The program has enabled collaboration between the various trial collaborators, linkages between CFHNs, paediatric clinicians and researchers that brought about reality to the CHAT trial. The team was referred to as “well oiled” and functioning well (Table 3 sub-theme 1.2). Although trial collaborators were from various specialties and background such as nurses from community health service, dietitians, medical practitioners, health professionals and practitioners from health promotion services, executives at three districts and ministry level, researchers at university, they complemented each

other and worked well as a team. The partnerships facilitated access to various resources such as recruitment sites across three districts, access to skilled CFHNs, and sharing of strengths and knowledge. Trial collaborators attributed successful implementation of the interventions at the three Districts to the partnerships that were formed. Despite the formation of successful engagement and partnerships with various stakeholders and organisations, engagement with policymakers needs to be established. This was raised as an issue that needed addressing, in future, to have a targeted communication strategy with policymakers and organisations that might influence policy decisions.

Characteristics	n
<i>Role</i>	
Intervention providers/child and family health nurses	3
Paediatric medicine specialist/university researchers	2
Nursing managers/executive	3
Senior health promotion executive	3
CHAT program manager/coordinator/researcher	3
<i>Years of experience in child/maternal health (profession or research)</i>	
>40 years	1
20-30 years	4
10-19 years	3
<10 years	6
<i>Years of involvement with the CHAT program</i>	
>4 years (since the commencement of the program)	11
3 years	1
<2 years	2

TABLE 2 Demographic characteristics of stakeholders who were interviewed

3.5 | Communication

Trial collaborators agreed that they were kept well-informed and up to date with the events of the CHAT trial. Communication with internal and external stakeholders was well established through various means such as committee meetings, emails and newsletters. Internal stakeholders included those who were within the project team or within the host organisation, and external stakeholders included personnel from other health and research organisations. It was suggested that a logic model representing the project lifecycle of the Healthy Beginnings and the CHAT trial would be a good communication strategy to disseminate CHAT messages to policymakers (Table 3 sub-theme 1.3).

3.6 | Project leadership

Trial collaborators commented on the strong practice-based leadership experience of the project lead who along with the team provided policy and organisational perspective to the program. Support and mentorship to the team were provided by the project lead, who built and maintained relationships with stakeholders, an important skill for the purpose of translation of this research. Despite the efforts of investigators, challenges remained when it came to engaging districts other than the host district (Table 3 sub-theme 1.4).

3.7 | Program receipt, benefit and reach (including access)

Process evaluation literature defines dose received as the extent of engagement of participants with the program.¹⁸ As previously noted, in the CHAT trial, dose refers to the intervention received. It was time-consuming for the intervention providers since they had to

make several attempts to reach participants via telephone (Table 3 theme 2). However, many women looked forward to receiving guidance, especially in the early stages after baby's birth. During the later stages, mainly participants with health and personal concerns sought help and found value in telephone calls and these calls were quite lengthy.

In addition to receiving advice related to a child's health such as desirable behaviours around nutrition, physical activity and sleep; participants were able to resolve personal issues they had at the time which led to indirect benefits and wellness of participants. The program provided an opportunity for participants to be able to talk to a health professional at a time they had a personal issue and to find a solution, a benefit that cannot be associated with cost-benefit or benefit to funders (Table 3 theme 2).

3.8 | Intervention providers' experience and skills

Several trial collaborators believed that successful program implementation and delivery was due to the intervention providers' knowledge of the program and their prior experience in providing a service to pregnant women and women with infants (Table 3 sub-theme 3.1). The term "success" was obtained from the interview data and interpreted as the collaborators' perceptions that the CHAT trial was implemented and delivered to the intended audience as planned. Some trial collaborators went a step further and stated that it was fortunate for the project to have employed experienced CFHNs as intervention providers to deliver the program. Intervention providers voiced similar opinions and added that their expertise in child and family health, empathy towards participants and a passion for the prevention of overweight in children led them to actively contribute to the delivery of the trial. The intervention providers undertook the reflective practice of program delivery, constantly addressing and improving the delivery of trials to participants.

TABLE 3 Illustrative quotes of themes and sub-themes from stakeholders

Theme	Sub-Theme	Illustrative quote
1. Context	1.1. Organisational support	"The district itself...supported the CHAT study by funding it and the release of staff and the generosity of keeping it all going." S8
	1.2. Engagement and partnerships	"I know that because the team is so well oiled and it works so well, they know who to reach out to and when to reach out to." S6 "You need to have a very specific communication strategy where the audience is the policymakers. So I think that includes having some of the policymakers on your working group and steering committees and keeping them really engaged with the project..." S7
	1.3. Communication	"We had regular meetings on a weekly basis with just the team...Then in terms of the other stakeholders that were from the other districts, we had larger management meetings and advisory group meetings that happen in a less frequent manner...once a month...We also did newsletters that were sent out maybe twice or three times a year to update them." S4 "I've been really keen for that logic model and path and the timeline to be developed...So at all levels, we need a really good communication process to keep people engaged..." S11
	1.4. Project leadership	"He's got very strong practice-based experience, he and his team, the people that he works with from the LHD obviously brings to the program the policy and organisational lens." S6
2. Program receipt, benefit and reach		"I know they made a lot of phone calls to try to get in contact with clients. And it's been very time consuming, but for those that they did engage with, I think clients have really enjoyed that experience..." S14 "Direct benefit to the participant with a social issue. And indirect benefit of reducing the problem before it becomes so severe and reduce a lot of burden on healthcare..." S3
3. Program delivery	3.1. Intervention providers' experience and skills	"I think that's what gives the CHAT its success and its credibility is because the mothers see the program being delivered by trusted health professionals..." S6 "And I think having registered nurses, child and family specialist nurses who know that client group very well. Having them maintain that professional contact with those clients has really been excellent." S2 "All those things that we've done through the years to bring us to the practitioners that we are today, I think is pivotal in being able to deliver the CHAT study, but also, we can feel what's going on for that woman listening to her verbal and vocal cues..." S9 "I guess other thing that I didn't mention that it was always a reflective practice. So we did something, what could we have done better? And then we changed it..." S10
	3.2. Mode of intervention delivery	"I definitely see that there's relevance if we were to do it with your more regional areas, where they have a lack of services. So rural and regional areas would benefit from such a service, as if it were done by telephone." S4 "I think some families prefer not having to go in for an appointment or they prefer to be able to ask a question over the phone or over an SMS...I can see it expanding and becoming part of the suite of services that we offer clients." S12
	3.3. Referral to other services	"She had myriad of issues going on and one phone call. We developed the rapport...then we got some services in for her...I do feel that some of it was life changing for some women." S9 "But the beauty of the telephone support was we would call the mothers, it was nurse initiated...we were the only source of their information about healthy lifestyle, mental health, or just a listening ear." S10
	3.4. Support and training for intervention providers	"The support within Healthy Beginnings through the partnership...the support we did receive from the district was, we had clinical supervision." S13 "I think, phone counselling skills and motivational interviewing skills would be really helpful for somebody who perhaps wasn't confident to be speaking to the parents and setting goals over the phone." S13

(Continues)

TABLE 3 (Continued)

Theme	Sub-Theme	Illustrative quote
4. Implementation/ Program delivered as planned		<p>“So I think having that team, that great team approach. And the project team has been great because there's people with lots of different skills and backgrounds. Having that team approach, I think, has been really crucial to the success.” S2</p> <p>“We certainly tried to keep the calls under 30 minutes, but there were certainly calls that took more than an hour. And it's not easy talking for an hour or listening and some people are easier at getting off the phone than others.” S10</p>
5. Opportunities for scale-up		<p>“I certainly think it's scalable to provide a telephone support service for new parents, providing specific tailored advice. Absolutely, it is. Yeah. And can include other means of communication, whether it be Zoom as well as telephone, SMS.” S2</p> <p>“The next generation of CHAT is to start to test the feasibility, of checking to integrate it or embed it in a different structure. I think CHAT hasn't explored that in detail so that's why it should be the next phase of implementation research to test it a bit more so we can understand the context better, organise the contents better.” S6</p>

3.9 | Mode of intervention delivery

Delivering interventions via telephone calls and text messages (mode of delivery) was convenient. Receiving advice via telephone calls or text messages was convenient to participants irrespective of weather conditions, transport options or time (Table 3 sub-theme 3.2).

3.10 | Referral to other services

Whilst the intervention providers were able to provide the intervention with ease due to their skills and background knowledge, addressing some of the participants' personal issues required the referral of participants to relevant services (Table 3 sub-theme 3.3). Services for which external referrals were made included personal needs such as for housing, violence, mental health and financial needs. Participants were not aware of those external services and intervention providers compiled a list of all services and external organisations to whom referrals were made.

3.11 | Support and training for intervention providers

The intervention providers felt very supported by the team members within the health promotion and project management who provided them with assistance when required (Table 3 sub-theme 3.4). Clinical supervision was provided to them on a regular basis by a senior nurse. The intervention providers' training received in motivational coaching gave them the confidence in setting goals with participants; training in the use of software systems equipped them with the skills required to document program delivery electronically. The intervention providers had debriefing and brainstorming sessions among themselves to discuss appropriate

courses of action and referrals for difficult situations that some participants encountered.

3.12 | Implementation/program delivered as planned

Trial collaborators attributed successful implementation to the influence and skills of the project team members including intervention providers, and their inclusiveness to obtain external input including from researchers (Table 3 theme 4). The flexible program delivery that fit in with participants' availability contributed to successful program delivery. Trial collaborators noted that the implementation of the program worked well especially since it was delivered by CFHNs with relevant experience.

Despite the successful implementation of the CHAT trial as planned, there were some barriers. A short timeframe to commence the program led to constraints with staff availability for the program, very limited funding of personnel costs and prolonged time taken for ethics approval. The CHAT trial was implemented within a trial environment and was subject to rigorous trial timeframes. Despite this, the program was able to recruit within three months of being funded and delivered interventions soon after. This was possible mainly due to the support provided by the host organisation and intra-organisational support. The host organisation assisted with rapid approval timeframes to recruit personnel, intra-organisational support-enabled utilisation of existing personnel/resources and secondment of skilled personnel. However, the ethics approval processes were rigorous and lengthy.

Although most calls were under 30 minutes, participant-driven telephone conversations with personal concerns led to longer call duration which in some instances were more than an hour. Frustration was expressed by intervention providers who were unable to reach participants and sometimes up to 10 telephone calls were made before a successful attempt to reach a participant. It was also difficult

to retain the engagement of some women after one year of child's birth due to return to work and/or other commitments.

3.13 | Opportunities for scale-up

Trial collaborators went into great detail about the potential for the program to be scaled up and the various possibilities (Table 3 theme 5). The majority of collaborators expressed the opinion that the next steps for the CHAT program would be to integrate into existing systems but that requires preparatory work and a champion with a good understanding for program success.

Options for scaling up included incorporating the Healthy Beginnings messages into existing child and family clinics with expanded capacity to address personal, mental and well-being needs; rolling it out to one or two local health districts first including to a remote or regional district prior to state-wide rollout; call centre to disseminate healthy beginnings messages; incorporate CHAT into the state-run Get Healthy Service⁴⁰ with appropriately trained personnel; incorporate CHAT into the child health information link within child and family health; hotline service offered on a needs basis; multiple modalities to communicate the messages; to offer an opt-in service based on the type of support needed; offer healthy beginnings, child and family health services via telephone as a strategy to retain experienced staff; engage and co-produce with a culturally and linguistically diverse community and indigenous community in order to enable access to resources for those communities. It was acknowledged that scaling up required additional funds and capacity building, it was important to envision what a future program would look like, argue for its cause, and make this a priority. Evaluation and implementation research was recommended to better understand the context and contents of CHAT (Table 3 theme 5).

4 | DISCUSSION

We set out to explore trial collaborators' perceptions of the process of delivering the CHAT trial that promoted healthy feeding practices and behaviours in very young children via telephone calls or text messages. Specifically, we explored whether the program was implemented as planned, contextual factors if any, facilitators and challenges of delivering interventions via telephone calls and text messages.

A key factor that contributed to the successful implementation and delivery of the program was the organisational and financial support provided by the host organisation from where the program operated. Trial collaborators used the term "success" to convey that the trial was implemented and delivered as planned. The CHAT trial was implemented as per the trial protocol and participants from eight hospital sites across NSW were recruited as intended.^{9,17} The establishment of strong partnerships also contributed to the successful implementation of the program. Partnerships were established with executives and health professionals from local health districts,

CFHNs, medical practitioners, researchers and university academics. Previous research has emphasised the importance of strong engagement as central to future sustainability and earlier frameworks have emphasised that translation of prevention interventions warrants an evidence base that includes informed opinions of stakeholders to ensure external validity and contextual relevance.^{19,41} Additionally, the partnerships between researchers and practitioners facilitate research co-production and enables the development of interventions that are compatible with end-user needs and contexts.⁴²

The prior experience of CFHNs working with new parents and families assisted with the successful delivery of intervention. Intervention providers' skillsets, empathy towards the intended audience and passion for healthy growth of children aided effective program delivery. Intervention providers were able to address participants' personal issues and initiate external referrals as appropriate. This finding resonates with a recent study that regarded CFHNs as experts in infant feeding, growth and professional support. The study acknowledges the complexity of the relationship between the intervention and the context within which it is delivered.^{43,44} This complexity is amplified in the case of the CHAT trial, where pregnant women and women with young children were dealing with major lifestyle changes. Additional training in motivational coaching enabled intervention providers to set goals with participants effectively. Intervention providers were able to support participants during the early stages of their child's growth due to the routine telephone contact with them. Intervention compliance in the early stages of a child's life was considered a positive step by the trial collaborators.^{45,46}

The interventions were delivered amidst a number of other influences and an array of contextual factors experienced by women. Trial collaborators shared their knowledge and experiences of the process of delivering the CHAT program. The collaborators articulated that women often faced competing priorities. These might include their well-being, mental health, personal needs such as housing, violence and financial difficulty. Telephone contact by health professionals provided an opportunity for the program participants to receive more than just the intervention. Participants were also able to resolve other personal concerns at the time the planned intervention calls were made. Participants who face domestic violence and other personal issues might not be able to take regularly scheduled phone calls or adhere to the program goals. This is a challenge that needs to be acknowledged in the scale-up of this program or for future programs.

In this program, participants who faced domestic violence or other issues were able to be referred to appropriate services for additional support. The opportunity for women to receive social support was an unintended benefit. Stakeholders including recipients of a community-based behavioural childhood obesity treatment program in the United Kingdom perceived a lack of support outside of the intervention context. Stakeholders conveyed the need for social support during intervention delivery and beyond, to maintain behaviour change beyond treatment.²⁰ Addressing CHAT trial participants' personal concerns at the time

of intervention delivery were important to keep participants engaged with the program and with the intervention. Evaluation of participants' perceptions of the CHAT trial demonstrated that participants valued the additional support and referrals to other support services (M. Ekambareshwar, H. Xu, C. Rissel, L. Baur, S. Taki, S. Mirshahi, et al, under review).

Trial collaborators commended the effective communication strategy and dissemination of information. Communication channels included committee meetings, email and newsletters. Communication both within the research team and with a broad range of external stakeholders is considered an effective engagement strategy.³³ For future scale-up, collaborators suggested that links are established with funding bodies and policymakers. The development of a logic model of the program to disseminate key messages of the CHAT trial was also proposed. The CHAT trial delivered key messages for breastfeeding at birth, "tummy time", the introduction of solids at six months, sleep and healthy habits. Logic models provide a means of describing the complex relationships between critical elements of implementation to capture key elements that can be used for future research and program scale-up.^{47,48}

Strong leadership demonstrated by the project lead was another factor that influenced successful implementation. The project lead along with the team provided policy and organisational perspective. However, trial collaborators perceived that the lack of policymaker representation in the committees was a shortcoming due to their capacity to influence policy decisions. Successful past research-practice partnerships have led to local, national and international health policy changes.⁴² It is paramount to have strategies in place that facilitate in-depth consultation with internal and external stakeholders, including those in government to avoid delays in the policy process and decision making.^{20,42,49,50}

Interventions delivered via telephone calls, text messages or mobile applications have led to improvements in behaviours related to healthy growth in children.^{10,16,51,52} Significant advantages of these modes of delivery are participants' access to the program and convenience. Intervention delivery via text messages and telephone calls is cost-effective and has the potential to reach large segments of the population.⁵³⁻⁵⁵ The CHAT trial recruited participants from a rural site in southern NSW. Intervention delivery via telephone calls and text messages would have relevance to rural and regional areas. Remote delivery of the CHAT program to the rural and remote population would be a cost-effective way of translating this research.

Evaluation of participants' perception of the CHAT program indicated that participants preferred to be able to choose between delivery modes, such as the choice of telephone, text messages, face-to-face or a blend of delivery modes based on need.²⁸ Furthermore, CHAT trial participants appreciated the flexibility of the program since telephone calls were scheduled to suit participants' convenience.²⁸ Professional evidence-based health promotion advice delivered flexibly via telephone calls or text message,

irrespective of weather conditions, transport options or time, was of significant benefit to participants.^{17,28}

Trial collaborators were optimistic about the potential for the program to be scaled up. The optimism expressed by collaborators in relation to scaling up is notable. Prevention intervention frameworks recommend a strong evidence base with many different types of evidence that include informed opinions of stakeholders for external validity and contextual relevance.¹⁹ The majority of collaborators recommended integrating the intervention into existing systems with appropriate preparation and program leadership. Collaborative partnerships with health and research partners, understanding of contextual issues and consumer involvement could lead to program expansion.

Collaborators recognised the potential for the program to be implemented at one or two local health districts initially prior to state-wide scale-up. Implementation of the program in the community including at a remote or regional district requires a co-production approach with the communities, such as with the culturally and linguistically diverse (CALD) community and the Indigenous community. This recommendation resonates with the recognised need for universal provision of infant nutrition practices, particularly to families living in areas of deprivation.⁵⁶ For optimal intervention engagement, it is essential to tailor interventions for improvements in infant feeding, active play and sedentary behaviours to suit the target population.^{42,56}

The experience and knowledge of the trial collaborators would be valuable in any subsequent scale-up of the program. Tools used to guide assessment of scaling up interventions recommend its completion by stakeholders as context-specific practice experts who were involved in the original intervention implementation.⁵⁷ Stakeholders' contribution as experts and as end users would be valuable in the testing of tool/s used for assessment of scale-up of this trial.

4.1 | Strengths and limitations

A key strength of this research was the documentation of insights of those closely associated with the planning, implementation and delivery of the program and during implementation. Interviews were conducted until data saturation was reached where no new information or new themes were realised. Qualitative interviews were conducted with trial collaborators at a time close to completion of the intervention phase, to minimise recall bias by collaborators regarding their experiences and perceptions.⁵⁸ Another strength of this research was the adaptation of qualitative interview questions from the CFIR framework due to its evidence generation in implementation and translational research.^{31,32} To eliminate bias during the analysis and coding of interview data, two researchers independently coded two interviews and had discussions prior to arriving at a coding framework.⁵⁸ A limitation of this study was that policymakers were not interviewed due to

the lack of representation of policymakers at the CHAT program committees.

5 | CONCLUSIONS

The CHAT trial delivered the Healthy Beginnings intervention that resulted in improved behaviours for infant feeding, active play and sedentary behaviours to achieve a healthy weight gain in infants to prevent the risk of overweight in children. The findings of this evaluation demonstrate that the involvement of key stakeholders from early planning stages through to implementation of the program, and the partnerships that evolved contributed significantly to the successful implementation of the program. Organisational and financial support provided by the host organisation facilitated the implementation of the program. Other facilitators include the program personnel's optimal communication strategy and inclusive outlook to keep stakeholders well-informed. The trial was delivered alongside several contextual factors experienced by participants. These factors included participants' mental well-being, personal needs such as housing, domestic violence and financial difficulty. An unintended benefit to participants from this program is the social support provided to them for their well-being. Intervention delivery via telephone calls and text messages enabled easy access to the program. Interventions were delivered flexibly to suit participants' availability. The program would significantly benefit the rural and remote populations. Most importantly, the program has the potential to be scaled up through integration into existing services and gradual expansion prior to state-wide rollout, with appropriate preparation and program leadership.

CONSENT FOR PUBLICATION

Prior to the commencement of interviews, written consent was obtained via email and recorded. This manuscript was sent to all stakeholders who were interviewed for review and feedback, in order that no information to which they do not give consent will be published.

ACKNOWLEDGEMENTS

The authors would like to thank all stakeholders for consenting to be interviewed, for their time and for sharing their experiences and perceptions. The authors would like to thank the CHAT program project coordinator.

CONFLICT OF INTERESTS

The authors have declared no conflicts of interest for this article.

AUTHORS' CONTRIBUTIONS

This study was conducted as part of ME's doctoral research of process evaluation of the CHAT RCT. ME conceived the evaluation approach, conducted all telephone interviews, undertook the analysis and wrote the first draft manuscript. ME coded all interview data. ST independently applied the coding frame to two interviews. ME drafted the manuscript, CR, SM and ST reviewed the first draft and

provided comments, all authors critically edited and approved the final version. LMW, CR and LAB conceived the CHAT RCT.

ETHICS APPROVAL

The CHAT RCT was registered on 21 October 2016 with the Australian Clinical Trial Registry (ACTRN12616001470482p). This research was approved by The University of Sydney Human Research Ethics Committee (project approval number 2020/649). Prior to the interviews, written informed consent was obtained from each participant.

DATA AVAILABILITY STATEMENT

Interview data will be made available upon reasonable request. All other data generated or analysed during this study are included in this published article.

ORCID

Mahalakshmi Ekambareshwar  <https://orcid.org/0000-0003-1936-7120>

Chris Rissel  <https://orcid.org/0000-0002-2156-8581>

REFERENCES

1. Baur LA, Garnett SP. Early childhood – a critical period for obesity prevention. *Nat Rev Endocrinol*. 2019;15(1):5–6.
2. Bauman A, Rutter H, Baur L. Too little, too slowly: international perspectives on childhood obesity. *Public Health Res Pract*. 2019;29(1):e2911901.
3. World Health Organization. Fact sheet – Obesity and Overweight key facts. World Health Organization; 2021 [cited 10 July 2021]. Available from: <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>.
4. World Health Organization. Fact sheet - Infant and young child feeding. World Health Organization; 2021 [cited 9 June 2021]. Available from: <https://www.who.int/news-room/fact-sheets/detail/infant-and-young-child-feeding>.
5. Australian Institute of Health and Welfare. Overweight and obesity: an interactive insight 2020 [cited 2021 12 September 2021]. v5.0 [Available from: <https://www.aihw.gov.au/reports/overweight-obesity/overweight-and-obesity-an-interactive-insight/contents/prevalence#children>].
6. Wen LM, Baur LA, Rissel C, Wardle K, Alperstein G, Simpson JM. Early intervention of multiple home visits to prevent childhood obesity in a disadvantaged population: a home-based randomised controlled trial (Healthy Beginnings Trial). *BMC Public Health*. 2007;7:76.
7. Campbell KJ, Hesketh KD. Strategies which aim to positively impact on weight, physical activity, diet and sedentary behaviours in children from zero to five years. A systematic review of the literature. *Obes Rev*. 2007;8(4):327–38.
8. Denney-Wilson E, Laws R, Russell CG, Ong KL, Taki S, Elliot R, et al. Preventing obesity in infants: the Growing healthy feasibility trial protocol. *BMJ Open*. 2015;5(11):e009258.
9. Wen LM, Rissel C, Baur LA, Hayes AJ, Xu H, Whelan A, et al. A 3-Arm randomised controlled trial of Communicating Healthy Beginnings Advice by Telephone (CHAT) to mothers with infants to prevent childhood obesity. *BMC Public Health*. 2017;17(1):79.
10. Wen LM, Rissel C, Xu H, Taki S, Buchanan L, Bedford K, et al. Effects of telephone and short message service support on infant feeding practices, "Tummy Time," and screen time at 6 and 12 months of child age. *JAMA Pediatrics*. 2020;174(7):657.

11. Hayes A, Lung T, Wen LM, Baur L, Rissel C, Howard K. Economic evaluation of "healthy beginnings" an early childhood intervention to prevent obesity. *Obesity* (Silver Spring). 2014;22(7):1709–15.
12. Daniels LA, Wilson JL, Mallan KM, Mihrshahi S, Perry R, Nicholson JM, et al. Recruiting and engaging new mothers in nutrition research studies: lessons from the Australian NOURISH randomised controlled trial. *Int J Behav Nutr Phys Act*. 2012;9(1):129.
13. Australian Communications and Media Authority Communications Report 2018–19. Australian Communications and Media Authority; 2020. p. 176 [cited 2 August 2021]. Available from: <https://www.acma.gov.au/sites/default/files/2021-02/Communications%20report%202018-19.pdf>.
14. Gallegos D, Russell-Bennett R, Previte J, Parkinson J. Can a text message a week improve breastfeeding? *BMC Preg Childbirth*. 2014;14(1):2.
15. van der Veek SMC, de Graaf C, de Vries JHM, Jager G, Vereijken CMJL, Weenen H, et al. Baby's first bites: a randomized controlled trial to assess the effects of vegetable-exposure and sensitive feeding on vegetable acceptance, eating behavior and weight gain in infants and toddlers. *BMC Pediatr*. 2019;19(1):266.
16. Ekambareshwar M, Ekambareshwar S, Mihrshahi S, Wen L, Baur L, Laws R, et al. Process evaluations of early childhood obesity prevention interventions delivered via telephone or text messages: a systematic review. *Int J Behav Nutr Phys Act*. 2021;18(1):10.
17. Ekambareshwar M, Mihrshahi S, Wen LM, Taki S, Bennett G, Baur LA, et al. Facilitators and challenges in recruiting pregnant women to an infant obesity prevention programme delivered via telephone calls or text messages. *Trials*. 2018;19(494):1–9.
18. Sandelowski M, Leeman J. Writing usable qualitative health research findings. *Qual Health Res*. 2012;22(10):1404–13.
19. Swinburn B, Gill T, Kumanyika S. Obesity prevention: a proposed framework for translating evidence into action. *Obes Rev*. 2005;6(1):23–33.
20. Staniford LJ, Breckon JD, Copeland RJ, Hutchison A. Key stakeholders' perspectives towards childhood obesity treatment: A qualitative study. *J Child Health Care*. 2011;15(3):230–44.
21. Song M, Sandelowski M, Happ MB. *SAGE Handbook of Mixed Methods in Social & Behavioral Research*. SAGE Publications, Inc. 2. 2010 [cited 2021 May 19]. Available from: <https://methods.sagepub.com/book/sage-handbook-of-mixed-methods-social-behavioral-research-2e>
22. Li Ming W, Rissel C, Baur LA, Hayes AJ, Xu H, Whelan A, et al. Arm randomised controlled trial of Communicating Healthy Beginnings Advice by Telephone (CHAT) to mothers with infants to prevent childhood obesity. *BMC Public Health*. 2017;17(1):79.
23. Steckler AB, Linnan L. *Process evaluation for public health interventions and research*. San Francisco: Jossey-Bass; 2002.
24. Moore GF, Audrey S, Barker M, Bond L, Bonell C, Hardeman W, et al. Process evaluation of complex interventions: Medical Research Council guidance. *BMJ*. 2015;350(Mar 19 6):h1258.
25. Grant A, Treweek S, Dreischulte T, Foy R, Guthrie B. Process evaluations for cluster-randomised trials of complex interventions: a proposed framework for design and reporting. *Trials*. 2013;14(1):15.
26. Bauman A, Nutbeam D. *Evaluation in a Nutshell*. North Ryde, NSW: McGraw-Hill Education Australia; 2013.
27. Ekambareshwar M, Mihrshahi S, Wen LM, Taki S, Bennett G, Baur LA, et al. Facilitators and challenges in recruiting pregnant women to an infant obesity prevention programme delivered via telephone calls or text messages. *Trials*. 2018;19(1):1–9.
28. Ekambareshwar M, Taki S, Mihrshahi S, Baur LA, Rissel C, Wen LM. Participant experiences of an infant obesity prevention program delivered via telephone calls or text messages. *Healthcare*. 2020;8(1):60.
29. Wen LM. Effectiveness of an early intervention on infant feeding practices and "Tummy Time". *Arch Pediatr Adolesc Med*. 2011;165(8):701.
30. Liamputtong P. *Qualitative research methods*, 4th edn. South Melbourne, Vic: Oxford University Press; 2012.
31. Damschroder LJ, Reardon CM, Sperber N, Robinson CH, Fickel JJ, Oddone EZ. Implementation evaluation of the Telephone Lifestyle Coaching (TLC) program: organizational factors associated with successful implementation. *Transl Behav Med*. 2017;7(2):233–41.
32. Vidgen HA, Love PV, Wutzke SE, Daniels LA, Rissel CE, Innes-Hughes C, et al. A description of health care system factors in the implementation of universal weight management services for children with overweight or obesity: case studies from Queensland and New South Wales, Australia. *Implement Sci*. 2018;13(1):1–15.
33. Beames JR, Lingam R, Boydell K, Calear AL, Torok M, Maston K, et al. Protocol for the process evaluation of a complex intervention delivered in schools to prevent adolescent depression: the Future Proofing Study. *BMJ Open*. 2021;11(1):e042133.
34. Frey BB. *The Sage encyclopedia of educational research, measurement, and evaluation*. Thousand Oaks, California: SAGE Publications, Inc.; 2018.
35. Malterud K, Siersma VD, Guassora AD. Sample size in qualitative interview Studies. *Qual Health Res*. 2016;26(13):1753–60.
36. Braun V, Clarke V. To saturate or not to saturate? Questioning data saturation as a useful concept for thematic analysis and sample-size rationales. *Qual Res Sport Exerc Health*. 2021;13(2):201–16.
37. Hennink MM, Kaiser BN, Marconi VC. Code saturation versus meaning saturation. *Qual Health Res*. 2017;27(4):591–608.
38. Given LM. *The SAGE encyclopedia of qualitative research methods*. California: Thousand Oaks; 2008.
39. Braun V, Clarke V. *Successful qualitative research: a practical guide for beginners*. London: SAGE Publications Ltd; 2013.
40. O'Hara BJ, Phongsavan P, Venugopal K, Eakin EG, Eggins D, Caterson H, et al. Effectiveness of Australia's Get Healthy Information and Coaching Service[®]: translational research with population wide impact. *Prev Med*. 2012;55(4):292–8.
41. Jenkins E, Lowe J, Allender S, Bolton KA. Process evaluation of a whole-of-community systems approach to address childhood obesity in western Victoria, Australia. *BMC Public Health*. 2020;20(1):1–19.
42. Wolfenden L, Yoong SL, Williams CM, Grimshaw J, Durrheim DN, Gillham K, et al. Embedding researchers in health service organizations improves research translation and health service performance: the Australian Hunter New England Population Health example. *J Clin Epidemiol*. 2017;85:3–11.
43. Grant A, Bugge C, Wells M. Designing process evaluations using case study to explore the context of complex interventions evaluated in trials. *Trials*. 2020;21(1):1–10.
44. Cheng H, Eames-Brown R, Tutt A, Laws R, Blight V, McKenzie A, et al. Promoting healthy weight for all young children: a mixed methods study of child and family health nurses' perceptions of barriers and how to overcome them. *BMC Nursing*. 2020;19(1):1–14.
45. Daniels SR, Hassink SG. The role of the pediatrician in primary prevention of obesity. *Pediatrics*. 2015;136(1):e275–e92.
46. Hennessy M. *Obesity prevention during early life: developing the evidence base to maximise the effectiveness of interventions delivered by health professionals*. Galway, Ireland: National University of Ireland; 2020.
47. Smith JD, Li DH, Rafferty MR. The Implementation Research Logic Model: a method for planning, executing, reporting, and synthesizing implementation projects. *Implement Sci*. 2020;15(1):1–12.
48. Van Koperen TM, Jebb SA, Summerbell CD, Visscher TLS, Romon M, Borys JM, et al. Characterizing the EPODE logic model: unravelling the past and informing the future. *Obes Rev*. 2013;14(2):162–70.
49. Clarke B, Kwon J, Swinburn B, Sacks G. Understanding the dynamics of obesity prevention policy decision-making using a systems perspective: a case study of Healthy Together Victoria. *PLoS One*. 2021;16(1):e0245535.

50. Esdaile E, Owen KB, Xu H, Baur LA, Rissel C, Wen LM. Strong support for broad policies to prevent childhood obesity among mothers in New South Wales, Australia. *Health Promotion J Austr.* 2021;32(2):197–207.
51. Litterbach EK, Russell CG, Taki S, Denney-Wilson E, Campbell KJ, Laws RA. Factors influencing engagement and behavioral determinants of infant feeding in an mHealth program: qualitative evaluation of the growing healthy program. *JMIR mHealth uHealth.* 2017;5(12):e196. <https://doi.org/10.2196/mhealth.8515>
52. Jiang H, Li M, Wen LM, Baur LA, He G, Ma X, et al. A short message service intervention for improving infant feeding practices in shanghai, china: planning, implementation, and process evaluation. *JMIR mHealth uHealth.* 2018;6(10):e11039.
53. Nichols MS, Reynolds RC, Waters E, Gill T, King L, Swinburn BA, et al. Community-based efforts to prevent obesity: Australia-wide survey of projects. *Health Prom J Austr.* 2013;24(2):111–7.
54. Graves N, Barnett AG, Halton KA, Veerman JL, Winkler E, Owen N, et al. Cost-effectiveness of a telephone-delivered intervention for physical activity and diet. *PLoS One.* 2009;4(9):e7135.
55. Brown V, Tan EJ, Hayes A, Baur L, Campbell K, Taylor R, et al. Cost comparison of five Australasian obesity prevention interventions for children aged from birth to two years. *Pediatr Obesity.* 2020;15(12):12684.
56. Narzisi K, Simons J. Interventions that prevent or reduce obesity in children from birth to five years of age: a systematic review. *J Child Health Care.* 2021;25(2):320–34.
57. Milat A, Lee K, Conte K, Grunseit A, Wolfenden L, Van Nassau F, et al. Intervention Scalability Assessment Tool: a decision support tool for health policy makers and implementers. *Health Res Policy Syst.* 2020;18(1):1–17.
58. Khare SR, Vedel I. Recall bias and reduction measures: an example in primary health care service utilization. *Fam Pract.* 2019;36(5):672–6.

How to cite this article: Ekambareshwar M, Taki S, Mirshahi S, Baur L, Wen LM, Rissel C. Trial collaborators' perceptions of the process of delivering Healthy Beginnings advice via telephone calls or text messages. *Health Promot J Austral.* 2022;33:810–828. <https://doi.org/10.1002/hpja.562>

APPENDIX A

INTERVIEW GUIDE FOR STAKEHOLDERS

STAKEHOLDERS' PERCEPTIONS OF THE COMMUNICATING HEALTHY BEGINNINGS ADVICE BY TELEPHONE TRIAL

Interview guide: Communicating Healthy Beginnings Advice by Telephone (CHAT)

Thank you for taking the time to talk with me today. Is now still a good time for us to talk?

If no, arrange another time.

I will start by giving a brief background of myself and the purpose of the interview.

Background of myself

I am a PhD student with the University of Sydney conducting a process evaluation of the Communicating Healthy Beginnings

Advice by Telephone currently trialling in New South Wales. This process evaluation research and interview is collaborative work with CHAT and will also form part of my doctoral degree.

Purpose of the interview

The purpose of the interview is to reflect on the planning, implementation and outcome phases of the CHAT trial that you were involved with. I hope to find out what worked well, and what did not work well, and any lessons learned from it from your perspective. The findings from this study will be used to enhance CHAT and other early childhood obesity preventions delivered via telephone calls or text messages, for potential future scaling up.

The questions I will ask will be based on:

- Your **role and responsibilities** in the CHAT trial
- Your feedback on **planning phase** of the CHAT trial
- Your experiences during the **implementation phase** of the CHAT trial
- Your insights into the **evaluation phase and lessons for future scaling up** of the CHAT trial

If you don't feel comfortable answering any of the questions, please don't feel obliged to. And if any of my questions are unclear, please ask me to clarify them. The interview may take about 45 minutes.

Commence recording

Have you received the Participant Information Statement and Participant Consent Form that have been emailed to you? Do you consent to proceed with the interview and are you happy for me to audio record the interview for the purpose of analysis? We will not identify any individuals when reporting our findings.

Section 0: Participant demographics

Date:

Full name:

Your current position:

Section 1: Role and responsibilities

1. To start off would you please describe your usual role within the organisation?
2. How long have you been involved with the CHAT trial?
3. Would you please describe your role in relation to the CHAT trial?

Section 2: Decision to implement CHAT trial (Planning phase)

I am now interested to hear your perspectives of the planning stage of the trial.

4. How did your setting/organization become involved in implementing the CHAT trial?
5. What are your views on the decision to implement the CHAT trial in your setting?
6. What are your overall thoughts on implementing the CHAT trial and Healthy Beginnings interventions in your setting?
7. In what way if any, has your workplace influenced the implementation of the CHAT trial?

8. Would you please describe expected costs and any *unexpected* costs that were incurred during the implementation of the CHAT trial? Were adequate resources available?

Section 3: Implementation support of the CHAT trial (Implementation phase)

Thank you for your insights so far. I would now like to speak about your experiences of the implementation supports during the implementation stage of the CHAT trial.

9. Based on your experience with the implementation of the CHAT trial, what do you think are key attributes of the implementer (main person responsible for the CHAT trial) to lead a trial of this nature?
10. What level of information/training was provided to the intervention provider (personnel who delivered the intervention) to support the implementation of the interventions? Was this helpful in your opinion?
11. Apart from the 'implementation team' were there other people within your setting/organisation who were champions of implementing the CHAT trial?
12. Would you please describe the level of support provided by people outside of your setting/organisation who helped with the implementation of the CHAT trial? What were their contributions?
13. How did you and your colleagues typically communicate within your setting about the CHAT trial?
14. In what way, if any, did you communicate about the intervention to external stakeholders?
15. Were there any other high priority activities taking place at the same time as the implementation of the CHAT trial that had an impact on CHAT trial?
16. How would you describe the planning process used to implement the CHAT trial in your setting/organisation?

Thank you for raising these interesting points on the implementation of the CHAT trial. I will now move to obtain your insights into the outcomes of the trial

Section 4: Outcomes of the CHAT trial and lessons for future (Evaluation phase)

17. How complicated was it to implement the CHAT trial in your setting/organisation?
18. What were some of the goals that were set within your setting/organisation related to the implementation of the CHAT trial?
19. In what ways do you think the CHAT trial met the needs and preferences of the target audience? To what extent?
20. Do you think telephone calls and text messages were effective modes of delivering Healthy Beginnings messages?

I would now like to ask you a few questions about lessons for scaling up the intervention to a wider setting.

21. What are your views on the feasibility of scaling up the CHAT trial to a wider setting?
22. What are the main changes that would need to be made to the CHAT trial so it could be implemented in a wider setting?

Section 5: Overall feedback

Thank you for giving us all these interesting insights. After asking you many specific questions about the CHAT trial intervention, I would like to give you the opportunity to give some more general feedback on the trial.

23. What recommendations would you give a researcher or policymaker planning to deliver a similar trial?
24. Was there anything you think should have been done differently in terms of intervention delivery and support to mothers with children for child obesity prevention?
25. What message/s would you pass on to policymakers and other researchers planning future trials for early childhood obesity prevention?
26. Is there anything else you would like to share about the CHAT trial and the interventions?

Thank you for taking the time to give me all this information on your trial.

<End interview>

APPENDIX B

INTERVIEW GUIDE FOR INTERVENTION PROVIDERS

INTERVENTION PROVIDERS' PERCEPTIONS OF THE COMMUNICATING HEALTHY BEGINNINGS ADVICE BY TELEPHONE TRIAL

Interview guide: Communicating Healthy beginnings Advice by Telephone (CHAT)

Thank you for taking the time to talk with me today. Is now still a good time for us to talk?

If no, arrange another time.

I will start by giving a brief background of myself and the purpose of the interview.

Background of myself

I am a PhD student with the University of Sydney conducting a process evaluation of the Communicating Healthy Beginnings Advice by Telephone currently trialling in New South Wales. This process evaluation research and interview is collaborative work with CHAT and will also form part of my doctoral degree.

Purpose of the interview

The purpose of the interview is to reflect on the planning, implementation and outcome phases of the CHAT trial that you were involved with. I hope to find out what worked well, and what did not work well, and any lessons learned from it from your perspective. The findings from this study will be used to enhance CHAT and other

early childhood obesity preventions delivered via telephone calls or text messages, for potential future scaling up.

The questions I will ask will be based on:

- Your **role and responsibilities** in the CHAT trial
- Your feedback on the **planning phase** of the CHAT trial
- Your experiences during the **implementation phase** of the CHAT trial
- Your insights into the **evaluation phase and lessons for future scaling up** of the CHAT trial

If you don't feel comfortable answering any of the questions, please don't feel obliged to. And if any of my questions are unclear, please ask me to clarify them. The interview may take about 45 minutes.

Commence recording

Have you received the Participant Information Statement and Participant Consent Form that have been emailed to you? Do you consent to proceed with the interview and are you happy for me to audio record the interview for the purpose of analysis? We will not identify any individuals when reporting our findings.

Section 0: Participant demographics

Date:

Full name:

Your current position:

Section 1: Role and responsibilities

1. To start off would you please describe your usual role within the organisation?
2. How long have you been involved with the CHAT trial?
3. Would you please describe your role in relation to the CHAT trial?

Section 2: Decision to implement CHAT trial (planning phase)

I am now interested to hear your perspectives of the planning stage of the trial.

4. What are your overall thoughts on implementing the CHAT trial and Healthy Beginnings interventions in your setting?
5. In what way if any, has your workplace influenced the implementation of the CHAT trial?

Section 3: Implementation support of the CHAT trial (implementation phase)

Thank you for your insights so far. I would now like to speak about your experiences of the implementation supports during the implementation stage of the CHAT trial.

6. Based on your experience with the implementation of the CHAT trial, what do you think are key attributes of the implementer (main person responsible for the CHAT trial) to lead a trial of this nature?

7. What level of support did you receive from CHAT trial leaders/senior management to deliver the intervention? How helpful were they in your opinion?
8. How did your prior experience/training in providing support to mothers with infants prepare you to deliver Healthy Beginnings interventions via telephone calls or text messages? Were there any gaps or areas where you felt more training would be useful?
9. What were some of the additional personal qualities/attributes that were required to deliver Healthy Beginnings messages?
10. How confident did you and your work colleagues feel about delivering the intervention/s? Why?
11. Apart from the 'implementation team' were there other people within your setting/organisation who were champions of implementing the CHAT trial?
12. Would you please describe the level of support provided by people outside of your setting/organisation who helped with the implementation of the CHAT trial? What were their contributions?
13. How did you and your colleagues typically communicate within your setting about the CHAT trial?
14. In what way, if any, did you communicate about the intervention to external stakeholders?
15. Were there any other high priority activities taking place at the same time as the implementation of the CHAT trial that had an impact on CHAT trial?

Thank you for raising these interesting points on the implementation of the CHAT trial. I will now move to obtain your insights into the outcomes of the trial

Section 4: Outcomes of the CHAT trial and lessons for future (evaluation phase)

16. How complicated was it to implement the CHAT trial in your setting/organisation?
17. What were some of the goals that were set within your setting/organisation related to the implementation of the CHAT trial?
18. In what ways do you think the CHAT trial met the needs and preferences of the target audience? To what extent?

I would now like to ask you a few questions about lessons for scaling up the intervention to a wider setting

19. What are your views on the feasibility of scaling up of the CHAT trial to a wider setting?
20. What are the main changes that would need to be made to the CHAT trial so it could be implemented in a wider setting?

Section 5: Overall feedback

Thank you for giving us all these interesting insights. After asking you many specific questions about the CHAT trial intervention, I would like to give you the opportunity to give some more general feedback on the trial.

21. What recommendations would you give a researcher or policymaker planning to deliver a similar trial?
22. Was there anything you think should have been done differently in terms of intervention delivery and support to mothers with children for child obesity prevention?
23. What message/s would you pass on to policymakers and other researchers planning future trials for early childhood obesity prevention?

24. Is there anything else you would like to share about the CHAT trial and the interventions?

Thank you for taking the time to give me all this information on your trial.

<End interview>

APPENDIX C

QUALITY ASSESSMENT AGAINST CONSOLIDATED CRITERIA FOR REPORTING QUALITATIVE STUDIES (COREQ)

No.	Item	Question	Description
Domain 1: Research team and reflexivity			
<i>Personal characteristics</i>			
1.	Interviewer	Which author(s) conducted the interviews?	First author (ME) conducted interviews
2.	Credentials	What were the researchers' credentials?	ME: MHS (Hons) ST: PhD SM: PhD LAB: MBBS, PhD CR: PhD LMW: PhD
3.	Occupation	What was their occupation at the time of the study?	ME: Doctoral candidate ST: Postdoctoral Fellow SM: Senior Research Fellow LAB: Professor CR: Director LMW: Manager
4.	Gender	Was the researcher male or female?	ME: Female ST: Female SM: Female LAB: Female CR: Male LMW: Male
5.	Experience and training	What experience or training did the researcher have?	ME: Formal training in qualitative methods; completed graduate-level coursework in qualitative research ST: Completed thesis studies on qualitative inquiry SM: Conducts original research in qualitative inquiry LAB: Clinical researcher with some experience in qualitative inquiry CR: Leads several qualitative research studies LMW: Leads several qualitative research studies
<i>Relationship with stakeholders</i>			
6.	Relationship established	Was a relationship established prior to study commencement?	Interviews were conducted via zoom and there were no pre-existing relationships between participants and the interviewer
7.	Participant knowledge of the interviewer	What did the participants know about the researcher?	Stakeholders were not given information about the interviewer beyond a brief introduction in an invitation email and in the participant information sheet provided with the email that described the interviewer's role in this sub-study
8.	Interviewer characteristics	What characteristics were reported about the interviewer?	None

APPENDIX C (Continued)

No.	Item	Question	Description
Domain 2: Study design			
<i>Theoretical framework</i>			
9.	Methodological orientation	What methodological orientation was stated to underpin the study?	Qualitative description
<i>Participant Selection</i>			
10.	Sampling	How were participants selected?	Expert sampling
11.	Method of approach	How were participants approached?	By email
12.	Sample size	How many participants were in the study?	14
13.	Non-participation	How many people refused to participate or dropped out? Reasons?	20 stakeholders were approached via email and 14 expressed interest to participate via email. 14 stakeholders were interviewed
<i>Setting</i>			
14.	Setting of data collection	Where was the data collected?	Stakeholders' choice of location since the interviews were conducted via Zoom
15.	Presence of non-participants	Was anyone else present besides the participants and researchers?	None at the researcher's end, unsure of who else was present at the participants' end
16.	Description of sample	What are the important characteristics of the sample?	Health professionals including nurses, dietitians, medical practitioners, researchers, executives who were part of the management committee of the CHAT trial and who agreed to participate in this sub-study
<i>Data collection</i>			
17.	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Yes. The guide was improved/refined throughout pilot testing and during the data collection process
18.	Repeat interviews	Were repeat interviews carried out?	No
19.	Audio/visual recording	Did the researcher use audio or visual recording to collect the data?	Interviews were conducted via Zoom and audio-recorded
20.	Field notes	Were field notes made during and/or after the interviews?	Yes. Field notes were made during and immediately following interviews
21.	Duration	What was the duration of the interviews?	Approximately 40 minutes
22.	Data saturation	Was data saturation discussed?	Yes
23.	Transcripts returned	Were transcripts returned to participants for comment or correction?	No
Domain 3: Analysis and findings			
<i>Data analysis</i>			
24.	Number of data coders	How many coders coded the data?	Two researchers (ME and ST) discussed codes and categories after ME coded two transcripts, refined them prior to analysis of the remaining transcripts. Following this, ME coded the remaining data
25.	Description of the coding tree	Did the authors provide a description of the coding tree?	Yes
26.	Derivation of themes	Were themes identified in advance or derived from the data?	Derived from the data
27.	Software	What software, if applicable, was used to manage the data?	Microsoft Word
28.	Participant checking	Did participants provide feedback on the findings?	No
<i>Reporting</i>			
29.	Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified?	Yes, some quotations were included within the manuscript and all quotations in a separate table. Quotations were identified by numbers allocated to stakeholders

APPENDIX C (Continued)

No.	Item	Question	Description
30.	Data and findings consistent	Was there consistency between the data presented and the findings?	Yes
31.	Clarity of major themes	Were major themes clearly presented in the findings?	Yes
32.	Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Both major and minor themes were discussed