


Barriers and facilitators to the implementation of nutrition interventions at primary health care units of Ethiopia: A consolidated framework for implementation research

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Funding information

Irish Aid

Abstract

Accumulating evidence clearly shows poor implementation of nutrition interventions, in Ethiopia and other African countries, with many missed opportunities in the first 1000 days of life. Even though there are high-impact interventions in this critical period, little is known about the barriers and facilitators influencing their implementation. This paper aims to explore barriers and facilitators for the implementation of nutrition services for small children with a focus on growth monitoring and promotion, iron-folic acid supplementation and nutrition counselling. We conducted a qualitative study in four districts of Ethiopia. The data collection and analysis were guided by the consolidated framework for implementation research (CFIR). A total of 42 key informant interviews were conducted with key stakeholders and service providers. Interviews were transcribed verbatim and coded using CFIR constructs. We found that from 39 constructs of CFIR, 14 constructs influenced the implementation of nutrition interventions. Major barriers included lack of functional anthropometric equipment and high caseload (complexity), poor staff commitment and motivation (organisational incentive and reward), closed health posts (patient need and resource), false reporting (culture), lack of priority for nutrition service (relative priority), poor knowledge among service providers (knowledge and belief about the intervention) and lack of active involvement and support from leaders (leadership engagement). Adaptability and tension for change were the facilitators for the implementation of nutrition interventions. Effective implementation of nutrition interventions at primary health care units requires several actions such as improving the healthcare providers' motivation, improving leadership engagement, and creating a strong system for monitoring, supportive supervision and accountability.

KEYWORDS

1000 days nutrition, barrier and facilitator, consolidated framework, implementation research, primary health care

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1 | INTRODUCTION

Good nutrition is the starting point for the foundation of a sustainable future (UNICEF, 2018). The first 1000 days represent a window of opportunity from conception through the first 2 years after birth (Dadhich & Faridi, 2013; Uauy et al., 2013). This period is a vulnerable period where poor nutrition can have short and long-term consequences for health and functioning (Beluska-Turkan et al., 2019; McDonald & Thorne-Lyman, 2017; Schwarzenberg & Georgieff, 2018).

Malnutrition remains a core public health issue, contributing to over 50% of child deaths in developing nations (Heikens et al., 2008). Despite the wealth of evidence confirming the effects of nutrition interventions (Bain et al., 2013; Rosenberg et al., 2018), there is a huge gap in the implementation and scale-up of nutrition programmes in Africa (Moench-Pfanner et al., 2012). Cognizant of this, implementation research, aimed to fill the 'know-do' gap, has gained more attention in the past decade. Bottlenecks such as poor infrastructure, conflicts and limited resources impede the effective implementation of nutrition programmes in Africa (Fanzo, 2012). A scoping review of barriers and facilitators to the implementation of nutrition interventions in Africa identified key areas to address: (1) supportive policy and legislation, (2) stronger leadership, strategic partnerships and coordination across multiple sectors, (3) effective resource mobilisation and (4) adapting interventions to ensure cultural acceptability and local needs (Ezezika et al., 2021). Experts recommended evidence-based nutrition interventions including exclusive breastfeeding, appropriate complementary feeding, proper hygiene and micronutrient supplementation (Bhutta et al., 2013).

Ethiopia commits to global policies and strategies, such as the SUN movement, that contribute to improving the nutrition and health of women of reproductive age, children, adolescents and infants. In Ethiopia, 38% of children under age 5 are stunted, 10% are wasted and 24% are underweight (CSA and ICF, 2016). The revised National Nutrition Programme of Ethiopia aims to strategically address nutrition problems in the first 1000 days through implementation of these high-impact evidence-based interventions (Government of Ethiopia, 2016). However, landscape analysis of nutrition services in four regions of Ethiopia revealed poor implementation of nutrition interventions (Fenta et al., 2020). Therefore, understanding the factors that influence implementation is crucial to improve the uptake of nutrition interventions in Ethiopia.

We conducted this study with the aim of assessing barriers and facilitators for implementation of nutrition interventions including, growth monitoring and promotion (GMP), iron-folic acid (IFA) supplementation and nutrition counselling using the consolidated framework for implementation research (CFIR). We also aimed to generate actionable findings that can be used by practitioners for improved implementation.

Key messages

- Key barriers include lack of resources such as functional anthropometric equipment, high caseload, poor staff commitment and motivation, closed health posts, false reporting and lack of accountability, lack of priority for nutrition services, poor nutrition counselling, and poor leadership engagement and support.
- Improving implementation of nutrition services requires systematic identification of barriers and designing adaptable solutions.
- Our study highlights the need for separate growth monitoring and promotion (GMP) rooms and service providers. Service providers need adequate training to provide nutrition services. There is a need for improved monitoring supervision, leadership engagement and regular and improved carrier development and incentives.

2 | METHODS

2.1 | Study setting

The present study was part of a broader implementation research conducted by Addis Ababa University in collaboration with the Federal Ministry of Health of Ethiopia (FMOH) and Irish Aid. The goal of the project was to create model nutrition districts, which implement an evidence-based package of nutrition interventions through the continuum of care. This initiative is part of Ethiopia's national commitment to addressing nutrition problems. The study was conducted in selected districts of four regions of Ethiopia, that is, Amhara, Oromia, Tigray and Southern Nations Nationalities and Peoples' Region. One district from each region was selected for the study. The districts were South Achefer, Kombolcha, Raya Azebo and Offa. The estimated catchment populations for these districts were 161,644, 189,945, 159,347 and 135,136, respectively.

2.2 | Study approach and period

We conducted a qualitative study to investigate barriers and facilitators to the implementation of nutrition interventions at primary health care units (PHCUs). We used the CFIR to guide tool development, data collection and analysis and to present key actionable findings. The CFIR was developed to guide the systematic assessment of multilevel implementation contexts to identify factors that might influence implementation and effectiveness of an intervention (Damschroder et al., 2009). In addition, it can also help produce actionable findings to inform practitioners to improve implementation. Therefore, we found CFIR well suited to guide

barrier and facilitator analysis in the complex setting of primary health care.

The CFIR comprises 39 constructs organised across five domains. The domains include; intervention characteristics, inner and outer setting, characteristics of individuals and implementation process (Damschroder et al., 2009). This study was conducted from 13 to 28 September 2018.

2.3 | Sample size and study participants

We purposively selected 42 participants from the community, PHCUs, district health offices and other relevant stakeholders who had ample experience in nutrition interventions. We determine the sample size based on saturation. We selected 10 participants from each region (total of 40) and the remaining 2 from FMOH and PFSA. The study participants were district health office heads ($n = 4$), nutrition focal persons ($n = 4$), service providers from antenatal care (ANC) unit ($n = 4$), delivery ($n = 4$), postnatal care (PNC) unit ($n = 4$), under five outpatient department ($n = 4$), immunisation unit ($n = 4$), health extension workers (HEWs) ($n = 4$), opinion leaders ($n = 4$) and mothers ($n = 4$). In addition, we also included participants from the FMOH ($n = 1$) and Pharmaceutical Fund and Supply Agency (PFSA) ($n = 1$) to understand policy makers' perspectives. PFSA is an agency mandated to ensure the availability of pharmaceuticals in Ethiopia.

2.4 | Data collection

We developed a semistructured interview guide using the CFIR domains/construct (<http://www.cfirguide.org/>) and the comprehensive integrated nutrition services (CINS) guideline. The CINS guideline recommends the provision of evidence-based nutrition interventions such as optimal breastfeeding, complementary feeding, GMP, iron-folic acid supplementation, nutrition counselling, hygiene and sanitation. These interventions are provided through integration with different services such as immunisation, child outpatient care, ANC, and PNC. The interview guide mainly focused on GMP, IFA supplementation for pregnant mothers and counselling services on exclusive breastfeeding, complementary feeding and water, sanitation and hygiene (WASH). We developed separate interview guides to conduct the interview with different stakeholders. We pilot-tested the interview guide and made refinements to make sure the guide could elicit the information we intended to capture. The piloting was conducted among healthcare providers and leaders that were not included in this study. Based on the pilot interviews, we paraphrase some of the CFIR questions and also added more probing questions to get detailed information on the different aspects of nutrition interventions.

Well-experienced project coordinators, principals and coinvestigators collected the data. During data collection, we asked about interviewees' experience with nutrition services and related barriers and facilitators. We asked probing questions, through the lens of

CFIR constructs, to obtain rich data on the barriers and facilitators of implementation of nutrition interventions.

We conducted the interviews face to face in a quiet place and ensured privacy to enable participants to feel free while expressing their opinions. The interviews were 50–130 min long. All interviews were audio recorded and transcribed verbatim to the local language and then translated to English. The same research team transcribed and translated all the recorded interviews. Finally, we exported the data to Open code software version 4.02 for coding and further analysis.

2.5 | Coding

We initially considered all 39 CFIR constructs and their definitions as codes to capture factors that might influence the implementation of nutrition interventions. These CFIR codes were analytical in that they required the coder to interpret the data and then apply the CFIR code that reflected a potential barrier or facilitator being described.

To condense the data for analysis, we were cautious in applying the fewest codes possible. When coding the data, we made three decisions. First, we determined the nutrition intervention (GMP, IFA and counselling services) and assigned the appropriate operational code (e.g., GMP service). Second, we identified which one of the five CFIR domains reflected the principal implementation theme in the data (e.g., inner setting). Third, we determined which CFIR code within that identified domain was reflected in the data segment and assigned the appropriate contextual code (e.g., available resource).

In the third step, we applied codes to capture the principal implementation theme in the data segment, by applying only one CFIR code per CFIR domain. The use of one CFIR domain per data segment was our general rule, however, we made exceptions if two CFIR domains were equally reflected in the data segment. During such a case, we selected both domains and applied a CFIR code for each, but did not apply more than one CFIR code per domain. This helped us to avoid over-applying of codes, by focusing our interpretation on the most relevant CFIR constructs found in the data. Finally, we used one code for each segment of the data during analysis, even if two or more constructs were used during the initial coding. Overall, we used 16 CFIR constructs to analyze and report our data.

2.6 | Data analysis

We applied a framework analysis approach using CFIR as the framework. The same research team, who conducted the interview, did the data analysis and interpretation. First, we did multiple reviews of the transcripts and tape records to familiarise ourselves with the data. Second, we did coding using the CFIR domains and constructs. Third, we generated code reports from Open code for GMP, IFA and counselling services. Fourth, we developed analytic summaries for GMP, IFA and counselling using CFIR construct (e.g., relative priority,

complexity). Finally, we determined whether the construct exerted a negative, positive or neutral influence on the implementation of different nutrition services.

2.7 | Ethical statement

Ethical clearance was obtained from the Research Ethical Committee of the School of Public Health, Addis Ababa University. In addition, permission was obtained from relevant Federal and local government offices. Written informed consent was obtained from the participant after the necessary explanation about the purpose, procedures, benefits and risks of the study have been made. The respondent's right to refuse a few or all of the questions was respected at all times. In addition, the privacy of participants and confidentiality of the information obtained was kept. All audio records were stored in a password-protected computer that can be accessed by the investigators only.

3 | RESULTS

We conducted a total of 42 key informant interviews. Fourteen constructs across the five domains of the CFIR model emerged as important factors influencing the implementation of nutrition intervention either positively or negatively. We report the key constructs for each domain using illustrative quotations. In addition to our narrative report, we developed a summary table of barriers and facilitators to the implementation of nutrition interventions organised by CFIR domains (Table 1). Presenting barriers and facilitators in this manner is helpful to identify key areas that need further improvement. We have summarised and presented examples of actionable findings organised by the five CFIR domains in Table 2. We define an actionable finding as one that provides information about changes that can be made to improve the implementation of nutrition intervention.

3.1 | Domain 1: Intervention characteristics

In this domain, three constructs: relative advantage, adaptability and complexity emerged as important factors influencing the implementation of nutrition intervention.

3.1.1 | Relative advantage

Many service providers feel that the more complex programmes such as IFA supplementation and GMP are not always better than already available counselling options. Quite often, service providers would give a mother information about healthy feeding by giving them a card with information. This is less bothersome than measuring the child at the health care facility, but in doing this way, the child is not being measured and may not come back for measurement in the

future. The supervisors see this gap but describe that this gap is not always experienced by the service providers themselves.

'We can give a mother a card to take home and read. They could read about the type of food they should give their baby, about how much food to prepare and how to prepare a meal from cereal and legumes and so on. But this might create a gap because at health facility we use chart to categorize a child as normal, underweight, overweight but at home they only see that their child is eating or drinking so this will create a gap'. (28, female, Clinical Nurse)

Service providers in the ANC unit, on the other hand, have mixed feelings about the benefits of IFA supplementation for pregnant women. Some of them, for example, believe that if a mother can afford to eat a diverse diet, IFA supplementation is unnecessary.

'If pregnant mothers consume a diversified and balanced diet it might replace the iron. However, since most of the mothers can't afford to take such diversified diet, we are giving them iron.... the only alternative I can say is if mothers can be fed with diversified food, it might substitute the iron'. (30, male, Diploma Midwife)

3.1.2 | Adaptability

Flexible scheduling allowed IFA supplementation to be tailored to the mother's specific requirements. For example, IFA is typically administered once a month, but 3 months' worth of medication may be administered in a single visit if necessary. Increasing access to IFA could help improve IFA adherence.

'Some mothers express a desire to be away from their residence for some time and therefore, request more doses of IFA. We give them the amount they require based on their request, otherwise, they will be in trouble if they do not obtain IFA from where they are'. (26 years old, female, HEW)

3.1.3 | Complexity

According to service providers, the complexity of implementing nutrition interventions such as GMP, IFA supplementation, and nutrition counselling is having a negative impact on the provision of nutrition intervention. For example, the complexity of GMP service was primarily due to a lack of employees with the necessary skills and

TABLE 1 Facilitator and barrier for implementation of CINS across the five domains of CFIR

CIFR domain	CINS component		
	IFA	GMP	Counselling
Characteristics of the intervention			
Barrier			
Complexity of counselling about full dose of IFA and dietary diversity	X		X
GMP service not adapted and tailored to the context		X	
Complexity of conducting GMP		X	
Facilitator			
Provision of IFA is tailored and adopted to the context	✓		
Mass health education during case load			✓
Outer setting			
Barrier			
Health posts are closed	X	X	X
Weight measuring scale is not accepted by the community		X	
Full package of GMP is not being implemented		X	
Functionality of coordination body/technical committee is partner organisation dependent	X	X	X
No verification of report sent by the health facility	X	X	X
Poor implementation of HEW carrier structure and transfer	X	X	X
Facilitator			
IFA provided at health facility and community level including using WDG	✓		
Existing Woreda nutrition coordination body and technical committee	✓	✓	✓
Inner setting			
Barrier			
GMP is not among priority service		X	
False reporting which is more prominent in GMP service		X	
Counselling on WASH is not priority			X
There is no nutrition specific focal person at district level	X	X	X
Poor follow-up and feedback mechanism	X	X	X
Nutrition services are not priority among higher officials	X	X	X
Poor leadership engagement	X	X	X
Unavailability of essential resource	X	X	X
There is poor organisational incentive and reward	X	X	X
Lack of access to training and information	X	X	X
Facilitator			
There is no IFA stock out currently	✓		
There is a need for structural change (separate room and separate provider at health facility for GMP)		✓	
Existence of coordination body from district level to kebele level	✓	✓	✓

(Continues)

TABLE 1 (Continued)

CIFR domain	CINS component		
	IFA	GMP	Counselling
There is a need for change in monitoring, supervision and feedback mechanism. In addition, there is a need for improved leadership engagement, staff motivation and incentive.	✓	✓	✓
Individual characteristics			
Barrier			
Lack of uniform and comprehensive knowledge about GMP		X	
Capacity gap to provide GMP and counselling service		X	X
Misconception/myth about GMP and IFA among the community	X	X	
Lack of direct benefit from GMP		X	
Facilitator			
Good knowledge about the importance of CINS	✓	✓	✓
Professionals believe they could provide better service if trained	✓	✓	✓
Process			
Barrier			
Poor execution of nutrition intervention	X	X	X
Poor feedback mechanism during supportive supervision	X	X	X

Note: XBarrier and ✓Facilitator.

Abbreviations: CFIR, consolidated framework for implementation research; CINS, comprehensive integrated nutrition services; GMP, growth monitoring and promotion; HEW, health extension workers; IFA, iron-folic acid.

motivation to perform anthropometric measurements, interpretation, and counselling. Similarly, the complexity of IFA supplementation mainly stems from IFA adherence counselling, as IFA should be taken daily for an extended period of time.

'It is preferable to advise a mother to take a daily dose for thirty days without missing a single day rather than to instruct her to take 180 capsules, which she will interpret as a large number. We suggest that mothers take 30 capsules of IFA once a month for a total of six months'. (27 years old, female HEW)

3.2 | Domain 2: Outer setting

In this domain, one construct (Patient need and resource) emerged as an important factor hindering the implementation of nutrition intervention.

3.2.1 | Patient need and resource

The health system did not sufficiently address client needs. Health posts are frequently closed, making it difficult for clients to receive

timely service. This is especially true when HEWs are required to travel for a campaign or training. Another reason for the health post's closing is that some HEWs do not live in the area where the health post is located, so they may not open the health post on a regular basis. Another impediment identified in this construct is the provision of outreach services that fall short of community expectations. Despite the fact that outreach services improve access in general, the outreach GMP service setup failed to meet the needs of the clients. This is primarily due to unsafe anthropometric measurement practices, such as hanging the scale from a tree to weigh children. This is scary for mothers, and they will be hesitant to attend the next GMP appointment.

'I heard complaints that mothers were unable to obtain family planning services on time because health posts were not open on a regular basis. One reason for this is that some health extension workers do not live in the same district and must travel to and from town'. (40, Female, Opinion leader)

'The weight scale, in my opinion, is not comfortable for the baby. Some mothers assert that if we hang the baby using the measurement scale, they will never return, not even for vaccination'. (29 years old, HEW)

TABLE 2 Example of actionable finding for selected barrier and facilitator for CINS implementation using CFIR

CFIR domain	CINS component	Finding (CFIR construct)	Action
Intervention characteristics	GMP, nutrition counselling	Growth monitoring and promotion service and nutrition counselling was perceived as a complex service. The complexity was mainly related to lack of functional and comfortable anthropometric equipment, high caseload, capacity gap among service providers lack of staff commitment and motivation and shortage of staffs. (Complexity)	Distribution of functional anthropometric equipment Provision of training to improve knowledge, capacity and counselling skill Conducting regular supportive supervision
Outer setting	GMP, IFA, nutrition counselling	Health posts are closed most of the time, which makes it difficult for clients to get services from health post. (Patient need and resource)	Conduct regular monitoring and supportive supervision to ensure health posts are open Provision of community-based IFA supplementation and GMP service to ensure accessibility
Inner setting	GMP	GMP service is not a priority among service providers. More focus is given for routine services such as immunisation and IMNCL. Nutrition service as a whole was not a priority area among higher officials as well. (Relative priority)	Availing separate service provider and separate room for GMP Assigning nutrition and GMP focal person at PHCU level Assigning separate nutrition focal person at district level to ensure nutrition will be a priority service and making nutrition and GMP as one agenda during PHCU meeting, technical committee and coordination body meeting
	GMP, IFA, nutrition counselling	False reporting was a culture across all districts. It was especially common for GMP services and other services under high political and administrative pressure. (Culture)	Ensure quality of report by conducting regular Lots quality assurance survey and Random quality assurance survey
	GMP, IFA, nutrition counselling	Poor motivation of service providers because of poor organisational incentive and reward. (Organisational incentive and reward)	Conduct regular review meeting and reward best performing HEWs, health care providers and WDG
Characteristics of individual	GMP and IFA	Knowledge about GMP and IFA is not consistent among service providers. There is also misconception regarding GMP and IFA among the community as well. (Knowledge and belief about the intervention)	Provision of training for service providers to fill in the knowledge gap Conducting regular community mobilisation and counselling to clear misconception among the community

Abbreviations: CFIR, consolidated framework for implementation research; CINS, comprehensive integrated nutrition services; GMP, growth monitoring and promotion; HEW, health extension workers; IFA, iron-folic acid; PHCU, primary health care unit.

3.3 | Domain 3: Inner setting

In this domain, seven constructs emerged as important: culture, tension for change, relative priority, organisational incentive and reward, leadership engagement, available resources and access to knowledge and information.

3.3.1 | Culture

False reporting is common in all health care facilities and is considered one organisational norm that contributes to poor nutrition service implementation. For example, HEWs may file a

false report with the district health office claiming to have provided GMP services to a large number of children while failing to take any anthropometric measurements. They send false reports to avoid accountability and give the impression that they are doing an excellent job. Despite the fact that the district health office is aware of the false reporting, no action is taken for fear of forcing HEWs to resign.

'We took no action in response to the false reporting! We can only lobby them; we cannot impose disciplinary measures, or instil fear in them. If we take action, we risk losing them and being unable to find HEWs in the market'. (30 years old, male Health officer)

3.3.2 | Tension for change

This construct was a facilitator for the implementation of nutrition intervention. Participants mentioned areas that need to be changed for the effective delivery of nutrition services. The service providers mentioned a need to have a separate room for GMP, and to make GMP routine service. In addition, there is a need for awareness creation activities to fill the knowledge gap and clear negative perceptions toward GMP. They have also mentioned the need for change in nutrition counselling service providers to make it strong and aided with a cooking demonstration.

'I recommend that health facilities should have a functional weight scale. I also recommend separate rooms and service providers for immunisation, GMP, and IMNCI. I also recommend you (researchers) push this idea so that it will have an impact beyond my voice'. (28 years old, female nurse)

3.3.3 | Relative priority

Nutrition services are generally not prioritised in the primary health care unit. Nutritional counselling, for example, is provided as part of the ANC service but is not monitored or reported.

As a result, health care professionals have lost sight of the value of nutritional counselling.

We observed that officials prioritise other services such as immunization over nutrition-specific services such as GMP. The lack of separate nutrition supervision checklists and the failure to commit to holding regular nutrition meetings may also indicate a lack of priority for nutrition.

'Nutrition services receive little attention, and it is not a pressing concern in the health facilities. This is because it is not something for which we are evaluated. For example, in the report, I am asked how many mothers I served with ANC rather than how many mothers I counselled for nutrition'. (24 years old, female, midwife)

3.3.4 | Organisational incentives and rewards

Health care providers are demotivated due to a lack of organisational incentives and rewards. Delays in duty (over time) payment, as well as very limited and unfair career advancement opportunities, are just a few examples of what contributes to low motivation and commitment. Budget constraints are considered the primary reason for the lack of incentives. An unfair performance evaluation system, on the

other hand, is being used in the process of selecting professionals for training and education opportunities.

'The number of professionals who need to further their education is much higher than the available opportunities. For example, only one professional was given the opportunity to further his education last year, making it difficult for other professionals to work with hope and motivation. As a result, some professionals have even changed their professions into other fields'. (30 years old, male, health officer)

3.3.5 | Leadership engagement

A lack of leadership support and active participation has been identified as a barrier to the successful implementation of nutrition interventions. Despite the existence of a Woreda Nutrition Coordination Body (WNCB)/Woreda Nutrition Technical Committee (WNTC), its functionality and member commitment are extremely low at the regional and district levels. The coordination body and technical committee do not even have a reporting system or an accountability mechanism. Furthermore, some members of the committee believe that nutrition is solely the responsibility of the health care system. Competing agendas that necessitate political commitment are usually high on the priority list of the leader. Leaders, for example, are currently focusing on community-based health insurance (CBHI).

'The WNCB is led by a district manager, while the WNTC is led by a vice chairman of the woreda health office. Despite the fact that we have prepared common plans, we do not implement them with passion. We're having trouble putting our plan into action'. (35 years old, male Health officer)

3.3.6 | Available resource

The lack of a separate service provision room, as well as functional anthropometric equipment and customised nutrition counselling materials, all have a significant impact on GMP service. Despite service providers' claims that GMP is provided through immunization integration, it is widely acknowledged that it is severely compromised and receives little attention. In terms of human resources, a shortage of HEWs has been identified as a problem. Another major challenge identified for the implementation of nutrition services was a lack of adequate funds. It was one of the reasons for the inconsistency of supportive supervision and review meetings.

'We do not take any anthropometric measurements during immunization; instead, we simply register them [the children] on the immunization registration card after administering the vaccine. We don't even finish the registration process because of the high volume of clients at health posts during vaccination days.' (29 years old, female HEW)

3.3.7 | Access to knowledge and information

Nutrition training, up-to-date information, and guidelines are rarely given to service providers. Despite the fact that evidence changes over time and providers must be kept up to date, there was a lack of access to refresher training as well as updated information and guidelines. This will definitely compromise the quality of nutrition service at the PHCUs.

'Most staff including myself are working based on the knowledge that we had from school. There is always an update but we don't have access to that. Because of this, my counselling is only limited to what I know. But if there is orientation or training, then we will have deep knowledge of nutrition and confidence to counsel mothers'. (24 years old, female Midwifery)

3.4 | Domain 4: Characteristics of individual

In this domain, one construct emerged as important: knowledge and belief about the intervention.

3.4.1 | Knowledge and belief about the intervention

The knowledge and attitude of health professionals toward GMP services vary greatly. Internalising the significance and value of the GMP service is lacking. Because GMP is assumed to be a type of nutritional screening, some professionals confuse MUAC measurement with GMP. Furthermore, they believe that GMP should be performed every 3 months rather than monthly. This is due to their claim that a child's weight will not change in a month. On the other hand, there is widespread misinformation in the community about the proper diet and supplements to take during pregnancy. The community members believe that eating eggs while pregnant may complicate delivery.

'Some HEWs consider MUAC measurement as a GMP service. When I called a HEW about a report with a high number of GMP, she told me that she had

reported the MUAC measurement as GMP'. (48 years, male, Health officer)

3.5 | Domain 5: Process

In this domain, external change agent, and reflecting and evaluating were constructs that emerged as important:

3.5.1 | External change agent

Women development groups (WDGs) play a critical role in distributing IFA to pregnant mothers in their community and encouraging mothers to take it properly. This has facilitated mothers who live in remote villages far from health care facilities. However, a considerable proportion of WDG is discouraged from providing this service. WDG's motivation and engagement are influenced significantly by their husband's encouragement, as well as the availability of incentives and training.

'WDGs are influenced by their husbands' support. It's difficult to say that they [the husbands] are on their side. The district must organize training, and there must be a way to encourage them'. (30 years old, female, HEW)

3.5.2 | Reflecting and evaluating

The primary problem identified was a lack of a robust feedback mechanism during supervision.

The feedback given during supportive supervision is usually inconsistent. Some supervisors provide constructive feedback, while others provide no feedback or feedback that is discouraging.

'The supervision given is fault finding. They don't even tell you what to improve and the feedback mechanism doesn't exist. Most of them prefer reporting to the head of the health centre'. (25 years old, male, midwife)

4 | DISCUSSION

This study aimed to assess factors that influence the implementation of CINS using CFIR. With this study, we have addressed the gap in evidence to inform the successful implementation of CINS with a focus on the role of primary health care units. Through this implementation research, we were able to identify barriers and

facilitators that influenced the implementation of GMP, IFA supplementation and nutrition counselling. All five CFIR domains influenced the implementation of nutrition intervention. Complexity, patient need and resource, relative priority, culture, organisational incentive and reward, knowledge and belief about the intervention and Leadership engagement were the most prominent constructs that influenced the implementation of nutrition interventions.

Complexity was the most relevant intervention characteristic influencing nutrition implementation. There was perceived difficulty in implementing GMP service and nutrition counselling. Service providers have identified GMP as a complex service. This was primarily related to knowledge and capacity gap, lack of functional anthropometric equipment, shortage of human resources and poor motivation of service providers.

Capacity gaps of service providers have resulted in GMP being the most neglected and poorly conducted intervention. There was considerable confusion about the basic objective of GMP and a lack of understanding of what GMP is intended to do which has led to faulty implementation. Although measuring weight is of no value or little value by itself, we have seen that service providers considered and reported taking MUAC measurement or weight measurement as GMP. Service providers overlook, interpretation, tracking and nutrition counselling which are an integral part of GMP service. Different studies have also identified inadequate training of health care worker contributes to improper utilisation of anthropometric equipment, and poor implementation and nutrition counselling provision during GMP service (Pollifrone et al., 2020).

The gap between what should be done and what is actually implemented can give service providers a feeling of frustration. As a result, they consider it to be a complex service (Roberfroid et al., 2005). GMP is considered as a vehicle for health promotion and the process of measuring is thought to provide a focus for discussing the importance of nutrition and the relation between nutrition and health (Liu et al., 2017). Therefore, GMP is clearly a waste of time and money if it is not linked with activities that promote good health (Ashworth et al., 2008).

Besides complexity, knowledge and belief about GMP were another barriers. There was poor knowledge and misconception about the importance of GMP in the community which resulted in poor demand. The community does not want to have regular growth monitoring unless there is supplementary feeding for a child who is faltering. However, in practice, unless a child is severely malnourished, he/she will not be given any form of supplementary feeding. Similar studies have indicated that the absence of direct benefits such as targeted supplementary feeding was the main reason reported for missing GMP sessions (Bilal et al., 2014; Daniel et al., 2017; Tekle et al., 2019).

Counselling has been proven to be an effective method for improving knowledge and breastfeeding and complementary feeding practice of caregivers (Haider et al., 2000; Pelto et al., 2004; Penny et al., 2005). However, for counselling to be effective, it should be specific, action-oriented, individualised and relevant (Kohli & Chadha, 2017). This could only happen if health care providers have adequate

knowledge of the topic and if they have the necessary skill. Lack of knowledge and skills had made counselling service to be complex. Therefore, there is a need for training that takes into account communication and counselling skill central to improving knowledge to bring about behaviour change.

Within the inner setting, relative priority was an important barrier for GMP service. GMP was not a priority service at all levels. GMP service is provided either in under-five outpatient department units or at the immunization unit. Because of a lack of separate rooms and separate service providers, preference is given to the curative service or immunization service over GMP making it the least priority service. Not only GMP, nutrition overall is not a priority among the managements as well.

The motivation of health care providers can invariably affect the quality of service provision. It is an important factor that affects the quality of health service, efficacy, efficiency, accessibility and viability and performance of those who deliver the service (Mbilinyi et al., 2011). Poor organisational incentives and rewards, including poor access to career advancement, poor access to training, and poor recognition of hard work, affected the motivation of service providers. In addition, shortage of staff and excess workload were the primary factors identified for poor motivation of staff. Similar studies have also identified training, career development, staffing and manageable workload as motivation factors among health care providers (Ojaka et al., 2014; Weldegebriel et al., 2016; Willis-Shattuck et al., 2008).

Low motivation among the workforce can undermine the quality of service and drive workers away from their profession (Weldegebriel et al., 2016). Poor motivation in fact has resulted in the shifting of profession among health care providers including HEW and the non-functionality of WDGs. In addition, it has resulted in poor implementation of nutrition interventions. Availability of resources and worker competence alone is not sufficient to ascertain desired work performance. It is, therefore, important to make personal development a central issue in health policy.

The complex nature of health care organisations calls for strong, comprehensive and collaborative leadership (Sonnino, 2016). However, there was weak leadership engagement in all districts. Poor leadership engagement is reflected by weak monitoring and evaluation, poor and irregular supportive supervision and by the poor attention that is given to nutrition services. There is an irregular nutrition coordination body and technical committee meetings. On top of this, nutrition is not the focus of the meetings. This is because the leaders are busy with other overlapping agendas and committee meetings so priority is given to other agendas. Leaders usually give attention to topics with high political commitment. For instance, one-time high political commitment was given to reducing maternal mortality and now the focus has shifted to CBHI. Effective leadership of health care professionals is critical for strengthening the quality and integration of care (Sfantou et al., 2017). Therefore, there is a need for improved leadership engagement through close supportive supervision, monitoring and feedback mechanism.

Accountability in the health system is important to assure that resources are used, authority is exercised according to appropriate and legal procedures and support and promotes improved service delivery and management through feedback and learning (Brinkerhoff, 2004). According to our findings, there is poor accountability in place. As a result of this, false reporting has become a *culture* in all four districts. This is especially high for services with high political commitment where there is a demand for achieving a target, forcing the health care provider to report high numbers even though the service was not provided. In addition to false reporting, health posts were closed most of the time failing to meet the patient's needs. Even though it is clear that they are sending false reports and that health posts are closed, no one is being held responsible. This clearly shows the need to have a means of accountability and a strong quality assurance mechanism in place to monitor the quality of reports.

Strengths of this study include the inclusion of multiple stakeholders, and the use of a guiding theoretical framework to capture the complexity of implementation in the primary health care unit context. The strength of the CFIR is its comprehensiveness, but it does create complexity in applying the coding framework and determining the relative importance of multiple constructs. The lessons learned from this study have been used to develop actionable, finding that can be used to improve the implementation of CINS.

5 | CONCLUSION AND RECOMMENDATION

Using the CFIR framework, we have shown that there are modifiable barriers to implementing nutrition services in the primary health care unit. Major barriers include lack of functional anthropometric equipment and a high caseload (complexity), poor staff commitment and motivation (organisational incentive and reward), closed health posts (patient need and resources), false reporting (culture), lack of priority for nutrition service (relative priority), poor knowledge among service providers (knowledge and belief about the intervention) and lack of active involvement and support from leaders (leadership engagement).

Improving nutrition service will require overcoming these identified barriers. Therefore, we have developed actionable findings that will be used by practitioners for improved implementation of nutrition interventions. There is a need for separate GMP rooms and service providers, availing functional and comfortable anthropometric equipment and making GMP routine service. There is also a need for change in nutritional counselling, monitoring and supportive supervision, leadership engagement and regular and improved carrier development and incentives. In addition, additional human resources, training and community mobilisation are needed to make the provision of nutrition services sustainable and compatible.

AUTHOR CONTRIBUTIONS

Bilal Shikur Endris and Seifu H. Gebreyesus conceive the idea of the research. Bilal Shikur Endris, Esete Fenta, Yalemwork Getnet and Seifu H. Gebreyesus design the study, supervise the data collection and conduct the analysis. Bilal Shikur Endris, Esete Fenta, Mark Spigt and Geert-Jan Dinant were involved in the write-up and manuscript development.

ACKNOWLEDGEMENTS

The authors are very grateful for the financial support of Irish Aid Ethiopia and the Federal Ministry of Health of Ethiopia. The authors would like to thank Addis Ababa University, School of Public Health for facilitating the conduct of the research. The authors would like to acknowledge field coordinators, namely Fekadu Elisas, Endashaw Hailu, Tsegaye G/Egizabher, Semira Mitiku and Abraham Sailehmi-cheal for their unreserved support. The authors appreciate the managers and health care providers for their assistance and cooperation during the assessment. Finally, we would like to thank all study participants who took part in this study.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data will be available upon request from the corresponding author.

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How to cite this article: Endris, B. S., Fenta, E., Getnet, Y., Spigt, M., Dinant, G.-J., & Gebreyesus, S. H. (2023). Barriers and facilitators to the implementation of nutrition interventions at primary health care units of Ethiopia: A consolidated framework for implementation research. *Maternal & Child Nutrition*, 19, e13433. <https://doi.org/10.1111/mcn.13433>