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Mapping the functioning of the baby-friendly community initiative and identifying its needs within the Kenyan health system



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List of Abbreviations

| | |
|-----------------|---|
| AMREF | African Medical and Research Foundation |
| APHRC | African Population and Health Research Center |
| BFCI | Baby-Friendly Community Initiative |
| BFHI | Baby-Friendly Hospital Initiative |
| CHV | Community Health Volunteer |
| CHEW | Community Health Extension Worker |
| COVID-19 | Coronavirus Disease 19 |
| EBF | Exclusive breastfeeding |
| FGD | Focus group discussion |
| IDI | In-depth interview |
| KII | Key informant interview |
| MIYCN | Maternal Infant and Young Child Nutrition |
| NGO | Non-governmental organization |
| NIHR | National Institute for Health Research |
| SWOT | Strengths, weaknesses, opportunities, and threats |
| UK | United Kingdom |
| UNICEF | United Nations Children Fund |

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Abstract

- **Background:** The Kenyan government has adopted the baby-friendly community initiative (BFCl) to promote and support optimal maternal and child nutrition at the community level. The BFCl applies the principles of the baby-friendly hospital initiative by extending follow-up and care of mothers and children to the community. The BFCl is being implemented in some communities amidst some challenges and is in the process of being scaled up nationally.
- **Objectives:** To map and analyse the key factors that influence the functioning of the BFCl system in Kenya and to identify the system implementation needs.
- **Methods:** In this study, we used systems thinking tools to analyse the BFCl system. Stakeholders from different levels (national and community) and parts of the BFCl system provided input in our analysis which aimed to develop a holistic view of the system. The methodology used includes three phases: 1) preliminary high-level analysis, 2) in-depth systems mapping analysis, and 3) high-level identification of opportunities for further development of the BFCl. The preliminary high-level analysis consisted of a SWOT (strengths, weaknesses, opportunities, threats) analysis at a strategic level with public health researchers and officers from the Ministry of Health and UNICEF. The in-depth systems mapping analysis was informed by a cross-sectional survey whereby qualitative data were collected using 102 semi-structured interviews and focus groups with BFCl stakeholders at national, county, sub-county, and community levels. These data were analysed thematically to identify components of the BFCl system. Linkages between the components of the BFCl system were mapped using influence diagrams to illustrate how they facilitate or inhibit the functioning of the BFCl. In the final phase, high-level opportunities for further development of the BFCl were identified. Maps of the core parts of the BFCl system identified in the 2nd phase of the research were presented at national and local level stakeholder dissemination meetings. Participants were then able to prioritise areas for future research.
- **Results:** The study identified five key factors that influence the functioning of the BFCl: 1) CHV's (community health volunteer) level of interaction with the community; 2) CHVs' level of knowledge/competency; 3) BFCl funding; 4) Maternal factors which included mother's engagement with the BFCl, food choice, mother's opportunity for breastfeeding; and 5) Access/referral to health facilities. The influencers and effects of each key factor in the system were also identified. In terms of future research directions, key priority areas needed to enhance the BFCl system as identified by stakeholders were BFCl financing, followed by CHVs' knowledge and competency, and CHVs' level of interactions with the community. This highlights the important role that CHV's play in the successful functioning of the BFCl programme.
- **Conclusions:** Stakeholder involvement (at different stages and levels of our analysis) and the use of systems mapping has enabled us to reach a common understanding of the core elements that make up the BFCl system and to identify key factors that influence its functioning. Factors and areas for further research were prioritised to strengthen the BFCl and enable its scale-up and implementation within the Kenyan health system. The top priority area for further research was BFCl financing, which stakeholders in our project dissemination meetings revealed has the potential to be addressed through improved integration of the BFCl into the community health strategy, and funding through the County Governments in the devolved health care system in Kenya.

1

Introduction



Photo: A father feeding a child expressed breast milk. Source: Baby Friendly Community Initiative Project, Baringo, Kenya, APHRC

Exclusive breastfeeding (EBF) for the first six months of a child's life and continued breastfeeding thereafter up to 2 years, with timely introduction of appropriate complementary feeds at 6 months, is essential for optimizing child survival, growth, and development.¹⁻⁴ Despite this, only 41% of children under 6 months are exclusively breastfed globally.⁵ In Kenya, 39% of children under 6 months are not exclusively breastfed and 78% of children 6-23 months old do not receive the minimum acceptable diet.⁶

To promote EBF, Kenya joined various global efforts such as the baby-friendly hospital initiative (BFHI), which consists of 10 steps, summarizing a package of policies and procedures required to support breastfeeding at the health facility level.⁷ However, the impact of the BFHI was limited because a significant proportion of women still deliver at home,⁶ and even those who deliver in the hospital are discharged home quickly and require a continuity of care at the community level. To mitigate this problem and optimize child nutrition at the community level, Kenya adopted the baby-friendly community initiative (BFICI) - a World Health Organization-recommended strategy to promote optimal maternal, infant and young child nutrition (MIYCN) at the community level.⁸ The BFICI applies the principles of the BFHI by extending follow-up and care of the mother and child to the community.

The BFCI, which is now at the heart of several policies and strategies in Kenya (e.g., National Nutrition Action Plan and National Maternal Infant & Young Child Nutrition Strategy), is intended to be delivered through the community health strategy mainly by trained community health volunteers and supervised through community health extension workers. In addition, community mother support groups, peer-to-peer mother support groups, feeding demonstrations, and breastfeeding corners are an integral part of the BFCI activities. The BFCI provides a platform to improve breastfeeding, accelerate improvements in maternal nutrition and complementary feeding practices, and integrate nutrition-sensitive interventions, such as early childhood development, agriculture initiatives, and water, sanitation, and hygiene.

The BFCI's effectiveness has been demonstrated within a randomized controlled trial in Kenya.⁹ Although the BFCI implementation guidelines and a trainer's guide are available to facilitate the scaling up of the BFCI^{10 11} and the implementation of the BFCI has shown much success in Kenya, key challenges remain. These include insufficient links between the BFCI and the BFHI due to inadequate implementation and knowledge of the BFCI, lack of national BFCI training curriculum for CHVs, insufficient number of BFCI master trainers, staff turnover for BFCI trained health workers, tracking BFCI implementation within the health information system, and inadequate financial support for BFCI activities from county governments leading to demotivation of CHVs.¹² Overcoming these challenges is critical for the successful implementation and scale-up of the BFCI, as envisaged in Kenya's Nutrition Action plan 2018-2022. This will require a wider set of approaches and a focus on complex systems.¹³ A complex systems model of public health considers public health systems to be complex adaptive systems with a multitude of interdependent elements that affect each other with changes potentially affecting the entire system.¹³ Understanding how processes and outcomes at all points within a system drive change requires systems thinking – “an approach to problem solving that views problems as part of a wider, dynamic system”.¹⁴ Thus, this study aimed to strengthen understanding of stakeholder research needs to facilitate the effective functioning of the BFCI within the Kenyan primary health care system. Specifically, the study aimed to undertake a system mapping and analysis and to identify the system needs for implementation of the BFCI in Kenya. We further sought to share our findings with collaborators in Uganda and Malawi to facilitate a discussion about how the learning in Kenya could be used to inform the development of research to generate evidence to help to introduce aspects of the BFCI into community maternal and child health programmes.

2

Methodology



Photo: Community health volunteers in their income generating group. Source: Baby Friendly Community Initiative Project, Baringo, Kenya, APHRC

2.1. Overview of study approach

The study involved three phases as summarised in Figure 2:

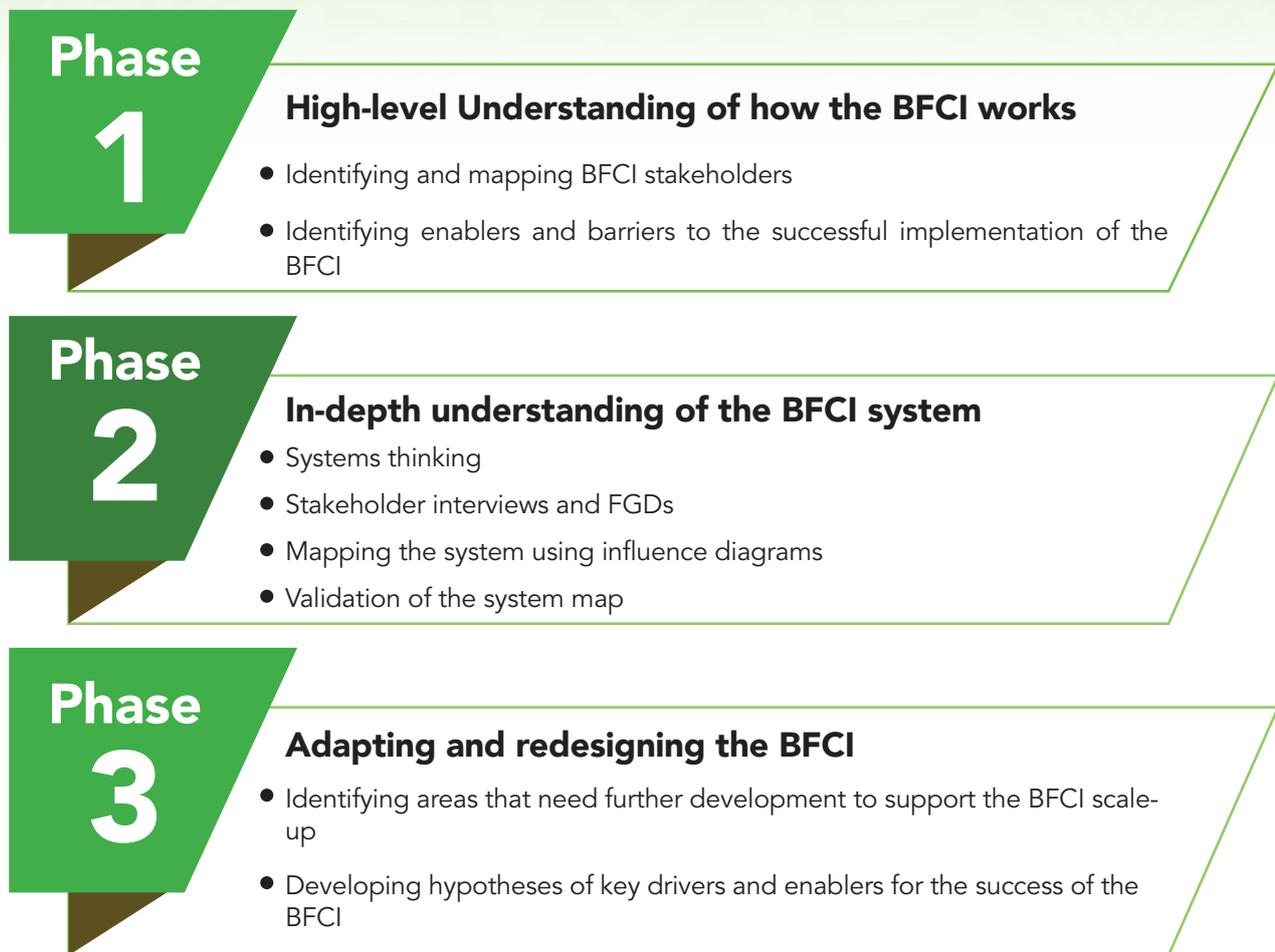


Figure 1: Overview of the study phases

2.2. Phase 1: High-level understanding of how the BFCI works

This involved identifying and mapping BFCI stakeholders at different levels of the health system (macro, meso and micro) and identifying enablers and barriers to the successful implementation of the BFCI.

2.3. Phase 2: In-depth understanding of the BFCI system

Systems thinking was used to develop an in-depth understanding of the BFCI system through stakeholder semi-structured interviews and FGDs, analysing the data, mapping the system using influence diagrams, and validation of the maps through stakeholder workshops. Influence diagrams are a systems thinking tool used to visually represent the cause and effect between the variables (factors) that define a system.¹⁵⁻¹⁷ In this study we looked at key factors (facilitators and barriers) that affect the functioning of BFCI. This facilitated a high-level qualitative analysis of the interdependencies between the variables and the implications of changing one or more of them within the BFCI system.

2.3.1. Study design

This cross-sectional survey collected qualitative data from October to November 2020 through 87 semi-structured interviews [key informant interviews (KIIs) and in-depth interviews (IDIs)] and 15 focus group discussions (FGDs) with key BFCI stakeholders at the national, county, sub-county and community levels (Figure 1).

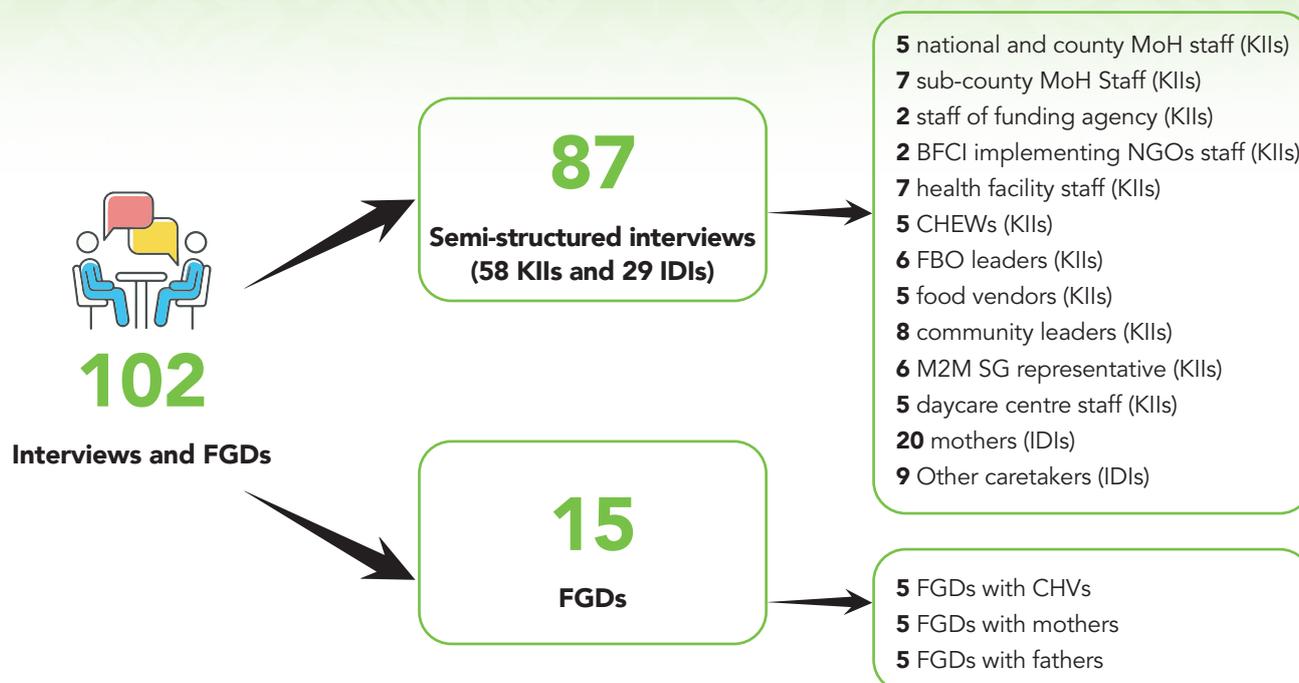


Figure 2: Participants in semi-structured interviews and focus group discussions

FBO: Faith-based organisation; M2M SG: mother-to-mother support group; CHEW: community health extension worker

2.3.3. Sampling and data collection

This study was conducted in Nairobi, Kiambu and Baringo counties in the BFCI implementing and non-implementing urban and rural sub-counties as shown in Table 1. The study sites were selected purposively while considering field logistics, available resources, the prevailing COVID-19 situation and APHRC's previous work on the BFCI.

Table 1: Study sites: County (sub-county)

| BFCI implementation/Region | Rural | Urban |
|----------------------------|------------------------------------|--------------------|
| BFCI implemented | Baringo (Koibatek) & Kiambu (Lari) | Nairobi (Dagoreti) |
| BFCI Not-implemented | Kiambu (Gatundu) | Nairobi (Ruaraka) |

Study participants were key BFCI stakeholders at the national, county, sub-county and community levels (Figure 1). The participants were selected through stratified, purposive and snowball sampling techniques. Stratification was by sub-county and category of participants (Figure 1). Participants at the national, county and sub-county levels were recruited in the study through formal invitation letters. At the community level, participants (potential users of BFCI) were identified with the help of community leaders and community health volunteers.

Data were collected by trained field interviewers using pretested open-ended interview guides (Appendix 1). KIIs focused on understanding participants' perspectives on what has worked well or less well on the BFCI implementation, demand for the BFCI in the counties that have not implemented the initiative, how BFCI implementation could be improved for scale-up, and barriers to the BFCI implementation. FGDs and IDIs sought information on respondents' views and experiences with maternal and child nutrition, barriers and facilitators in optimal child feeding, sources of information and existing programs on child feeding, the BFCI activities including things that had worked well and those that had not worked well, and recommendations for improvement. Because of the COVID-19 pandemic, most interviews were conducted virtually either through online applications or by phone. Face-to-face interviews were conducted where this was not feasible. All FGDs were conducted through face-to-face meetings while observing COVID-19 prevention measures. All interviews and FGDs were audio-recorded.

2.3.4. Data processing and analysis

The audio files were transcribed verbatim, anonymized and stored in a Microsoft Word document. Data were coded and structured using the NVivo 11 software. Members of the research team read through the coded transcripts to summarize the results and identify key variables in the BFCI system.

2.3.5. System map development

Based on the identified variables, the research team constructed an influence diagram visualising linkages between components, with the viewing to identifying the facilitators and inhibitors of the BFCI from a systems perspective. An influence diagram is an intuitive visual display of a decision problem based on people's perception of that system.¹⁵ It depicts the key elements, including decisions, uncertainties, and objectives as nodes, using various shapes and/or colours. Arrows are used to show how one variable influences another. There can be either a positive or negative effect between two variables. Kumu (<https://kumu.io/>) was used as a tool for virtual collaborative system mapping. Five virtual meetings were arranged between the research team in Kenya (subject matter experts) and the UK (system experts) to develop the diagram iteratively. Both the data from the interviews and the knowledge of our Kenyan teams were used to construct the diagram.

2.3.6. System map validation

A 90-minute virtual workshop with key stakeholders from academia, UNICEF and the Ministry of Health was carried out to validate the map. The initial map had identified seven key themes together with their influencers and effects within the BFCI system. The themes were: CHVs' level of interactions; CHVs' motivation; CHVs' level of knowledge/competency; mother's knowledge of nutrition; mother's opportunity for breastfeeding; mother's visit to the clinic; and food choice for cooking. A presentation used in this workshop is available here: <https://ThomasJun.kumu.io/system-factors-influencing-bfci-implementation>. The stakeholders provided feedback on the map including suggestions on additional variables and linkages. This information was used to redefine the themes and refine the map further. The final map consisted of five key themes as described in the results section.

2.4. Phase 3: Adapting and redesigning the BFCI

In this phase, the system map was used to identify areas that need further development to support the BFCI scale-up and developing hypotheses of key drivers and enablers for the success of the BFCI. Virtual stakeholder dissemination workshops were conducted at national and sub-county levels to share the results of the BFCI system mapping exercise, obtain feedback on the results, and identify areas of improvement and opportunities for further research. The national-level workshops lasted for three hours and included different stakeholders including senior staff from the Ministry of Health at national and county levels, UNICEF, NGOs supporting the BFCI, and academic researchers. The meeting was also attended by researchers from Uganda who are interested in introducing the BFCI in their country. The two-hour sub-county level workshops targeted the study sub-counties and included Ministry of Health staff including sub-county medical officers, nutritionists, public health officers, public health nurses, health facility staff, community health extension workers (CHEWs), and staff of NGOs supporting BFCI work in the sub-counties. Both workshops were interactive and involved discussions around each theme on what should be done to positively influence the theme and improve the BFCI, what was working/had worked well and the research needs pertinent to the specific theme. The stakeholders were further asked to vote using a virtual platform, Padlet, for two (out of five) most important areas that research on the BFCI should focus on.

2.5. Ethical considerations

This study received ethical approval from the AMREF Ethical and Scientific Review Committee (Approval # P843-2020). Administrative approval was obtained from the Ministry of Health at county and sub-county levels. Participants provided informed consent. The study was conducted based on the principles guiding research on human subjects stipulated in the Helsinki Declaration.

3

Results – Systems Maps Analysis



Photo: Mother holding a healthy exclusively breastfed baby. Source: Baby Friendly Community Initiative Project, Baringo, Kenya, APHRC

3.1. Factors that influence the functioning of the BFCI system

Figure 3 shows the overall BFCI system map. Five main factors that influence the functioning of the BFCI system were identified:

- 1 CHVs' level of interaction with the community;
- 2 CHVs' level of knowledge/competency;
- 3 The BFCI funding;
- 4 Maternal factors; and
- 5 Referral/access to health facilities.

CHVs' level of interaction with the community

Community health volunteers play an important role in the functioning of the BFCI. Our map shows the factors that influence the CHVs' level of interaction with the community as well as the parts of the BFCI activities that it influences. The relevant map is presented in Figure 4. The CHVs' level of interaction has a positive impact on CHVs' various BFCI prescribed activities including support of mothers on clinic visits through advice and referral, providing feeding advice to mothers during and after pregnancy and counselling. CHVs' level of interaction with the community is positively affected by the availability of CHVs, involvement of local authorities, and availability/ accessibility of mothers, and negatively affected by lack of availability of meeting facilities, Covid-19, and bad weather conditions, which affect mobility, and implementation of BFCI activities. Further analysis of the maps shows that maintaining the pool of potential CHVs is important to enable effective CHV interactions with the community and to maintain workload pressures and prevent their burnout.

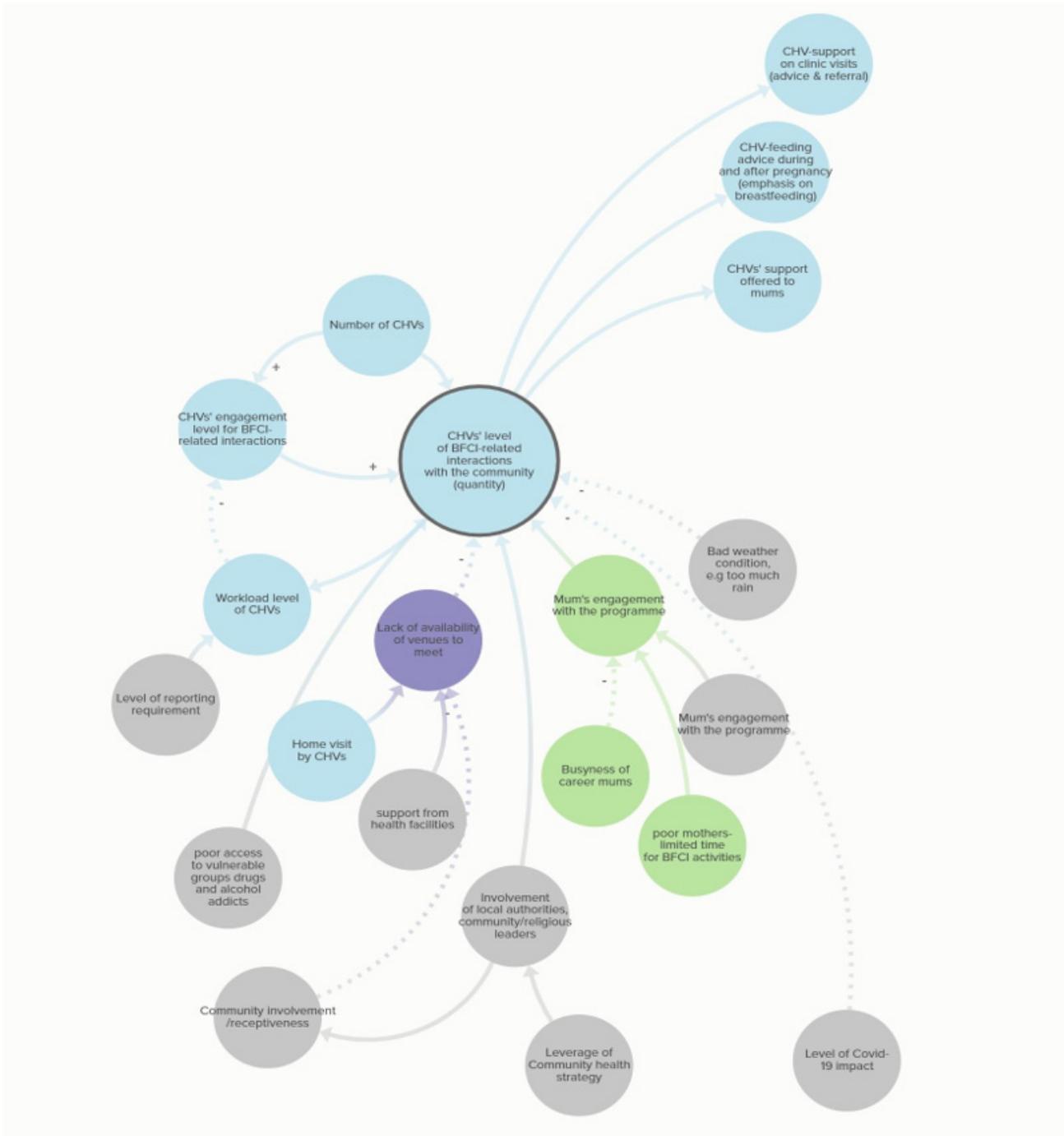


Figure 4: CHV level of BFCI-related interaction

■ CHV factors
 ■ Mother factors
 ■ External factors
 ■ Urban factors

BFCI Funding

BFCI funding is affected by the availability of funds from donors and the government and prioritization of the BFCI activities by the government. Availability of funds for the BFCI means that it enables funding for the training of CHVs in turn leading to improved CHV's knowledge and competencies, as well as payment of CHVs for their time on BFCI-related activities and related expenses. These in turn act as incentives that have a positive effect on CHV's level of engagement with the BFCI (Figure 6). Setting up income-generating activities can support the sustainability of BFCI funds, which in turn enables the availability of incentives that motivate the CHVs engagement with the BFCI in the context of reduced funding.

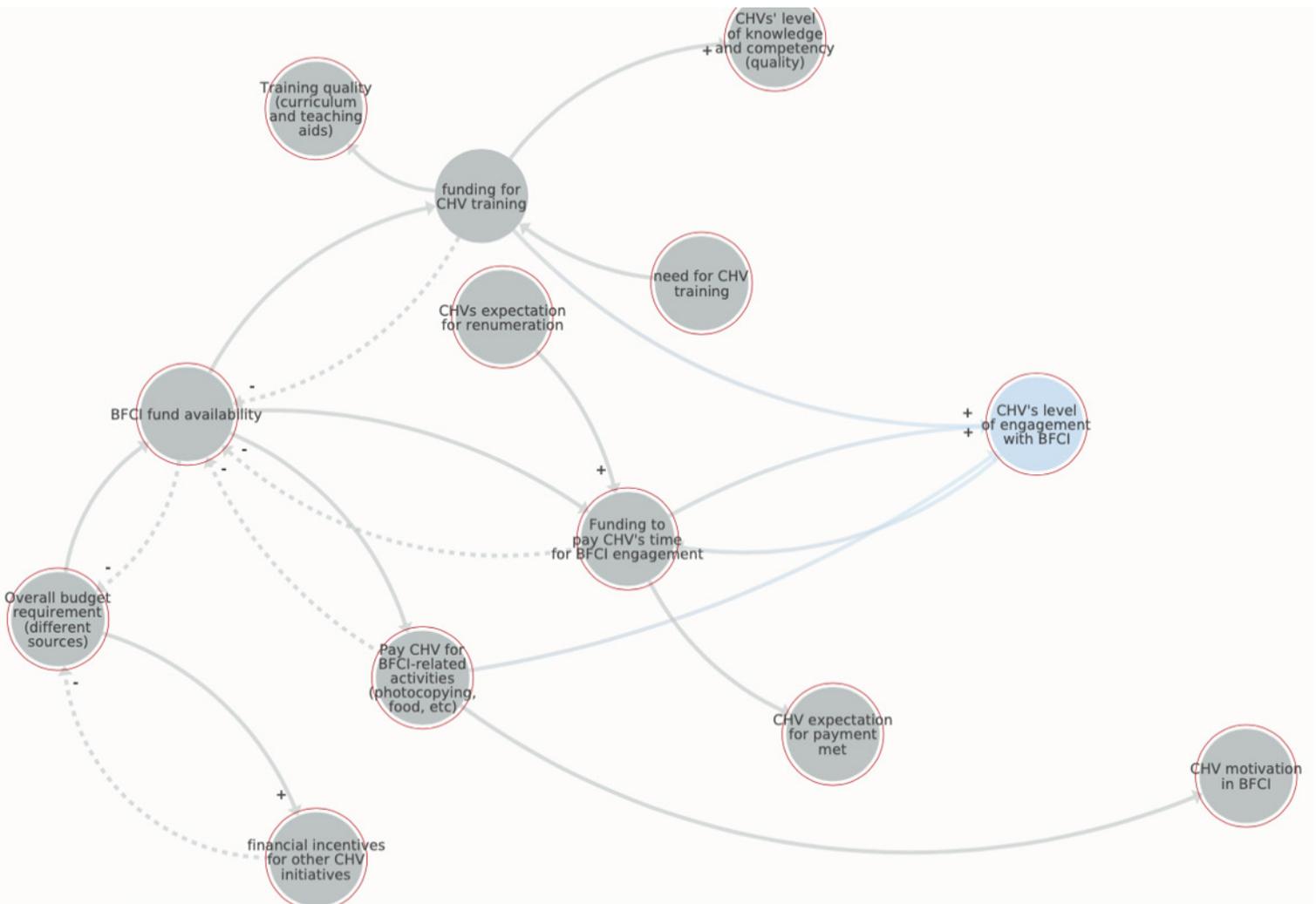


Figure 6: The BFCI funding

■ CHV factors ■ External factors

Maternal Factors

Three key maternal factors were identified, namely: 1) mother's engagement with the BFCI, 2) food choice, 3) mother's opportunity for breastfeeding, and 4) mother's access to health services.

Mother's engagement with the BFCI

Mother's engagement with the BFCI forms a critical interface between the BFCI interventions led by CHVs and the maternal and child nutrition and health outcomes. Figure 7 shows that mother's engagement with the BFCI has a positive effect on her knowledge in child health and nutrition, knowledge and skills in cooking, knowledge in water, hygiene and sanitation (WASH), and access to health facilities for routine services such as antenatal and postnatal care. Mother's engagement with the BFCI was affected by mother's time, child's nutrition status and CHV engagement/level of interaction with the community.

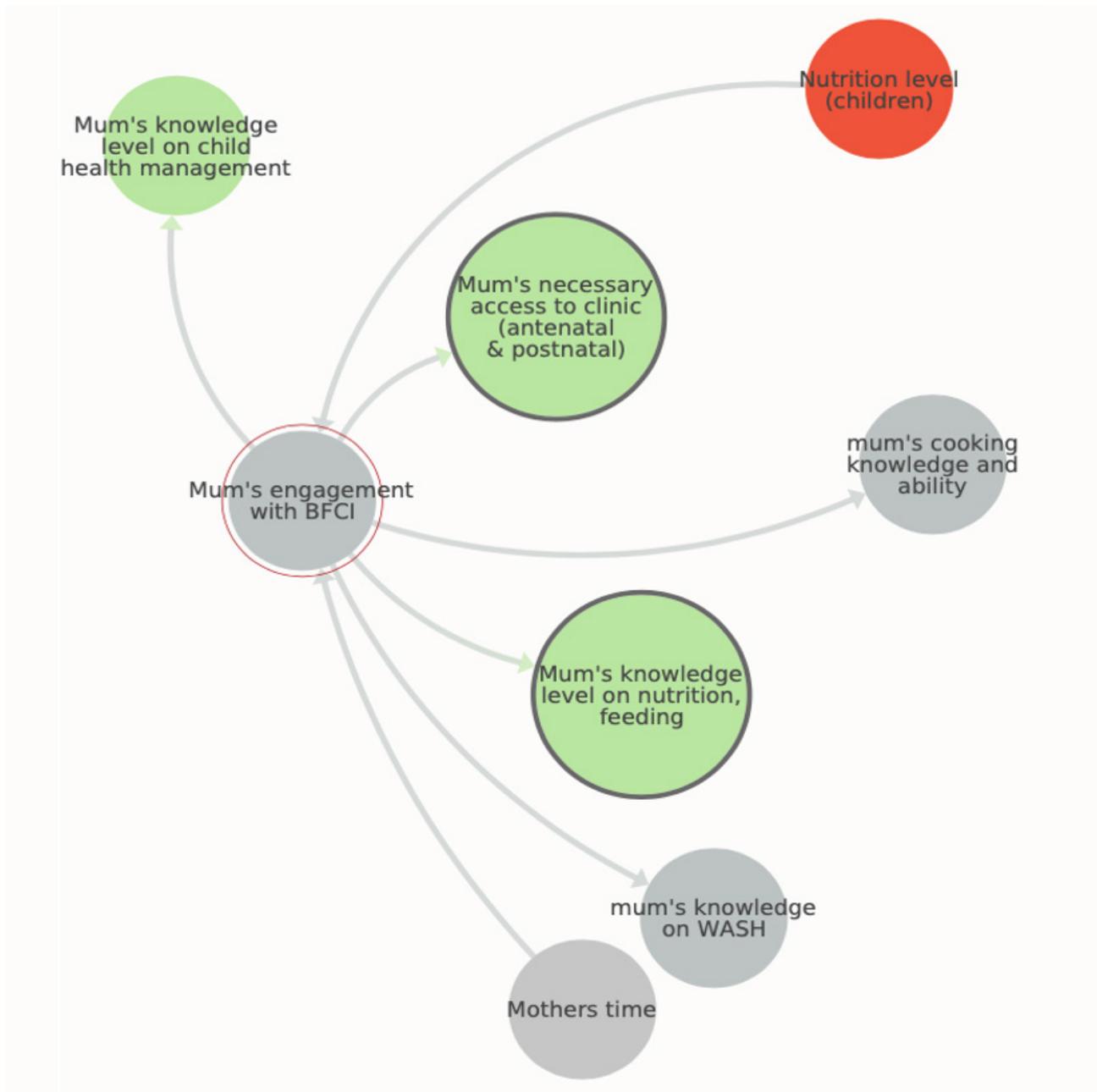


Figure 7: Mother's engagement with the BFCI

■ Mother factors ■ External factors ■ Outcomes WASH: water, hygiene & sanitation

Food choice

The type of food chosen by the mother and the cooking method has a direct effect on the nutritional status of the mother and the child (Figure 8). Food choice is in turn influenced by mother's cooking knowledge, mother's time, food accessibility and affordability and food safety. Mother's poor cooking knowledge, lack of time to prepare food, food inaccessibility lead to consumption of food with low nutritional value: high in energy and carbohydrates and low in proteins micronutrients. Mothers are also likely to choose food that is perceived to be safe and this is influenced by the prevailing hygiene and sanitation status.

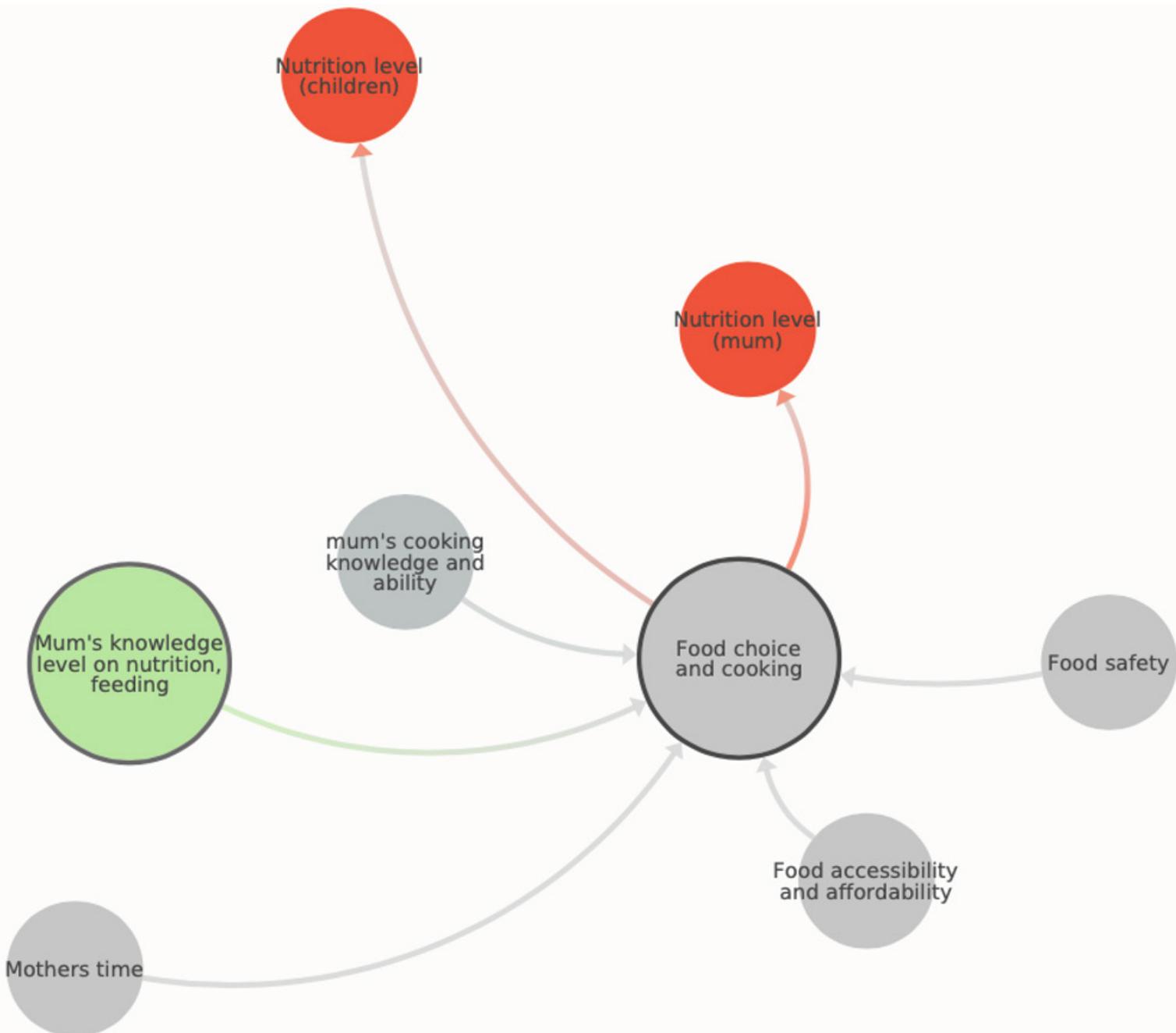


Figure 8: Food choice

■ Maternal factors ■ External factors ■ Outcomes

Mothers' opportunity for breastfeeding

Mothers' opportunity for breastfeeding has an impact on exclusive breastfeeding and is in turn affected by the availability of breastfeeding spaces (public, health facility and company), cultural beliefs, family support, and time/the availability of mothers (Figure 9). In summary, this figure shows that mothers need a supportive environment – family environment, cultural environment, time, and supportive infrastructure – to practice breastfeeding. The more mothers take up breastfeeding, the more other mothers will follow the same example through the positive impact of social and cultural support, leading to an overall improved breastfeeding rate at the community level. Participation in mother support groups, individual counselling, and personal testimonies (word of mouth) along with the availability of a breastfeeding supportive environment can have a synergistic effect in the adoption of the recommended breastfeeding practices.

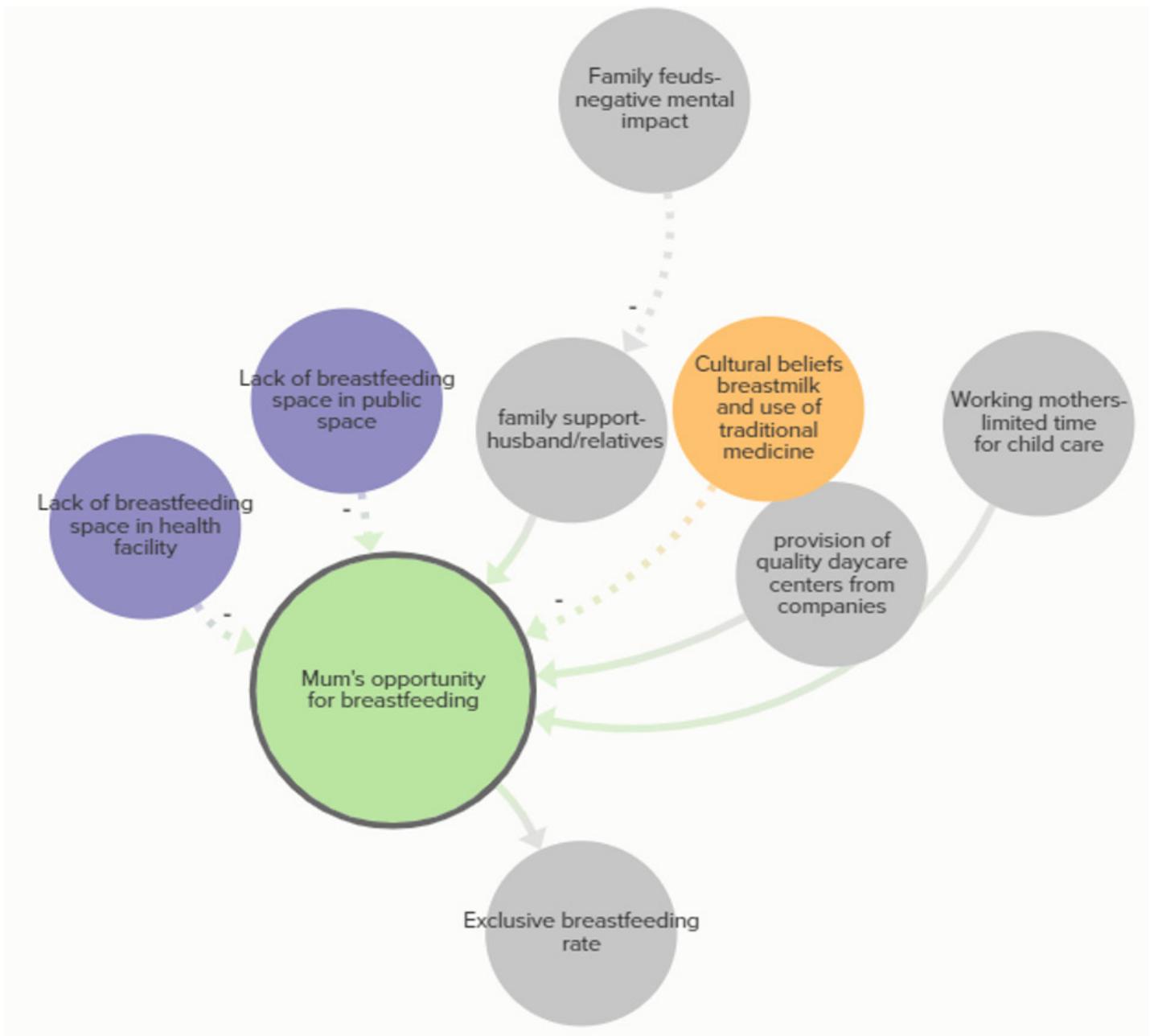


Figure 9: Mother's opportunity to breastfeed

Maternal factors External factors Rural factors Urban factors

Access/Referral to health facilities

Figure 10 shows that mother's access to health facilities has an impact on the health and nutrition status of the mother and child. This is through the support and care offered in health facilities including early diagnosis and treatment of health conditions and provision of routine maternal and child health services such as iron and folic acid supplementation, growth monitoring and immunisation (Figure 10). Mother's visit to the clinic is affected by mother's engagement with the BFCI, the accessibility of health facilities, mothers' knowledge level on child health management and mother's time. The level of interaction with CHVs-led activities plays a key role in referral to health facilities, hence again showing the important role of CHVs in the optimal functioning of BFCI activities.

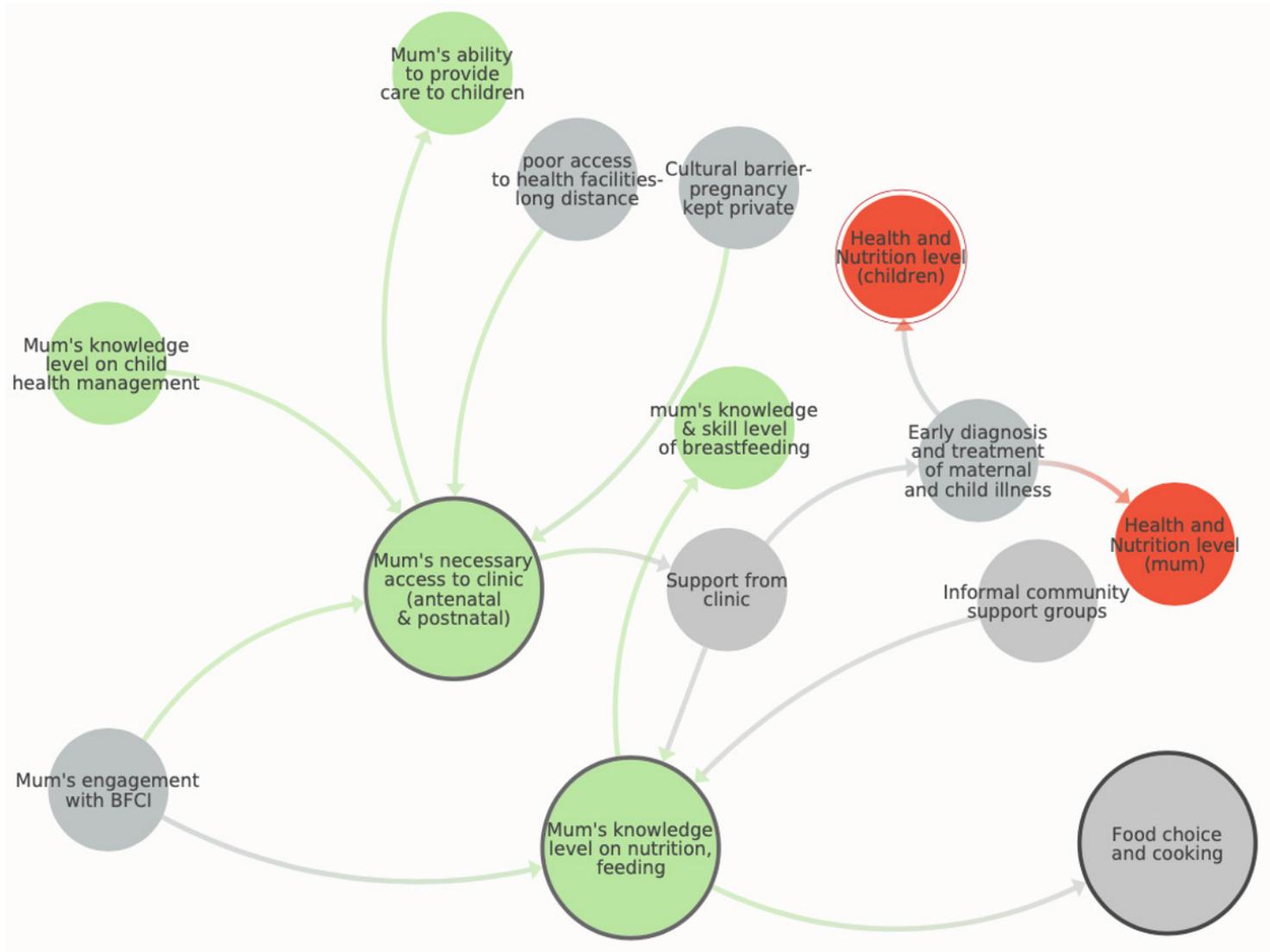


Figure 10: Mother's access to the health facilities

Maternal factors
 External factors
 Outcomes

3.2. Recommendations and prioritisation of key research areas to strengthen the BFCI

To improve the CHVs' level of interaction with the community and CHVs' level of knowledge/competency, the following recommendations are identified based on our qualitative data analysis:

- Regular training of CHVs and CHEWs to ensure they are update with and maternal and child nutrition in general and the BFCI system in particular. Regular training of CHEWs would ensure adequate supportive supervision and mentorship of CHVs. There was also a need to use simplified tools and materials to ensure the training content is accessible by CHVs with low literacy levels.
- Train health workers and local authorities to increase BFCI awareness and to ensure local buy-in and support. Training health care providers would strengthen the linkage between the BFHI and the BFCI and increase health care providers' support of the BFCI activities. Training local authorities would promote BFCI buy-in, awareness and local ownership and strengthen the support of the BFCI activities including creating an enabling environment for the BFCI to thrive.
- Include BFCI training in learning institutions' curricula. Because the BFCI was a relatively new strategy, it was suggested it should be included in the training curricula of professional health care workers (including doctors, nurses, midwives, clinical officers and public health officers) to ensure that they are familiar with the BFCI by the time they graduate and join the health workforce.
- Provide job aids and reporting tools. Provision of job aids and simplified reporting tools was necessary to facilitate the work of CHVs, promote effective health communication and improve the reporting of the BFCI activities. It was necessary to simplify the job aids and tools to make them easy to use by CHVs with low literacy levels.
- Resource centres for CHVs and community members. It was suggested that community resource centres where CHVs and community members could visit to access information on the BFCI activities and maternal and child health and nutrition be set up.
- Involvement of community stakeholders. Because the success of the BFCI system relies on several stakeholders including local administrators, religious leaders and other community-based influential persons, it was necessary to identify and involve all relevant stakeholders in planning and implementing the BFCI. This will ensure local buy-in, support, ownership, and promote sustainability.
- Career development for CHVs. Setting up a career development pathway for CHVs would motivate them and reduce attrition because of the need for career progression. This could be through setting up a system to promote CHVs and to reward the good performers.

To address the problem of funding for the BFCI, the following were suggested:

- Increased investment in the BFCI by government and local authorities. The local authorities should include BFCI activities/indicators in their annual work plans and budget for the BFCI activities in their annual budgets. Including BFCI activities in the annual work plans would also expose the BFCI to funding by the development partners who often come in to support government plans. All these will ensure the sustainability of the BFCI activities including compensation of the effort of the CHVs who play a critical role in the BFCI.
- Set up income generation activities within the BFCI. This would empower women economically and increase access to food. Income-generating activities for CHVs would supplement their income and motivate them to continue engaging in the BFCI activities.
- Because health facilities play a role in supporting the BFCI, there was a need for increased allocation of resources (financial, human resources, material and infrastructure) to health facilities to provide maternal and child health services. This would increase service availability and accessibility and strengthen the link between the health facilities and the community.

Finally, to address maternal factors (mother's engagement with the BFCI, food choice, mother's opportunity for breastfeeding) and improve access/referral to health services, the following actions were recommended:

- Setting up referral support groups for mothers. Such groups would help in referring mothers to health facilities and in overcoming referral barriers.
- Sensitizing families and relatives to support mothers to access health facilities and to identify and refer mothers to health facilities when the need arises.
- Social support through the provision of food and money. Direct support to mothers through strategies (social support programs) such as conditional cash transfers and food distribution. Such intervention can be targeted to the neediest such as the very poor and widows.
- Provision of information materials (booklets) and dissemination of information through text messages. These were thought to be effective methods of health education.
- Providing support (resources and finances) to clinics in the community to support health education.
- Individual counselling of mothers and use of personal testimonies (word of mouth) to educate and encourage mothers to participate in the BFCI
- Addressing cultural beliefs through social behaviour change communication strategies
- High-level advocacy/involvement of county leaders to ensure the BFCI is prioritised in the counties/sub-counties.

A key recommendation that emerged from the stakeholder engagement workshop was the need for better integration of the BFCI into the existing community health strategy.

Stakeholders who attended the BFCI mapping dissemination workshop were asked to prioritise the needs of the BFCI on which research should focus. The key priority areas were BFCI financing, followed by CHVs' knowledge and competency, and CHVs' level of interactions with the community. The voting page is available here: [BFCI Padlet Stakeholder engagement workshop 19 May 21](#). BFCI financing should focus on the cost-benefit analysis of the intervention. This would provide solid evidence to advocate for BFCI funding by the government.

4 Discussion



Photo: Women in a mother support group (A mother to mother support group is a group of mothers (9-15), pregnant and lactating or with children < 5 years, who meet on a regular basis to discuss and support each other on maternal infant and young child nutrition). Source: Baby Friendly Community Initiative Project, Baringo, Kenya, APHRC

The mapping exercise also identified influencers and effects of each key factor and the complex interdependencies between different elements in the system. Our findings were highly informed by stakeholders and incorporated views from different levels and parts of the BFCI, including in rural and urban areas. This provides a holistic and representative picture of the system, something that would not have been possible had we focused on just one part of the BFCI. Moreover, stakeholders put forward ways to improve the BFCI and prioritised areas for further research. Stakeholder involvement in the study was guided by elements of a multi-methodology framework that encourages the evaluation and analysis of systems through stakeholder-oriented workshops.¹⁸

Enablers of the BFCI included CHVs' engagement in the BFCI activities, supportive supervision of CHVs, CHV training leading to improved knowledge, mothers' engagement in the BFCI activities leading to improved knowledge in child care and nutrition, support from family members, and support from local authorities. Barriers to the functioning of the BFCI included insufficient funding for BFCI leading to lack of adequate remuneration of CHVs and attrition of trained CHVs, CHV workload, lack of breastfeeding spaces (public, health facility and company), cultural beliefs, mother's limited time for child care and engagement in the BFCI due to competing daily livelihood activities, lack of venues for BFCI meetings, insufficient support from health facilities, bad weather, Covid-19, poor access to health facilities, food inaccessibility, and lack of affordability of food. Inadequate integration of the BFCI into existing community health infrastructures also emerged as a key barrier to the functioning and sustainability of the BFCI.

Funding for BFCI activities was perceived to be the biggest challenge to ensure sustainability and was prioritised for further research. It was felt that advocating for BFCI funding by the government would be successful if the information of the cost of the BFCI was provided in addition to what is already known about the BFCI effectiveness. This information is not currently available to the government. Although the intention was to fully integrate the BFCI within the community health strategy, it emerged that this had not been fully achieved and further research is needed to inform a more fully integrated BFCI programme into this system. Our analysis also shows the important role that CHVs play in the successful functioning of the BFCI. This was also a key priority area voted by the stakeholders. Our analysis suggests that supporting CHVs by offering appropriate (financial and non-financial) incentives and training can benefit the BFCI.

Systems thinking in public health is gaining traction¹⁹ and the approach has been used to tackle complex health problems including obesity²⁰ and neonatal mortality.²¹ However, to our knowledge, no study has applied this method to analyse the BFCI system. Our findings on the factors influencing the functioning of the BFCI are consistent with those in previous reports regarding the challenges in implementing the BFCI.¹² We further identified the need for better integration of the BFCI into existing community health infrastructures as a key enabler to the functioning and sustainability of the BFCI.

5 Next steps and future work



Photo: A community health volunteer counselling mothers on MIYCN at home using counselling cards. Source: Baby Friendly Community Initiative Project, Baringo, Kenya, APHRC

We plan to prioritize future research based on the research findings and stakeholder discussions, which point towards full integration of the BFCI into the community health system as a scale-up strategy. This will involve an operational analysis of the BFCI processes and costs involved in incorporating BFCI within the primary health system. This will be closely monitored using a robust monitoring and evaluation framework of the BFCI performance and outcomes. We also plan to work closely with our partners in Uganda and Malawi to explore potential ways in which the BFCI can be implemented in existing policies and health systems.

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Appendix: Study tools

A. Key informant interview guide (National and County level stakeholders)

| Ice Breaker question |
|--|
| <ul style="list-style-type: none">• How are you?• Tell us about your background (family life, age range, educational background, daily routine and work) |
| Main Questions |
| <p><i>Now, I would like us to talk about the government's program called the Baby Friendly Community Initiative (BFCl). BFCl is a community-based initiative that was developed to promote and support optimal maternal and child nutrition at community level.</i></p> |
| <ol style="list-style-type: none">1. What is the current state of implementation of BFCl?2. What should its vision be from your perspective?3. Can you tell us something about the places or people the BFCl works best for?<ul style="list-style-type: none">• Why do you think that is the case?4. Can you tell us about any people or places that the BFCl works less well for?<ul style="list-style-type: none">• Why do you think that is the case?5. What are the positive effects of the BFCl?6. Are there any unintended consequences of BFCl? Tell me more...7. What helps/impedes the successful running of the BFCl?8. What other programmes/initiatives are going on?<ul style="list-style-type: none">• Are these integrated within the BFCl?• If not, can they be integrated?9. How has Covid-19 affected the BFCl?10. In your opinion, what could be done to reduce the impact of Covid-1911. Is the BFCl affordable? Tell me more...12. How can BFCl be made more efficient?13. Are there any planned changes to the BFCl programme or changes (recommendations) that should be introduced if scaled up to wider communities? |
| Questions & Comments |
| <ol style="list-style-type: none">14. Do you have any questions or additional information regarding what we have just discussed? |

B. Key informant interview guide (Representatives from Sub-counties and health facilities with BFCI implementation)

Ice Breaker question

- How are you?
- Tell us about your background (family life, age range, educational background, daily routine and work)

Main Questions

Now, I would like us to talk about the government's program called the Baby Friendly Community Initiative (BFCI). BFCI is a community-based initiative that was developed to promote and support optimal maternal and child nutrition at community level.

1. Tell us how you think the BFCI works?
Probe
 - Where it is working successfully
 - Where it is working less successfully
2. What is the current state of implementation of BFCI in your region?
3. Can you tell us something about the places or people the BFCI works best for?
 - Why do you think this is the case?
4. Can you tell us about any people or places that the BFCI works less well for
 - Why you think this is the case?
5. What helps the successful running of the BFCI?
6. What impedes the successful running of the BFCI?
7. What are the positive effects of the BFCI?
8. Are there any unintended consequences of BFCI?
9. Is the BFCI affordable? Tell me more?
10. How could BFCI be made more efficient?
11. What parts (people, sources of information) of the BFCI do you regularly use or communicate with?
12. How do they help towards achieving the BFCI program objectives?
13. Are there any planned changes to the BFCI program or changes that should be introduced if it is scaled up to wider communities?
14. How has COVID19 affected child feeding and care in your region?
15. In your opinion, what could be done to reduce the impact of Covid-19

Questions & Comments

16. Do you have any questions or additional information regarding what we have just discussed

C. Key Informant Interview Guide (Representatives from Sub-counties and health facilities without BFCI implementation)

| |
|---|
| Ice Breaker question |
| <ul style="list-style-type: none">• How are you?• Tell us about your background (family life, age range, educational background, daily routine and work) |
| Main Questions |
| <i>Now, I would like us to talk about the nutrition of children and mothers in this sub-county/ health facility</i> |
| <ol style="list-style-type: none">1. Tell us what support you are currently providing to promote optimal nutrition level of babies/infants and mothers.2. What services are available to support families with newborn – 6 month's (newborns and infants younger than 6 months) old nutrition?<ul style="list-style-type: none">• To what extent is this available? (coverage-everywhere, all facilities, completeness)• Are mothers/families aware of the provisions/support available?3. What are the challenges that mothers/families face with child nutrition?4. Tell us about what extra support is needed in your region on maternal and child nutrition?<ul style="list-style-type: none">• What areas or people require more support with infant feeding?5. How has COVID19 affected child feeding and care in your region?6. In your opinion, what could be done to reduce the impact of Covid-19 |
| <i>Now, I would like us to talk about the government's program called the Baby Friendly Community Initiative (BFCI). BFCI is a community-based initiative that was developed to promote and support optimal maternal and child nutrition at community level.</i> |
| <ol style="list-style-type: none">7. Have you heard about the BFCI? What have do you know about the BFCI?<ul style="list-style-type: none">• If so, how do you think it would work in your area? |
| Questions & Comments |
| <ol style="list-style-type: none">8. Do you have any questions or additional information regarding what we have just discussed? |

D. In-depth interviews and focus group discussions guide (Representatives from communities with BFCI implementation)

Ice Breaker question

- How are you?
- *Unaendelea aje?*
- Tell us about your background (family life, age range, educational background, daily routine and work)
- *Nielezee zaidi kukuhusu (Family, umri, masomo, kazi yako ya kila siku)*

Main Questions

Now, I would like us to talk about the nutrition of children and mothers in this community

1. Tell us about how you promote optimal nutrition standards for the baby/infant and mother?
 - *Nielezee jinsi unavyo endeleza lishe bora kwa wototo na akina mama*
 - What do you consider good nutrition standards for your child and yourself?
 - *Kwa maoni yako, lishe bora inamaanisha nini kwako na kwa mtoto wako*
 - Do you think you achieve this?
 - *Je, unafikiri kwamba unatimiza lishe bora kwako na kwa mtoto wako?*
2. What support do you have in your day-to-day baby feeding routine?
 - *Unapata usaidizi gani siku kwa siku, kwa kulisha mtoto*
 - Who offers this support to you?
 - *Ni nani anaye kupatia usaidizi huu?*
3. What are the biggest challenges you face with feeding your baby?
 - *Ni changamoto gani unazozipitia kwa kumllisha mtoto wako*
4. What step(S) have you taken when you are faced with these challenges?
 - *Je, umechukua hatua gani kukabiriana na changamoto hizi*
5. Did it work?
 - *Je, hatua hizi zinafanikiwa?*
6. If it didn't work, what would you do differently next time?
 - *Kama hazijafanikiwa, ni jambo gani ungetaka kubadilisha?*
7. Who do you consult with and trust for advice and information about breastfeeding and child nutrition?
 - *Je nani unayepata na kuamini ushauri kwake, kuhusu kunyonyesha na kulisha mtoto wako.*
8. Information Sources: Do you belong to any social, professional, or networking groups? Tell me more...
 - *Je, umejiunga na kikundi chochote? Nielezee Zaidi..*
 - What type of information (leaflets, email, and phone, face-to-face, other) do you find most useful?
 - *Je ni ushauri gani ambao unaokusaidia sana?*
9. How has COVID-19 affected the feeding and care for your child?
 - *Je, COVID 19 (coronavirus) imeadhiri unavyolisha na kuchunga mtoto wako?*
10. In your opinion, what could be done to reduce the impact of Covid-19
 - *Kwa maoni yako, ni jambo gani ambalo linaweza kupunguza adhari za COVID 19 (corona virus) kwa lishe ya mtoto wako?*

Now, I would like us to talk about the government's program called the Baby Friendly Community Initiative (BFCI). BFCI is a community-based initiative that was developed to promote and support optimal maternal and child nutrition at community level.

7. Tell us about what you make of the BFCI.
 - *Nielezee maoni yako kuhusu mradi wa BFCI?*
8. To what extent have you made use of the BFCI?
 - *Ni kwa kiwango gani umetumia/ umepata usaidizi wa BFCI?*
9. How did you find out about the BFCI?
 - *Je, ulijua aje kuhusu BFCI?*
10. Can you say something about how you think the BFCI works?
 - *Je, unaweza kunielezea jinsi mradi wa BFCI unavyofanya kazi?*

Probe

 - Where and in what ways is it working successfully
 - *Ni wapi, na mambo gani yanayo endelea vizuri kuhusu BFCI?*
 - where and In what ways is it working less successfully
 - *Ni wapi, na mambo gani ambayo hayaendelei vizuri kuhusu BFCI?*
11. What impact does the support you have received have on you personally and your family?
 - *Je usaidii unaopata kupitia BFCI umekuathiri aje, wewe na jamii yako?*
12. What element of the BFCI did you find particularly useful to achieve a good nutrition standard for you and your baby? Why?
 - *Je ni jambo gani kuhusu BFCI linalokufaifi sana kuafikia lishe bora, kwako na kwa mtoto wako.*
13. What parts (people, sources of information) of the BFCI do you regularly use or use less? Why?
 - *Je, ni sehemu gani ya BFCI (watu, mawaidha) ambayo unaitumia sana/mara kwa mara au kidogo?*

Kwa nini
14. What could the BFCI do differently to support you and your family to maintain good child nutrition?
 - *Ni jambo gani BFCI inaweza fanya Zaidi kukusaidia wewe na jamii yako kudumisha lishe bora ya mtoto wako?*
15. How has COVID-19 affected how BFCI runs in your community?
 - *Je Korona imeathiri aje shughuli za BFCI katika kujiji hiki/chako?*
16. In your opinion, what could be done to reduce the impact of Covid-19
 - *Kwa maoni yako , ni jambo gani ambalo linaweza kupunguza adhari za COVID 19 (corona virus) kwa BFCI*

Questions & Comments

17. Do you have any questions or additional information regarding what we have just discussed?
 - *Una maswali ama jambo la kuongezea kuhusu mambo ambayo tumejadiliana?*

E. In-depth interviews and focus group discussions guide (Representatives from communities with without BFCI implementation)

Ice Breaker question

- How are you?
 - *Habari Yako*
- Tell us about your background (family life, age range, educational background, daily routine and work)
 - *Nielezee Zaidi kukuhusu (Familia, umri, masomo, kazi yako ya kila siku)*

Main Questions

Now, I would like us to talk about the nutrition of children and mothers in this community

1. Tell us about how you promote optimal nutrition standards for the baby/infant and mother?
 - *Nielezee jinsi unavyo endeleza lishe bora kwa wototo na akina mama*
 - What do you consider good nutrition standards for your child and yourself?
 - *Kwa maoni yako, lishe bora inamaanisha nini kwako na kwa mtoto wako*
 - Do you think you achieve this?
 - *Je, unafikiri kwamba unatimiza lishe bora kwako na kwa mtoto wako?*
2. What support do you have in your day-to-day baby feeding routine?
 - *Unapata usaidizi gani siku kwa siku, kwa kulisaha mtoto*
 - Who offers this support to you?
 - *Ni nani anaye kupatia usaidizi huu?*
3. What are the biggest challenges you face with feeding your baby?
 - *Ni changamoto gani unazozipitia kwa kumlisaha mtoto wako*
4. What step(S) have you taken when you are faced with these challenges?
 - *Je, umechukua hatua gani kukabiliana na changamoto hizi*
5. Did it work? (skip Q 6)
 - *Je, hatua hizi zinafanikiwa?*
6. If it didn't work, what would you do differently next time?
 - *Kama hazijafanikiwa, ni jambo gani ungetaka kubadilisha?*
7. Who do you consult with and trust for advice and information about breastfeeding and child nutrition?
 - *Je nani unayepata na kuamini ushauri kwake, kuhusu kunyonyesha na kulisaha mtoto wako.*
8. Information Sources: Do you belong to any social, professional, or networking groups? Tell me more...
 - *Je, umejiunga na kikundi chochote? Nielezee zaidi...*
 - What type of information (leaflets, email, and phone, face-to-face, other) do you find most useful?
 - *Je ni ushauri gani ambao unaokusaidia sana?*
9. How has COVID-19 affected the feeding and care for your child?
 - *Je, COVID 19 (corona virus) imeadhiri unavyolisha na kuchunga mtoto wako?*
10. In your opinion, what could be done to reduce the impact of Covid-19
 - *Kwa maoni yako, ni jambo gani ambalo linaweza kupunguza athari za COVID 19 (corona virus) kwa lishe ya mtoto wako?*

11. Tell us about what additional support you may need?

- Nielezee kuhusu usaidizi Zaidi amabao ungetaka / ungehitaji kuhusu lishe yako na moto wako..

12. Are you aware of any organizations that can offer help with child nutrition? Tell me more...

- Je kuna miradi au mashirika mengine yanayo patiana usaidizi kuhusu lishe bora? Nieleze zaidi...

● Have you used them?

- Je umetumia/ kupata usaidizi kutoka kwao?

Now, I would like us to talk about the government's program called the Baby Friendly Community Initiative (BFCl). BFCl is a community-based initiative that was developed to promote and support optimal maternal and child nutrition at community level.

13. Have you heard about the BFCl? Tell me more...

- Je, umesikia kuhusu BFCl? Nielezee zaidi

14. What type of support would help you and your household to maintain good child nutrition?

- Je, ni usaidizi gani amabao unaweza kukusaidia wewe na jamii yako kudumisha lishe bora

Questions & Comments

15. Do you have any questions or additional information regarding what we have just discussed



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