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Research

Transforming maternal, infant and young child nutrition in Southeastern Madagascar: A case study on the role of the baby-friendly community initiative

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Background

Achieving optimal Maternal, Infant and Young Child Nutrition (MIYCN) practices remains challenging in many Low- and Middle-Income Countries, and Madagascar is no exception. A UNICEF report revealed little improvement in the diets of young children over the past decade. The Baby Friendly Community Initiative (BFCI), which extends facility-based support for breastfeeding to a more comprehensive community-level, is a relatively recent innovation to improve IYCN practices. In Madagascar, in collaboration with Madagascar's Ministry of Public Health and Office of National Nutrition, the Adventist Development and Relief Agency (ADRA) was the first non-governmental organization (NGO) to pilot BFCI, as part of its five-year multisectoral project called FIOVANA.

Objective

The objectives of this case study were to document and share key factors, best practices, lessons learned, and key stakeholders associated with the rollout of the BFCI in Madagascar and its effect on MIYCN, and associated health-seeking and Water, Sanitation, and Hygiene (WASH) behaviors.

Methods

A two-phased qualitative case study, led by MIYCN experts, was conducted. Phase 1 (March-June 2023) included Key Informant Interviews (KIIs) to assess training content, quality, and short-term changes in policies and potentially, behaviors. Phase 2 (September-October 2023), six months after BFCI cascade training, examined community-level adoption and staff perceptions of changes in MIYCN, health, and WASH behaviors in two districts (Mananjary and Farafangana). Data from key ADRA staff; stakeholders, including health workers; and community members were analyzed using ATAS.ti.

Results

A total of forty-seven (47) KIIs were conducted in both phases. Fifty-seven percent (57%) of the participants were female, with a mean age of 42 years. The review of training topics aligned with BFCI, and qualitative evaluations showed improved capacity among health workers and an impression of enhanced maternal knowledge in the community. This appeared to lead to positive behavioral changes, such as the introduction of diverse foods into children's diets, antenatal and postnatal care seeking, and WASH behaviors. Strong collaboration with the Ministry of Public Health Nutrition division at different levels contributed to the program's success. Additionally, community groups, such as mother-to-mother support groups, were vital in disseminating key messages across the districts. Key gaps were the absence of a clear BFCI monitoring and evaluation plan and explicit guidance on how communities would attain certification.

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Conclusions

In conclusion, the FIOVANA project made significant strides in BFCI implementation in Madagascar, fostering cross-sector collaboration and creating community advocates, resulting in stakeholder-perceived positive changes in MIYCN, health-seeking, and WASH behaviors. This offers promise that overcoming the identified gaps in BFCI and scaling it up could significantly contribute to optimal child feeding, nutrition, and health-related outcomes in similar areas in Madagascar.

INTRODUCTION

Achieving optimal Maternal Infant and Young Child Nutrition (MIYCN) practices has been challenging in many Low- and Middle-Income Countries (LMICs) (Bazzano et al., 2017; Black et al., 2013), and Madagascar is no exception. A recent publication from UNICEF, with trend data from 50 countries, showed that children's diets have remained unchanged or seen little improvement in the last decade. (UNICEF, 2021). The percentage of children 6-23 months with a minimally diverse or acceptable diet has remained alarmingly low in Madagascar, around 25% and 21% respectively, and exclusive breastfeeding rates improved only slightly over the past decade from 42% to 52% (UNICEF, 2021). To overcome the failures in the way children are fed, and ensure they thrive, providing them a better chance for longer-term survival, optimal growth, and development (Bhutta et al., 2013; Bhutta et al., 2008), and future productivity (Victora et al., 2008), we need to prioritize interventions in the "first 1000 days" period from pregnancy to 2 years of life (Black et al., 2013).

Numerous studies have proven the benefits of breastfeeding for the mother, infant and child. (Bhandari et al., 2003; Brown et al., 1989; Heinig & Dewey, 1996; Popkin et al., 1990) with recent studies establishing the longer-term benefits even to adulthood (Victora et al., 2008). Optimal maternal and child nutrition remains a challenge, underscoring the need for strengthened health systems, policies, and programs that create an enabling environment for women and families.

The Baby-Friendly Hospital Initiative (BFHI) aims to provide health facilities with a framework for addressing practices that have a negative impact on breastfeeding. It has been implemented or attempted in multiple facilities in over 150 countries (*UNICEF*, n.d. *Baby-Friendly Hospital Initiative*) over three decades (Abdul et al., 2024; Bosnjak et al., 2004; Braun et al., 2003; Bueno et al., 2023; Lamounier et al., 2019; World Health Organization and UNICEF 2009; Wouk et al., 2017). It has been successful in improving breastfeeding early in infants' lives (Carvalho et al., 2016; Kivlighan et al., 2020; Lojander et al., 2022; Naylor, 2001; Pérez-Escamilla et al., 2016). However, its impact is limited as it is mainly health facility-based and unable to deal effectively with sociocultural factors in the community (Coutinho et al., 2005; Pérez-Escamilla et al., 2016) and infant feeding practices at later stages in the infant's life. Innovative approaches, including community-based approaches that create enabling environments and positive support from those who surround and have influence on a mother's behaviors related to her own and her child's diet, can help improve MIYCN (Aidam et al., 2020; Pérez-Escamilla et al., 2016).

The Baby-Friendly Community Initiative (BFCI), which builds on step 10 of the BFHI (Aryeetey & Dykes, 2018; Gomez-Pomar & Blubaugh, 2018; The Coalition for Improving Maternity Services 2007) by creating a comprehensive support system at the community level is one such approach that has demonstrated improvements in infant and young child nutrition (IYCN) improvements (Kavle et al., 2019; Kimani-Murage et al., 2021; Maingi et al., 2018; World Health Organization and UNICEF, 2009; *World Bank,* n.d.).

When fully implemented, the BFCI is a multisectoral approach that integrates MIYCN practices with nutrition-sensitive interventions, such as community gardens; water, sanitation, and hygiene (WASH); and early childhood development (ECD) (Kavle et al., 2019; Kimani-Murage et al., 2021; Maingi et al., 2018). However, published data on the effects of its multisectoral impacts are limited. Thus, the present study was designed to 1) share key factors, best practices, and stakeholders associated with the rollout of the BFCI in Southern Madagascar and 2) show the effect of BFCI on MIYCN, health, and WASH behaviors, drawing on qualitative data from government representatives and staff engaged in the initiative, as well as perspectives from the community.

METHODS

BFCI IMPLEMENTATION AS PART OF ADRA FIOVANA PROJECT

In response to substantial food and nutrition insecurity in Madagascar, the Adventist Development and Relief Agency (ADRA) implemented FIOVANA,(meaning 'change') an integrated five-year Resilience Food Security Activity project (October 2019 to September 2024), funded by the United States Agency for International Development (USAID) (FIOVANA 2019). The project covered six districts in two targeted regions—Vatovavy Fitovinany* and Atsimo Atsinanana—located in Southeastern Madagascar (FIOVANA 2019). The first of the project's purposes was to achieve sustained improvement in the health and nutritional status of women of reproductive age, adolescent girls, and children under five years of age.

BFCI is one of the innovative approaches ADRA applied to that effect. Its implementation was guided by an eight-point plan based on work conducted in Kenya and adapted to fit the Madagascar health context. This approach, which integrates infant and young child feeding (IYCF) practices with broader health and other services, has been described in detail by Kavle et al., (2019). They developed a nine-step approach (Table 1) starting with national policy on BFCI through orientation of Ministry of Health (MoH) staff and stakeholders at different administrative levels, before household mapping, and ending with the establishment of mother-to-mother support groups (MtMSGs). Our adaptation was carried out in collaboration with the Ministry of Public Health's (MoPH) nutrition service team at national,

regional, and district levels, as well as with the Office of National Nutrition (ONN) staff and other key partners.

In September 2021, as part of the project's broader community mobilization process, ADRA had mapped and mobilized communities to co-create MtMSGs, a key platform for the rollout of the BFCI approach, prior to the development of a clear national policy. Training of trainers (ToT) for the approach was conducted virtually in October 2023 to build the capacity of master trainers and key stakeholders who would assist with its delivery.

Table 1. Nine steps for BFCI implementation in the Kenyan context, adapted to the Madagascar case

Description of Steps for BFCI Implementation
Step 1: National Level Policy and Decision-Maker Orientation
Step 2: Orientation of Health Management and Key stakeholders
Step 3: Training of a Cadre of Master BFCI trainers
Step 4: Training Health and Community Health Agents on BFCI
Step 5: Orientation of community and facility health committees
Step 6: Mapping of Households
Step 7: Establishment of Community Mother Support Groups (CMSG)
Step 8: Training of CHVs and CMSG Leaders
Step 9: Establishment of Mother-to-Mother Support Groups (MtMSGs)

1- Adapted from Kavle et al. 2019

*Vatovavy-Fitovinany later split into two regions Vatovavy and Fitovinany in June 2021

BFCI CASE STUDY DESIGN

The multi-phased qualitative case study, led by an international evaluation team of MIYCN experts, was conducted in two phases. Phase 1 (March to June 2023) was approximately five months after the ToT with the Madagascan team, which consisted of the FIOVANA Health and Nutrition Technical lead, specialists, and MoPH Nutrition Staff. Key Informant Interviews (KIIs) were conducted to document the training content and quality, the delivery of the approach, and any short-term changes observed in policies and/or behaviors.

Subsequently, following the rollout of the full BFCI package in the first two of the six FIOVANA-targeted districts, a second phase of the case study, conducted between September and October 2023, delved into community-level adoption and determined changes in MIYCN, health, and WASH behaviors using structured themes described below.

STUDY SITES

The qualitative case study was conducted in two purposively selected districts - the first to implement the full BFCI (Figure 1). These districts, Mananjary in Vatovavy-Fitovinany region and Farafangana in Atsimo Atsinanana region, reflected diverse geographic locations (one inland and one coastal), socio-cultural context, and food availability (FIOVANA, 2019). The rate of exclusive breastfeeding (EBF) at six months also varied (Vatovavy-Fitovinany having a low rate of 33% and Atsimo Atsinanana, a high rate of 80%) (FIOVANA, 2019; UNICEF MICS, n.d.). Two Fokontany (subdistrict, the smallest administrative unit, comprising several villages) – Sandrohy and Tsarahafatra in Mananjary District, and Amporoforo and Efatsy in Farafangana District – were selected from each district for further analysis (Figure 1).

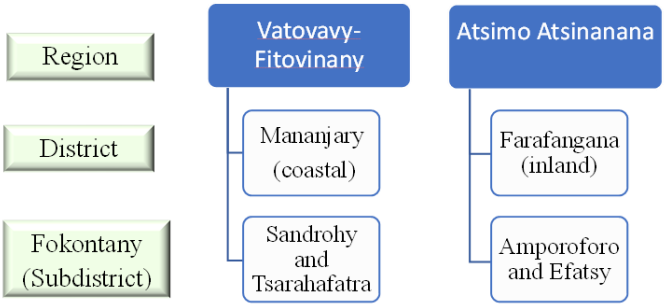

Figure 1. Case study sites

STUDY QUESTIONS

The qualitative evaluation focused on six evaluation questions, four of which are described in this paper. These were:

1. Training content and quality: What topics were covered in the BFCI ToT, and how was the training rated by the stakeholders?
2. Delivery of the approach: How was the BFCI being implemented/rolled out to subnational levels and received by stakeholders in the two selected districts? What was delivered and to whom? Were there any deviations from plans, and were there any delivery gaps?
3. Key stakeholders engaged: Who were the key stakeholders responsible for ensuring the successful rollout and implementation of the BFCI approach?
4. Short-Mid-term changes: What changes (in MIYCN) have resulted from the rollout of the 9-step implementation plan within six months of the ToT and after two years of the establishment of the MtMSGs?

STUDY PARTICIPANTS

A description of study participants by phase, role, and location is provided in Table 2 below. In phase 1 of the study, six out of the 12 government Health and Nutrition (H&N) partners who participated in a virtual BFCI ToT were targeted for in-depth interviews. Consideration was given in the selection process to representation at all levels of interest: national, regional, and district levels, with a balanced gender representation from the two study sites. One interview could not be completed as the staff member was unavailable, despite repeated attempts over six weeks due to an extended field mission. Interviews explored key stakeholders' perspectives on the capacity building provided, the rating of the training provided, as well as processes utilized in implementing and monitoring the BFCI approach.

Participants in phase 2 of the study comprised mainly FIOVANA staff providing oversight or directly involved in training others on the BFCI approach, the Chief (head) of the Centre de Santé de Base (CSB) [Health Center], community-level health workers and volunteers, MtMSG leaders, and individual members or caregivers of MtMSGs. Participants were selected to ensure gender balance and met the following criteria:

- Geographically located in study sites.

- Part of a category of stakeholders within the Cascade training spectrum.
- Had a role in implementing BFCI.
- Participated in BFCI training, educational sessions, or MtMSG meetings

Table 2. Description of Study Participants

Phase	Key Role	Number by Location		Total
Phase 1	National Nutrition Technical Officer	1		1
	Regional Office Representative	Atsimo Atsinana	1	2
		Vatovavy	1	
	District Level Nutrition in Charge	Farafangana	1	2
		Mananjary	1	
	Total			**5**
Phase 2	ADRA Regional Project Staff	Manakara (ADRA regional office)		5+
	ADRA Animator/Supervisor	Mananjary and Farafangana		3*
		Farafangana	**Mananjary**	
	Health Worker (Chief CSB)	2	2	4
	Community Health and Nutrition Worker/Agent	3	3	6
	Community Leader	3	2	5
	MtMSG Leader	6	8	14
	MtMSG Member	3	2	5
	Total	17	17	42
Phase 1 and 2 combined	**Overall Total**			**47**

+Regional Staff based in Manakara provide oversight in all 6 FIOVANA districts. *Two from Farafangana and 1 from Mananjary

DATA COLLECTION

In Phase 1, the evaluation team developed and refined an interview guide, which was tested with a local nutrition expert fluent in French, Malagasy, and English, and well-versed in BFCI and the study topics. After revisions for clarity, the consultant was trained on the tool and conducted all interviews, which averaged one hour. Interviews, guided by topical areas (Table 3), were conducted in Malagasy with real-time English translation via Zoom. Thematic analysis was based on the evaluation questions and interview guide topics.

In Phase 2, interview guides for KII were developed in English, reviewed by technical experts, and translated into French by the local nutrition expert. The lead evaluation consultant provided oversight and conducted half of the ADRA staff interviews, using a translator when needed. A training session, including a review of KII guides and role-plays, ensured that interviewers were familiar with the flow, content, and terminology in Malagasy and could ask effective follow-up questions. Fifteen trained FIOVANA health and nutrition staff formed five teams (two interviewers and one supervisor each) and collected data for the case study from four Fokontany (Sandrohy, Tsarahafatra, Amporoforo and Efatsy) and associated CSBs. To limit bias, teams were assigned outside their usual work areas. Consultants provided additional supervision where possible. During data collection, one interviewer led the discussion in Malagasy while others took notes. Notes were later translated into English by an external firm. Phase 2 targeted 42 KIIs.

Table 3. Topical Description of Interview Guides

Topical Focus	Description of Section Focus	Applied to
Demographics	Geographical base, gender and age dynamics, length at current position, and educational attainment	All study participants in Phase 1 and 2
Capacity building	BFCI training provided to institutional staff, its rating, key topics, and how the training has been used, including enablers and facilitators of knowledge use	National, Regional or District level MoH and ONN engaged in ToT (Phase 1)
Rollout of BFCI and key stakeholders engaged	Cascade training on BFCI provided to different levels of health workers, community volunteers, and MtMSG leaders: key topics, and utilization. Stakeholders responsible for rollout, support from supervisors engaged in, and activities covered during monitoring and supportive supervision visits	All subnational study participants engaged in BFCI rollout except MtMSG mothers (Phase 1 and 2)
Short-term changes and linkages to other sectors	Observed changes (positive or negative) resulting from BFCI training/implementation, including any perceived changes in MIYCN, health access and WASH	All study participants (Phase 1 and 2)
Gaps and deviations from delivery plans	Deviations in delivery plans, challenges to full implementation, any gaps in implementation	FIOVANA Staff, Health workers at all levels (Phase 2)
Recommendations for sustainability and scale-up	What needs to occur for BFCI to be sustained and scaled up, post-FIOVANA	All study participants (Phase 1 and 2)

DATA ANALYSIS

While interviews for Phase 1 were conducted in Malagasy and transcribed in English, Malagasy interviews for Phase 2 were translated into English by a professional translator from an external firm. All datasets were uploaded onto the ATLAS.ti software for analysis. A thematic approach was used to answer relevant study questions informed by an external literature review. All qualitative data points were imported into the software. A single data analyst first familiarized herself with the data by reading through all the

interviews. At this point, using the data collection tools as a guide, a codebook was formed. During the iterative coding process, the data analyst reviewed and refined the codes as new themes emerged and compared new data segments to previously coded segments to ensure consistency throughout the process. An exploratory approach, aided by an analysis plan and the query tool, was used to analyze and organize the data into various topics, ensuring that all components of the evaluation questions were addressed.

RESULTS

DEMOGRAPHICS

In Phase 1, five of the six targeted government health and nutrition partners were interviewed (three women and two men), including one MoPH national technical officer, two regional representatives (from MoPH and ONN), and two district-level nutrition officers from Farafangana and Mananjary. Their ages ranged from 40 to 59 years, with a mean age of 49.6 years. In Phase 2, all 42 targeted participants were interviewed; 57% were women, with a mean age of 41.3 years.

A total of 47 KIIs were conducted across both phases of the study. Excluding national/regional officers and Manakara-based ADRA staff (17% of the sample), participants were distributed relatively evenly between Farafangana (40%) and Mananjary (43%).

Most participants had at least some formal education: 47% completed primary or middle school, 6% secondary school, and 30% tertiary education. Only one participant had no formal education. Education data were unavailable for seven Phase 2 participants.

Excluding members of the MtMSG, fifty-three percent (53%) of participants had worked an average of 2 to 3 years either on the FIOVANA project or in their respective roles. There were, however, two notable outliers: a health worker and a community leader had been in their posts for up to 13 years and 20 years, respectively.

The remaining findings are organized by the four evaluation questions outlined in the Methods section and are presented below.

CAPACITY BUILDING/TRAINING TRAINING OF TRAINERS (TOT)

The initial ToT was organized over 3-5 days for senior health and nutrition staff from the FIOVANA project and national and regional MoH representatives. It focused on various topics such as maternal health, nutrition, antenatal care (ANC), IYCN (e.g. exclusive breastfeeding, early initiation of breastfeeding, complementary feeding), growth monitoring and promotion, the importance of the first 1000 days, breastmilk substitution and the legislation regulating the sale and marketing of breastmilk substitutes. However, the most highlighted topic for the training was the BFCI, how it compares to the BFHI, the steps of BFCI, and guidelines to successfully implement these. The main training topics mentioned did not differ between the participants from the study districts.

"The ToT was done for our local Nutrition Consultant, myself, with the H&N Specialist and MoH. Then the Specialist trained the supervisors." ***FIOVANA H&N Technical Lead***

"We talked about implementation, babies' nutrition, women nutrition, we also talked about integration into the community especially with FIOVANA project. We also talked about the baby's nutrition from birth to 2 years. We talked about BFCI." ***District Nutrition Officer, Mananjary***

"There were many [topics]. The content of BFCI in my opinion is I ensured the nutrition of young babies, e.g., nutrition of the PW and children to 6 months, complement[ary] food from 6-12 [months] something like that, introduction of formula, the role in the industry." ***Regional Nutrition Officer, Farafangana***

On a scale of 1 to 5, participants rated the BFCI ToT between 3 and 4, with an average score of 3.8. Reasons for lower scores were language barriers and the non-interactive training format. The Mananjary team especially seems to have experienced difficulty following and understanding the training, as it was delivered in English. They further stated that although attempts had been made to translate the documents into French, some illustrative figures were still in English, which was difficult to understand.

"Because it was a conference, I am generally not used to listening in English. There were people speaking in English, but I was struggling to adapt myself to the training. It will have been better to do the training we are used to; like in person training. We received some support, training and material. Documents in French but the figures were in English, so it was difficult as it's not translated but it is in English." ***District Nutrition Officer, Mananjary***

"Training quality, I will say 3, because it was quite a passive training. We did not get the chance to practice so that we can check on skill transfer. It should have been more practical." ***Technical Officer, National Nutrition Unit***

Other participants described the ToT as passive, with no opportunities to assess skill transfer. Unfortunately, some essential aspects of the training content were omitted. Participants recommended that future training be held in person instead of virtual, and that a more practical approach be adopted.

CASCADE TRAINING

Following this initial ToT, master trainers were tasked to organize cascade training for various nutrition workers such as animators and CSB chiefs in their districts and communities. Participants from both Mananjary and Farafangana reported that these step-down trainings were successfully conducted at the health centers and in the communities. They took place as scheduled in February/March 2023 and lasted 5 days, supervised by a team from ADRA and the MoH. In the final step of the cascade training, trained animators (facilitators) and CSB chiefs trained Community Health Volunteers (CHVs), Community Mother Support Groups (CMSGs) and MtMSG leaders. At their monthly meetings, the MtMSG leaders disseminated the information and lessons learnt to members of their groups and the community at large.

"I participated in May 2023 as (a) participant of the training of trainers for CSB Health Workers in BFCI and in June 2023 to conduct training of community agents." ***Chief CSB, Tsarahafatra, Mananjary***

"We trained 20 CHVs in one commune, 30 CMSG and 11 MtMSG lead mothers. The supervisors trained us, and we train the CHVs with the chief CSB." ***Animator, Tsarahafatra, Mananjary***

Whilst some CMSGs, particularly in the Farafangana district, received the full five days of training, all interviewed participants from the Mananjary district received only 2 to 6 hours, or at most one day, of training. A few participants from both districts reported attending repeat training sessions.

"It was in April 2021 that I was informed that I would be a lead mother. Animator trained us for one day for 2 hours." ***CMSG Tsaharafatra, Mananjary***

Based on feedback from the initial ToTs, the program re-strategized and revised its approach to ensure a more successful cascade training. Participants reported the availability of a training guide and adopting a more interactive technique as some key enablers of a successful cascade training. Others reported teamwork and delegation of roles as contributors to the successful cascade trainings. Additionally, the existence of already established MtMSGs by the project made community entry and implementation easier.

"My prior knowledge helped me a lot and beside that we also received a document, thanks to the training, so my prior knowledge in nutrition and training. As we know, the structure in terms of the project and all those helped. In the project there are different associations that I already know, so it was for me to talk to the participants, explain to them that BFCI is not something you will just use but is a structure that we already have, to convey the messages so that people will have better knowledge in terms of BFCI. As they are familiar with the subject this is a plus." ***District Nutrition Officer, Mananjary***

"There were some kind of methods that we used. We had some direct debates, picking of opinions, there were some games of conveying messages. That was helpful for me. I saw something new. I learnt from the cues that the participant[s] shared. We should not think that they do not have knowledge, but we should activate the learning within them. This was important for the training because there are a lot of things that inspire them, but the time was not appropriate. During the training, we had sharing of knowledge, it's hiding inside them. There was debate about why some mothers eat mud when it's not healthy so there are some things that happen behind the scenes that we don't know. I think that a lot of things highlighted and some opinions that were shared from them to the mothers that we didn't know. We talked about hygiene and the song about malaria. They got tested for malaria." ***Regional Nutrition Officer, Farafangana***

"Everybody led their session; we had the other trainers that helped me in the comprehension and the translation. There were some documents, and we had a look at the French version to help with the difficulty of the participants. The Malagasy translation was not very clear. We had to look at the French version, there were things that were challenging to me, but I did my best. But the team helped me. It is about roles, the team helped me with the explanation, so I understood it." ***Regional Nutrition Officer, Mananjary***

"With the MoH it is a cascade training so we need to first train the chief CSB and then the community agents will create the support group in the community. It makes it easier for them to implement the approach but with ADRA they already have the CMSG and the MtMSG so it is easy for them, but for us it is quite challenging." ***Technical Officer, National Nutrition Unit***

The limited availability of monitoring and evaluation tools was cited as a major challenge during the cascade training.

"In terms of monitoring and evaluation, we did not do anything about that yet." ***Technical Officer, National Nutrition Unit***

"Lack of monitoring tools, training curriculum, IEC materials (counselling cards)." District Nutrition Officer, Farafangana

ROLLOUT OF BFCI AT THE SUB-NATIONAL LEVEL AND KEY STAKEHOLDERS ENGAGED

PARTICIPANTS' UNDERSTANDING OF BFCI

Participants seem to have understood the BFCI well. They described it as a community-based initiative, adapted from Kenya and being piloted in selected districts in Madagascar. The key purpose of the initiative is to promote and reinforce various nutrition-related concepts that have been proven to be beneficial to both mother and child, and the community. The initiative seeks to promote exclusive breastfeeding for the first six months of life, the timely introduction of complementary foods at 6 months, and continued breastfeeding for up to 2 years (the first 1000 days). The initiative does not only focus on the child but also prioritizes the mother, promoting the importance of maintaining a balanced diet. A few participants also highlighted elements of hygiene and sanitation.

"According to the training: promotion of exclusive breastfeeding, improvement of nutrition for women, infants and children, nutrition for pregnant and lactating women, exclusive breastfeeding up to 6 months, from 6 months' introduction of complementary feeding with continued breastfeeding up to 2 years." ***Animator, Manakara.***

"BFCI focuses more on the promotion of breastfeeding, stressing on exclusive breastfeeding up to 6 months introduction of complementary feeding, 14 Essential Nutrition Actions lessons, breast milk substitute policy, promotion of pregnant woman feeding as part of the 1000 days, food diversification, maternal and child hygiene and sanitation." ***Animator, Farafangana***

"The key message I learned is about breastfeeding practice which really comes from the community. Community participations are important. ADRA has already set up the

platforms, so it is not difficult to implement." ***Technical Officer, National Nutrition Unit***

From the participants' perspective, the initiative also emphasizes an opportunity provided by community engagement and community mobilization using targeted efforts to reach out and obtain the buy-in of various community leaders such as chiefs and traditional leaders, health workers, traditional birth attendants (TBAs), and even stakeholders from other sectors such as agriculture and WASH, that are crucial to the success of the program. BFCI was sometimes also referred to as an extension of the BFHI to ensure that systems are in place in the communities to reinforce the lessons mothers may have acquired through the BFHI.

"An approach that values breastfeeding, IYCF, experienced in Kenya and is being piloted in Madagascar. BFCI supports the practice of breastfeeding so that mothers can breastfeed their child in an optimal way. Talks about mother's feeding, stakeholder's roles, BFCI steps, empowering communities to become baby friendly communities, integrating other sectors." ***Health and Nutrition Specialist, Manakara***

"An approach based at the community level follow up of the care given to infant at the hospital level. If a mother is oriented to BFHI when they get to the community, they get lost Hence BFCI is mainly about breastfeeding; care of the mother and the newborn as a first level. Engagement of many structures, focusing on the newborn and the mother." ***Health and Nutrition Technical Lead***, *FIOVANA*

Table 4 below summarizes some key topical areas as recalled by participants in the study with illustrative quotes. It is important to document that participants in both districts generally demonstrated comparable understanding of all the key BFCI topics and ways to practice them at home.

Table 4. Participants' Recall of Training Topics

Topical Areas Mentioned	Illustrative Quotes
Nutrition for pregnant and lactating women • Highlighted the importance of a well-balanced diet for pregnant and lactating women • Used words like "colorful" and "diversified" to demonstrate need to include all food groups	*"Eat a diet rich in nutrients, vitamins, and iron. Prenatal check-ups at least 4 times during pregnancy. Monitoring the baby's growth. Approach 1000 days from the start of pregnancy."* ***CSB Chief, Sandrohy, Mananjary*** *"Taking care of her means sending her for prenatal consultations so that she can benefit from the health center's services and receive advice."* ***Health Animator, Tsarahafatra, Mananjary*** *"Eating clean food, diversified and colorful food. Washing your hands anytime it is necessary."* ***Member, MTMSG, Amporoforo, Farafangana*** *"In terms of nutrition for a breastfeeding woman, she needs to be given appropriate food so that she gains the necessary strength to breastfeed her babies. She needs to be given snacks as well. Taking care of her means letting her bring her baby to be vaccinated and weighed, so that her child could be protected from any danger."* ***Health Animator, Tsarahafatra, Mananjary***
Nutrition for children 0-23 months • Exclusive breastfeeding for first 6 months • Timely introduction of complementary feeding at 6 months • Common staples such as rice, wheat and maize used	*"We have also been trained not to give formula to children under six months."* ***Community Agent, Sandrohy, Mananjary*** *"Regarding the feeding of children less than 6 months, what was emphasized during the training is that there is no food that can be given apart from the breastmilk. Breastmilk only is enough for child less than 6 months (at least 10 times day and night, whenever the baby demands, mother should breastfeed her baby, not limited like morning, midday, and evening)."* ***CSB Health Worker, Tsarahafatra, Mananjary*** *"After the first sixth months, the baby is given a slightly consistent diet (semi-solid) until his/her first year where he begins to be integrated into the family meal."* ***Community Agent, Amporoforo, Farafangana***
Access to health and nutrition services - Emphasized the importance of at least 4 ANC visits - Postnatal care (PNC) clinics, well child and growth monitoring visits for immunizations, including measurement of mid-upper arm circumference (MUAC), early detection of delayed milestones, malnutrition and tailored counselling	*"Pregnant women should go for a prenatal consultation every month or at least 4 times during their pregnancy."* Chief ***CSB, Efatsy, Amporoforo*** *"Adolescent girl[s] should have good nutrition to be prepared for the pregnancy later."* ***Chief CSB, Tsarahafatra, Mananjary*** *"The screening of the malnutrition by the measurement of the MUAC from 6 months done by the animators and the instructions about the management in case of moderate or severe acute malnutrition."* ***Chief CSB, Tsarahafatra, Mananjary***
WASH services • Safe water treatment and purification techniques such as boiling • Management of childhood diarrhea, including Oral Rehydration Solution (ORS) • Personal hygiene and cleanliness including handwashing at critical times such as during meal preparations and after using the toilets	*"Wash food well before giving to the sick infant, give him boiled water."* ***CMSG Leader, Farafangana*** *"Boil the water well before drinking. A latrine must also be built to health standards."* ***Community Agent, Sandrohy, Mananjary*** *"Give a two-year-old plenty of water and ORS in case of diarrhea."* ***Community Agent, Efatsy, Farafangana*** *"We have been informed on issues related to hygiene such as hand washing and food cleanliness."* ***Community Agent, Amporoforo, Farafangana*** *"During the training, we learnt that to make sure water complies with hygiene and sanitation standards, we need to boil it or use sûr'eau (water purifier) before use."* ***Farmer, Tsarahafatra, Mananjary***

KEY STAKEHOLDERS AND THEIR ROLE IN DELIVERY OF THE BFCI APPROACH

To successfully rollout the BFCI initiative, representatives from various stakeholder groups such as health workers, traditional leaders, community health volunteers, TBAs, as well as lead mothers of MtMSGs, were recruited and trained to disseminate the key messages and most importantly form communication bridges between various groups in the community and build trust among community members.

The section below provides an in-depth analysis of key stakeholders as described by study participants and the respective roles they played to ensure the success of the FIOVANA BFCI Initiative. Key among them included the FIOVANA H&N Technical Lead and Specialist, the consultants supporting development of training materials and leading the ToTs, and the team of animators and supervisors. Representatives from key governmental institutions such as the MoH, at national, regional and district levels, and socially respected persons such as chiefs also played a crucial role. The chief CSBs in the health centers, the community health volunteers, the MtMSG leaders, and most importantly, the members of the community themselves were all key players, as indicated in Table 5.

Table 5. Illustrative Quotes Summarizing Roles of Key Stakeholders

Type and Role of Stakeholders	Illustrative Quotes
Project Staff • FIOVANA project staff were supported by local and international consultants • Reviewed and adapted BFCI training guide to suit local context and align with existing IYCF training packages • Provided technical and budgetary support • Maintained standard in training delivery • General logistical support • Community sensitization and active involvement in community events such as cooking demonstrations and home visits	*"We got support from the local consultant (nutrition advisor) who helped in the ToT, and fine-tuning implementation guide."* ***Health and Nutrition Specialist, Manakara*** *"Technical and organizational support and supervision from the P1 lead to the specialists, from specialists to supervisors, animators (instructions, orientations): Ensured the budget requisitions and conditions are met for the training of community workers by CSB (health facility) chiefs and animators. Provision of technical support to supervisors in the delivery of training for CSB chiefs and animators."* ***Health and Nutrition Specialist Manakara*** *"I trained CHVs and CMSG and organizing community meetings; I conducted mobilization and sensitization of mother.".* ***Animator, Manakara*** *"Ensured completeness of training materials and needs, helped in the explanation of topics/answer questions, and checked the agenda of training topics for each commune."* ***Supervisor, Manakara*** *"Ensured the budget requisitions and conditions are met for the training of community workers by CSB (facility) chiefs and animators."* ***Health and Nutrition Specialist, Manakara*** *"Organization of community meetings per category. Community categorization, breastfeeding mother of infant under 6 months, discuss problems that hinder the practice of EBF, sensitization (awareness raising), and home visits with CHVs. Mother with child 6-23 months: discuss issues, raise awareness, organize cooking demonstration, and discuss food groups."* ***Animator, Manakara***
Government health workers at Regional and District levels • Active members of the district health team • Involved in the adaptation of the BFCI package • Conducted monitoring and supervision visits • Provided tools to support delivery	*"The Regional Office of Nutrition (ORN) provided a recipe booklet (with regional specificity) already duplicated and shared with CHVs."* ***Health and Nutrition Specialist, Manakara*** *"The joint supervision with District Health Team (EMAD) and ORN, confirmed and found that there are few children who suffer from malnutrition (moderate acute malnutrition). We posed questions such as are any children getting Plumpy'Sup* in your community and most of the time only [a] few responded in some communities."* ***Health and Nutrition Specialist, Manakara***
CSB Chiefs and Community Health Workers • Health workers based in facilities conducting ANC, PNC and well child clinics • Provided caregiver education and created awareness on various topics • Supervised activities of CHVs and MtMSGs	*"Teaching breastfeeding methods during PNC visits, gathering CAs (community agents) and MtMSG leaders to give training on modules related to vaccination, hygiene, breastfeeding, nutrition for children under 6 months and those between 6 months to 2 years."* ***CSB Chief, Efatsy, Farafangana*** *"Direct facilitator for mothers and children attending consultations at the CSB."* ***CSB Chief, Sandrohy, Mananjary*** *"Trainer during the training of CHWs."* ***CSB Chief, Sandrohy, Mananjary*** *"Providing technical support and supervision to CHWs during activities implementation."* ***CSB Chief, Sandrohy, Mananjary***
Community members (leaders, MtMSG, community agents, CHVs) • Identified as key influencers in the community • Community sensitization • Organized and coordinated MtMSG where various topics were discussed	*"And in Baby Friendly we help them to go to the CSB (facility) and then there is the community, making this environment friendly for the mothers in the community. There is the king (the chief) who is the middleman between the people and the CSB (facility). There is also the traditional birth attendant (TBA), and their role is also a middleman with the pregnant mom and the CSB. Before the community goes to them but they know more about BFCI so the TBA are sensitizing them to go to the CSB and they're also counseling the mothers that they should breastfeed after delivery."* ***Supervisor, Farafangana*** *"As the head of the CMSG, I raise awareness among members and communities."* ***CMSG, Amporoforo, Farafangana*** *"My role is to encourage mothers and children to apply the various topics of this approach so that they can have the needed strength to be productive."* ***Community Agent, Tsarahafatra, Mananjary*** *"There are usually 15 participants at each meeting."* ***MtMSG leader, Tsarahafatra, Mananjary*** *"Three topics [are discussed] every time we meet."* ***MtMSG leader, Efatsy, Faranfagana***

*Plumpy Sup is a ready-to-use fortified complementary food designed for the management of moderate acute malnutrition (MAM) as part of nutrition supplementation program

MONITORING, COACHING, AND SUPPORTIVE SUPERVISION
Post-training monitoring, supervision, and on-the-job coaching were carried out following the initial training sessions. Within the supervision hierarchy, key ADRA FIOVANA project staff were responsible for overseeing the general activities of the project. They supervised cascade trainings and ensured that the trainings were conducted as scheduled and delivered the entire BFCI package. They provided the organizational, technical, and budgetary support for all staff on the project.
The health workers/CSBs in both districts received support from ADRA, as well as occasional supervision visits from the overseeing governmental agencies such as the Mananjary District or Regional Management Team.

"Technical and organizational support and supervision was provided by the Health and Nutrition Technical Lead to the specialists, and from specialists to supervisors, animators (instructions, orientations). We ensured the budget requisitions and conditions are met for the training of community workers by CSB (facility) chiefs and animators." ***FIOVANA Health and Nutrition Technical Lead***

Who supervises (who provides advice) and supports you in your role? *"Mananjary District Management Team (EMAD), sometimes the Regional Management Team (EMAR). Regarding projects supported by partners like ACCESS and ADRA, there was one supervision with the EMAR and EMAD and ADRA Manakara team after an evaluation which was conducted, and they came here, Central Ministry."* ***CSB Health Worker, Tsarahafatra, Mananjary***

In a similar fashion, the CSB Chiefs and animators were directly responsible for providing on-the-job coaching and supervision to the community agents and leaders of the various MtMSGs. At these visits, they directly observed the project-related activities to ensure the messages were being delivered to the mothers and other community members, inspected the data from regular reports and registers, identified any gaps, and offered tips and guidelines for improvement.

"FIOVANA animators and health workers help and advise us." ***Community Agent, Amporoforo, Farafangana***

"He looks at the work progression, the possible issues and gives advice for improvement; he encourages to always work well and dynamically." ***Member, CMSG, Efatsy, Farafangana,***

"Still in the context of our work in general: evaluation of the performance of the CSB manager, of the results obtained, collection of registers." ***CSB Chief, Sandrohy, Manajary***

"During the visits, they observe how we communicate the lessons learnt to the members and they correct us should we make any mistakes." ***MTMSG Leader, Amporoforo, Farafangana***

Data from various districts showed slight differences in the frequency of supervision each district received. Generally, supervisors visited monthly, although there were reported areas (e.g. Amporoforo) where participants reported they received weekly visits and others that received quarterly instead of monthly visits (Tsarahafatra). In contrast, some CSBs in Mananjary and Farafangana expressed dissatisfaction that, although they received supervisory visits from the district medical heads, sometimes unannounced, they had never received BFCI-specific supervision at their health facilities.

"Over the last six months, we have received frequent visits, we have a visit once a week." ***Community Agent, Amporoforo, Farafangana***

"We have received six visits in the last six months." ***Leader CMSG, Amporoforo, Farafangana***

"We have never received a follow-up and supervision visit related to BFCI at health facility. I am aware that there were supervision visits at community level. I was not able to attend because overlap with activities occurring in Mananjary." ***CSB Health Worker, Tsarahafatra, Mananjary***

"Supervision on average 5 times a year (but there are always unannounced supervisions) as part of our general work. No supervision yet specifically for the BFCI." ***CSB, Sandrohy, Mananjary***

Across interviews, health workers, MtMSG leaders, and community agents in both main districts demonstrated understanding of the need for monitoring and supervision and gave testimonials of the positive impacts the supervisors made during their visits. They reiterated that supervision was necessary to correct any errors in practice and to reinforce the knowledge they had acquired at the previous training.

"I felt that supervisory visits were good because they bring improvement for the next work. If there is no supervision, we think everything in our work is right although correction is still needed." ***Member, CMSG, Efatsy, Farafangana***

"We need these visits because they help us do our work and increase the knowledge we have already acquired." ***Community Agent, Amporoforo, Farafangan***

"Our knowledge increases because he/she teaches." ***Leader, CMSG, Efatsy, Farafangana***

"We receive technical support and recommendations for improvement from our line supervisors." ***CSB Chief, Sandrohy, Mananjary***.

SHORT- AND MID-TERM CHANGES, KEY SUCCESSES, AND BEST PRACTICES
CAPACITY BUILDING
Participants reported their appreciation for the participatory techniques often adopted by facilitators during the training, as they created a safe space for deliberating on issues and sharing ideas with their colleagues. While the topics covered during the training were not entirely new, the delivery built

on participants' prior experiences and lessons from previous trainings and programs, particularly the Essential Nutrition Actions and growth monitoring and promotion programs implemented in 2021.

It was reported that about 100% of the training coverage targets were achieved for most communities, Fokontany, CHVs and MtMSG leaders. The MtMSGs offered an effective platform to disseminate information to the mothers within the communities. This suggests mothers received the messages and tended to demonstrate understanding of the topics during cooking sessions.

"Mothers are eager to learn and apply lessons which have changed their practices." ***Animator, Amporoforo, Farafangana***

"Sensitizing the population to apply what has been taught during the training leads to this change." ***Farmer, Tsarahafatra, Mananjary***

"29 communes covered 100%, 272 Fokontany and 3 MtMSG per fokontany making 816 groups in total." ***Health and Nutrition Specialist, Manakara***

"Essential nutrition actions topics have been experienced and well mastered which facilitated the training." ***Supervisor, Manakara***

COLLABORATION WITH KEY STAKEHOLDERS

Phase 1 findings suggested that intentional collaboration with key stakeholders, including staff from relevant governmental institutions at national, regional, and district levels, contributed significantly to the perceived success of the program. The project appeared to have successfully worked closely with these relevant government stakeholders such as the district and regional health teams, at times conducting joint supervision visits. These stakeholders supported the project team in piloting and adapting the BFCI implementation to the Madagascar health system, both in the field during message delivery and at the supervision stages. In addition, intra-project collaborations between various FIOVANA groups (e.g. farmer groups and village saving and loan associations) seemed to have provided a wider platform for mothers to share their knowledge and experiences with not only mothers in their groups but also those in neighboring areas that share socio-cultural activities.

Secondly, the FIOVANA project showed signs of increased collaboration between key stakeholders in the communities. The chiefs and elders were involved and played an active role in reinforcing messages within their community. The "*icing on top of the cake*" as described by one participant, was the acceptance of the messages by TBAs who are reported to now refer antenatal and peripartum cases to the health facilities for safe deliveries.

"The joint supervision with District Health Team (EMAD) and ORN, confirmed and found that there are few children who suffer from malnutrition (moderate acute malnutrition). We posed questions such as are any children getting Plumpy'Sup in your community and most of the time only [a] few responded in some communities (as receiving) any" ***Health Nutrition Specialist, Manakara***

"There is a TBA that during a field visit got orientation for FIOVANA and now they are referring and not delivering any more. It is an urban area. She can only do antenatal care now." ***FIOVANA Health and Nutrition Technical Lead***

"Production of diversified food for children more than 6 months and pregnant and lactating women through collaboration with other FIOVANA groups". ***Animator, Manakara***

POSITIVE MATERNAL INFANT AND YOUNG CHILD HEALTH AND NUTRITION (MIYCHN) CHANGES IN THE COMMUNITY

The project adopted a system within the MtMSGs where mothers who successfully achieved MIYCHN target behaviors, such as EBF, ANC, PNC, and handwashing at critical times were publicly acknowledged and received certificates or handwashing supplies e.g. soap.

EXCLUSIVE BREASTFEEDING AND YOUNG CHILD DIETS

Stakeholder perspectives suggest that improvements occurred in exclusive breastfeeding practices among mothers and caregivers in the communities. The system of rewarding mothers who successfully practiced exclusive breastfeeding might have served as a motivation and a mechanism to monitor breastfeeding rates at the community level.

Another innovation that appears to be gaining ground in the community is home gardening. The FIOVANA project provided inputs (seeds, watering cans, hoes), training, and technical support for community gardens. Project staff reported that after that, increasing numbers of families have adopted backyard gardening as a means of growing their own food and introducing variety into their diets. While vegetables were initially cultivated primarily as a source of income, families increasingly used some of their harvest for consumption, which enriched children's diets and reduced the financial burden of buying vegetables. Mothers are also reported to be experimenting with new menus and combining foods from various food groups to prepare healthier, nutrient-rich meals for their young children.

"Exclusive breastfeeding adopted by many mothers: confirmed by the model household approach, within the MtMSG." ***Health and Nutrition Specialist, Manankara***

"Mothers know how to combine foods for diversification with the use of at least 4-5 food groups. We tasted dishes prepared with cassava flour and green banana." ***Health and Nutrition Specialist, Manankara***

"Now, families are encouraged to establish family gardens to diversify the feeding of children. Before, families did not have the courage to cultivate." ***Animator, Manankara***

"More and more mothers have homestead gardens to use the products for complementary feeding (e.g. carrot), whereas before the products were used only for sale, or sometimes the gardens had only one type of culture. The community mother-to-mother [MtM] garden serves as an example for mothers to be replicated at home." ***Supervisor, Manankara***

"*Mothers are eager to learn and apply lessons which have changed their practices.*" ***Animator, Amporoforo, Farafangana***

IMPROVED NUTRITION

It was not surprising that the occurrence of malnutrition was qualitatively reported to be dropping in the study districts, as per the staff, health workers, and community members' perspectives. Additionally, animators reported that infants in the communities looked stronger and healthier.

"*For the mothers, the mother knows what they should do and as they do it, we can see the impact on the kids in the community. The kids who are part of the groups are healthy compared to where there are no groups. If you compare two communes, we notice that there is a high level of malnutrition in areas where FIOVANA is not implementing, and we can see that in the data (routine monitoring data from CSBs [health facilities]).*" ***Nutrition Specialist, Manakara***

"*Healthy and chubby children that make mothers proud and encourage them to continue good practices.*" ***Animator, Manankara***

"*The child's weight gain is relevant every month, and his body is in good health.*" ***Mother, MtMSG, Amporoforo, Faranfangana***

"*What I noticed is that there are some chunky children going around, they are healthy; most of the mothers before had a lot of babies that were born at 7 months (premature) but now they carry the baby to the full nine months and deliver a healthy baby.*" ***Animator, Mananjary***

"*What I have seen is that the vaccination rate has increased significantly as well as the ANC service attendance. We have noticed a decrease of moderate acute malnutrition rates (in March and April); however, this decrease coincided with the rice harvest. Beginning September and October we shall see if the MAM rate is still decreasing.*" ***Chief CSB, Mananjary***

HEALTH-SEEKING BEHAVIORS

The health-seeking behaviors among mothers in the communities were also reported to have improved. Particularly in the Amporoforo and Sandrohy Fokontany, CSBs and project staff reported that more mothers were attending antenatal and post-natal clinics. Participants perceived that the rates of hospital deliveries were increasing, and more families were bringing their infants to vaccination clinics and seeking help from the hospital when their children were sick.

"There is antenatal care service, there is participation for that, vaccination, taboos of going to the hospital are reduced. CHVs are thinking long term. Reduction of diarrhea on FIOVANA midterm review. These are associated with activities. We cannot claim that this is due to BFCI alone." ***FIOVANA H&N Technical Lead***

"People have started to change, they go to hospital, attend when there is a sensitization." ***CMSG, Efatsy, Farafangana***

"Improvement of the health of pregnant and lactating women and mothers of childbearing age is noticed." ***Supervisor, Farafangana***

"There have been many changes in our area, people bring their children when they get sick. Yes! the illness requiring the corresponding treatment is sent to the CSB." ***CHNW, Sandrohy, Mananjary***

"People are more willing to go to the CSB, for antenatal care and for deliveries at the CSB, they also start building toilets even though few; baby food preparation is also being improved compared to before." ***Member, MtMSG, Sandrohy, Mananjary***

WATER, SANITATION, AND HYGIENE

Beyond Nutrition and health-seeking, community members were also reported to be adopting improved hygiene practices, such as better handwashing, waste disposal, and increased toilet facility availability. The "tippy tap," a local innovation to promote handwashing, was noted as being adopted by more households.

"I have latrines built and raised awareness among people, especially women." ***Community Agent, Sandrohy, Mananjary***

"*I have seen improvements in personal hygiene, hand washing, and availability of hand washing devices (tippy tap) in each household of M2M members.*" ***Supervisor, Manankara***

"Some people were sensitized to creating a garbage hole and they created one." ***Member, CMSG, Sandrohy, Mananjary***

DISCUSSION

This case study, conducted as part of ADRA's USAID-funded FIOVANA project, aimed at documenting the implementation steps for learning, evaluation, and future scaling up of BFCI. This case study's findings highlighted similarities and differences in the strategy adopted by other countries where BFCI has been successfully implemented. As compared to Kenya's BFCI, this project adopted a slightly different delivery pathway by utilizing what is best described as a "bottom-up" approach in its nine-step implementation process as compared to the top-down sequenced approach described in Kenya (Kavle et al., 2019). FIOVANA started with a partial Step 1 (see Table 1) and moved on to Step 6 (community engagement) to avoid further delays resulting from logistical and procurement challenges. This seemed to have enabled Steps 2 to 5 to be addressed systematically while Steps 7 to 9 continued to progress concurrently.

Although there is generally a paucity of publications on the BFCI programs globally, a study implemented in Italy adopted a slightly different approach with critical rate-limiting assessments embedded at various stages of the process to becoming BFCI certified (Bettinelli et al., 2012). This served as an intentional effort to incorporate key monitoring and evaluation tenets into the pathway to certification, a component that was less emphasized in either the Kenyan or Madagascar interventions. Despite adopting slightly different pathways, the successes described for all three programs suggest that there can be flexibility in the implementation steps for a successful BFCI program.

At the same time, it is important to highlight the many

similarities and key steps documented in the FIOVANA project that are represented in many other successful social behavioral change and communication programs. These include intentional efforts to engage all influential stakeholders from the outset (Bettinelli et al., 2012; Kavle et al., 2019). Findings from the initial qualitative evaluation with governmental staff at national, regional and district levels suggest that ADRA had gained traction with the MoPH and ONN on the BFCI and was clearly identified as the first non-governmental organization to implement the BFCI approach in Madagascar. In the second phase of the study, findings appeared to have reinforced the existence of a strong collaboration between the project team and the key governmental stakeholders in training, monitoring, and supervising project-related activities.

Similarly, as part of the rollout, the project ensured the engagement of regional, district and sub-district governmental staff, particularly in the successful completion and development of a training document designed to guide facilitators throughout program implementation. Representatives from all health-worker cadres were identified and involved, initially in the training of trainers and subsequently in cascade trainings. A review of the training topics showed congruence with the eight-point plan for BFCI (Kimani-Murage et al., 2015), while qualitative evaluation results suggested that capacity has been built among trained health workers. This finding underscores the critical role of trained health workers in actively promoting and supporting optimal nutrition among mothers and their families (Athavale et al., 2020; Khatib et al., 2023). They educate mothers at various health access points and through home visits (Athavale et al., 2020; Khatib et al., 2023; Umugwaneza et al., 2021). This complements the findings by Lok et al. (2023) in Hong Kong who reported a significant increase in breastfeeding knowledge and staff attitude towards breastfeeding after training workshops, resulting in a significant proportion of the trained staff feeling more confident in supporting mothers to achieve their breastfeeding goals (Lok et al., 2023). Likewise, further evidence of this is found in a systematic review of infant and young child feeding in lower-income countries, which documents that access to skilled health workers that offered tailored counselling and support to breastfeeding mothers is a possible key facilitator of exclusive breastfeeding, adequate complementary feeding, and continued breastfeeding (Bazzano et al., 2017; Kavle et al., 2017; Khatib et al., 2023). Building on the benefits of strengthening health worker capacity, FIOVANA's cascade trainings were organized for community health workers and leaders of Mother-to-Mother Support Groups. These individuals pioneered community engagements, home visits and peer support within the community, resulting in improved maternal knowledge and the adoption of positive practices, such as introducing diverse foods into children's diets. Such community-driven activities are integral to sustainability and potential scale-up, as they empower community members to serve as propagators of the key messages and, over time, extend their influence to share with friends and families in neighboring communities.

This finding aligns very closely with several studies assessing the effectiveness of BFCI on exclusive breastfeeding and complementary feeding respectively (Kimani-Murage et al., 2021; Maingi et al., 2018, 2020). In both cases, researchers reported a significant difference between the intervention and control groups, such that the BFCI intervention group demonstrated an increased knowledge, with women more likely to exclusively breastfeed, and attain a minimum dietary diversity, minimum meal frequency and minimum acceptable diet for their young children, as compared to the control group. Other qualitative studies emphasized the key role community health workers played in community-based interventions (Kimani-Murage et al., n.d.; Umugwaneza et al., 2021). These cadres of health workers are usually based in the community and are trusted by community members (Khatib et al., 2023; Kimani-Murage et al., n.d.; Umugwaneza et al., 2021). They are well-positioned to facilitate and supervise community meetings, lead cooking demonstrations, and conduct home visits.

Overall, our study draws insights that support previous research and suggest the potential of introducing BFCI with community-level entry points instead of building exclusively on facility-based BFHI. Such an approach ensures that pregnant women and infants who miss out on facility-based services, whether due to home delivery or a lack of access to certified baby-friendly facilities, can still benefit from a supportive and enabling community environment.

LIMITATIONS AND LESSONS LEARNED

A key limitation of the BFCI pilot was the absence of a clear monitoring and evaluation plan for trainers and the limited availability of quantitative data to evaluate the effect of the BFCI. The database (Logalto) introduced by ADRA operated in parallel to the government health information system. For the next levels of cascade training following the ToT, BFCI monitoring tools were excluded because field agents assumed these data were already being collected through existing MtMSG structures. However, not all primary-level BFCI data were included in the overall FIOVANA monitoring plan. Consequently, only aggregated data or indicators tied to project outputs and outcomes were focused on, and these data were often backlogged. As a result, we were unable to use this database to provide quantitative results on MIYCN outcomes associated with BFCI as initially planned.

A second limitation was the reliance on stakeholder perceptions, which may be influenced by social desirability bias, particularly among individuals closely involved in implementation, and could have affected the results. While efforts were made to triangulate the responses, we acknowledge the possibility that participants could have responded to questions with some bias.

Finally, there was a lack of explicit guidance on how communities would attain certification as baby-friendly. While implementation guides adapted from the Kenyan example were tailored to the Madagascar health system, their finalization was still pending when the present study was completed.

From a monitoring and evaluation perspective, the absence of a well-defined plan hindered our ability to comprehensively assess project outcomes. It is therefore recommended that future programs draw on the Italian implementation approach (Bettinelli et al., 2012), which

emphasized the importance of clearly defining the package of interventions encompassed by BFCI, alongside clear monitoring plans and a structured route to certification. This clarity is essential for trainers and implementers to understand the approach's full scope comprehensively. Additional key lessons emerging from this case study are outlined below.

LESSONS LEARNED

1. *CLOSING IMPLEMENTATION GAPS*

Clearly defined policies and complete implementation guides are critical for the quality delivery of the full BFCI package. The MoPH Nutrition Sector called for continued collaboration with ADRA, the existing IYCF task force, and other NGO stakeholders to complete this crucial step to ensure successful BFCI scale-up in Madagascar.

2. *TRAINER OF TRAINING METHODS AND LANGUAGE CONSIDERATIONS*

Future ToTs should prioritize in-person, interactive formats with hands-on practice delivered in participants' preferred language, in this case Malagasy. Overlooking these elements, as seen in the initial ToT, can limit participants' comprehension, skill building, and confidence.

3. *ESTABLISHING A ROBUST MONITORING SYSTEM, COACHING AND SUPPORTIVE SUPERVISION*

Future projects should integrate data from both government and project systems, supported by regular data verification to ensure consistency across databases. Joint monitoring, coaching, and supportive supervision should be conducted periodically—not only following ToTs but also extended to Community Agents, Community Health and Nutrition Volunteers, MtMSG leaders, and others involved in intervention delivery and data collection—to enable implementation of timely corrective actions.

4. *CERTIFICATION PROCESS FOR BABY-FRIENDLY COMMUNITIES*

A well-defined certification process for communities may be necessary. This process could outline who certifies communities and the specific criteria for declaring a community as "Baby Friendly." Adopting decentralized certification procedures, distinct from the vertical and lengthier process of transitioning from BFHI to BFCI, could strengthen linkages between community health centers (CSBs) and local communities.

5. *STRENGTHENING LINKAGES*

Linkages between health centers and communities seem to have been established through cascade training, CMSG support, and direct counseling services. However, emphasizing the need to further strengthen these linkages is crucial to improve the socio-ecological system and enhance sustainability.

6. *ADAPTABLE BFCI IMPLEMENTATION*

Findings from this study suggest that a bottom-up, concurrent BFCI implementation model can be effective in addressing real-world operational challenges, offering a viable alternative to the traditional sequential model. Ensuring that core elements—such as implementation guides, monitoring and evaluation plans, and certification processes—are complete and well-defined will be crucial for improving quality and achieving successful outcomes.

CONCLUSION

The FIOVANA project made significant progress in rolling out the BFCI initiative in Madagascar. Stakeholders perceived that the project strengthened cross-sectoral linkages by providing an enabling environment for the integration of WASH and nutrition-sensitive agriculture, although more room is needed for the integration of Early Childhood Development. Implementation seems to have led to the creation of transformed advocates, notably key community-level influencers—such as TBAs, community agents, and other facilitators—who are traditionally associated with sociocultural norms that may conflict with optimal practices. Finally, study participants reported positive shifts in MIYCN practices, particularly related to exclusive breastfeeding, timely complementary feeding, and diet diversity, as well as health-seeking practices and WASH behaviors. These findings suggest that this recent innovation - BFCI, if effectively implemented and scaled up, could lead to optimal child feeding and related nutrition and health outcomes in similar areas within Madagascar and comparable settings.

AUTHOR CONTRIBUTIONS

BA, NN, and ANT were responsible for the conceptualization and development of the methodology. BA led the evaluation, developed the interview guides, and designed the formal analysis plan. EA conducted the literature review and analyzed the data. BA, EA, and NN drafted sections of the original manuscript. ANT and NN provided supervision and technical oversight for the implementation. All authors contributed to writing, review & editing and approved the final manuscript. All authors consented to its submission and publication.

CONFLICT OF INTEREST

The authors declare that they have no other potential conflicts of interest.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN SCIENTIFIC WRITING

ChatGPT was used in editing the language of a few sections of the original manuscript (e.g., the Abstract and Lessons Learned) to make it more concise and improve clarity. The authors remain fully responsible for the manuscript's content and integrity.

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