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Strengthening Maternal, Infant and Young Child Feeding Training and Education Delivery in Ghana

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ABSTRACT

Objective: To document the maternal, infant and young child feeding (MIYCF) training and education system within Ghana and identify key factors influencing MIYCF training and education delivery by health care providers.

Design: A qualitative study that utilized in-depth interviews.

Setting: The study was conducted within the Central Region of Ghana.

Participants: Fourteen health care providers that served as MIYCF trainers or educators were included in this study.

Analysis: Interviews were conducted in English, audio recorded, and then transcribed. A grounded theory approach was used to create a conceptual model of the themes that emerged from the interview. Half of the interviews were coded independently by three investigators, consensus was reached, and a final codebook developed. The remaining interviews were coded by the lead author. Dedoose was used to code and analyze all interviews with the final codebook.

Results: Three domains emerged from the analysis: MIYCF training, MIYCF education, and implementation of a responsive feeding curriculum. MIYCF training was described to be disseminated to staff both formally and informally, using standardized curriculums when funding was available. Participants requested more training for staff both formally and informally. MIYCF education to caregivers was delivered on an individual and group basis with the UNICEF Community-based IYCF counseling cards and complemented with other materials including child health booklets, flip-charts from other nutrition projects, or props such as food items or dolls. Providers identified several barriers and facilitators to MIYCF training and education at both the caregiver- and provider-level including lack of access to resources, limited staff, lack of finances for transportation, and lack of social support. The potential addition of a new responsive feeding

curriculum into this MIYCF system was well received, and participants suggested providing training for all staff, distributing enough training and educational materials for each facility, and holding trainings that do not unduly burden the staff as far as time or transportation.

Conclusions and Implications: Strengthening MIYCF training and education in Ghana involves providing more training to all staff, improving MIYCF curriculum and education materials for both health care staff and caregivers, and implementing national level policies to standardize MIYCF training guidelines. A responsive feeding curriculum is desired and has the potential to help improve malnutrition in Ghana.

Keywords: Maternal Infant and Young Child Feeding, Health Care Provider Training, Qualitative Research, Responsive Feeding, Counseling, Social and Behavioral Sciences

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INTRODUCTION

Promoting early childhood development has become increasingly important globally, especially to achieve the UN Sustainable Development Goals (SDGs) (United Nations, 2015). Malnutrition, which includes undernutrition, overweight, obesity, micronutrient deficiencies, and diet-related noncommunicable diseases, still poses a threat to reaching the SDGs in many countries (World Health Organization, 2019). As of 2017, nearly one in four children under the age of 5 were stunted world-wide; in West and Central Africa one in three children were stunted (United Nations Children's Fund, 2018). At the other end of the double burden of malnutrition spectrum, globally 5.6 percent of children under age 5 were overweight, compared to 4.3 percent in West and Central Africa (United Nations Children's Fund, 2018).

Addressing malnutrition in all its forms requires a lifecycle approach starting with pregnancy and continuing throughout the life of both the mother and child (Jacob and Hanson, 2018; United Nations Children's Fund, 2015). This includes providing adequate nutrition for pregnant women to sustain a healthy pregnancy and promote optimal fetal growth, optimizing breastfeeding and complementary feeding practices, and promoting healthy eating styles to prevent malnutrition throughout a child's life (United Nations Children's Fund, 2015). Maternal, Infant and Young Child Feeding (MIYCF) curriculums specifically address these challenges by promoting optimal feeding practices early in a child's life and have been disseminated on a global level (World Health Organization, 2009).

To ensure that prenatal as well as MIYCF guidelines are effectively and accurately relayed, it is crucial that health care providers that care for mothers, infants, and young children are well-trained on how to prevent, intervene, and educate caregivers about maternal and child nutrition. Within low- and middle-income countries (LMIC), it has been documented that having health care

providers with nutrition training leads to improved feeding frequency, energy intake, and dietary variety for children ages 6 months to 2 years (Sunguya et al., 2013).

However, there are many barriers to adequate staff training and education dissemination to target audiences. Evaluations of nutrition training and education programs have found that lack of governmental priority setting, lack of sustained funding for trainings, health staff overutilization and length of employment all pose barriers to effective nutrition training (Kouam et al., 2014; Nguyen et al., 2016). Additionally, evaluations of caregiver attitudes towards health staff nutrition education indicate that lack of understanding of materials, and lack of counseling skills on the part of health care workers inhibits knowledge transfer and poses a barrier to MIYCF education dissemination (Nguyen et al., 2016; Sunguya et al., 2013).

Evidence from LMICs in Asia suggests that in order to strengthen the MIYCF counseling system, national level guidelines and policies, adequate materials, staff incentives, monitoring and supervision, and repeat staff training are needed (Sanghvi et al., 2013). However, there is little evidence from West Africa about MIYCF training systems strengthening nor what is required to integrate an additional curriculum into MIYCF training. Ghana served as an ideal setting to help understand factors needed to strengthen an MIYCF system within an LMIC and the approach needed to integrate a new curriculum into the training.

Ghana has high malnutrition rates, where over one third (35.6%) of children under 5 suffer from some form of malnutrition (Ewusie et al., 2017). However, Ghana has been trying since the mid-1970s to create national level policies to strengthen MIYCF practices including focusing on weaning foods, iodine and other micronutrient deficiencies, recovery of malnourished children, exclusive breastfeeding, and complementary feeding practices (Ghartey, 2010). The World Health Assembly and UNICEF implemented the Global Strategy for MIYCF in 2002, which further

strengthened MIYCF training and education within several countries, including Ghana (Sagoe-Moses et al., 2012). Health care centers, especially those that provide prenatal and postnatal care to mothers and children, are important points of entry for nutrition programs (Richter et al., 2017). Within the Ghana Health Services (GHS), MIYCF education is provided by GHS staff primarily during child growth and monitoring sessions in local clinics, including at Community Based Health Planning System (CHPS) facilities (Ghartey, 2010). However, the quality, breadth, and integration of training and education is not well documented or understood.

Within Ghana, the two primary existing MIYCF training curriculums, Essential Nutrition Actions (ENA) and UNICEF Community-based Infant and Young Child Feeding (C-IYCF) Counseling Package, largely focus on what to feed and when to feed infants 0-24 months old, including the need to exclusively breastfeed up to 6 months of age, introduce age and nutrient appropriate complementary foods starting at 6 months, and continuing to breastfeed up to 2 years of age (Ghartey, 2010; Sagoe-Moses et al., 2012; SPRING, 2018). However, these curriculums lack a comprehensive training curriculum on how to introduce new complementary foods and how to help infants and young children develop healthy eating habits as they grow and develop. This concept, called responsive feeding (RF), is embedded within responsive parenting, which teaches caregivers to recognize a child's hunger and satiety cues while provide a nurturing and caring environment to promote healthy eating habits (Black and Aboud, 2011). Some RF messages are included in the Essential Nutrition Action curriculum which was the primary MIYCF training conducted years ago (Ghartey, 2010). UNICEF's global nutrition initiative integrated their MIYCF curriculum within Ghana which uses culturally appropriate images to demonstrate good nutrition practices to caregivers, however there is a lack of specific and consistent guidelines on RF (Ghartey, 2010).

In Ghana there is a clear need for a more integrated MIYCF package to teach infant caregivers about responsive feeding within the context of MIYCF. Thus, the primary goal of this study is to understand the system in Ghana within which MIYCF education is disseminated to infant caregivers, and the training that health care staff receive in order to provide such education. This study also documents the barriers and facilitators of training and education dissemination within this larger system in the hopes of facilitating the success of a forthcoming responsive feeding nutrition intervention. Additionally, policy recommendations are made for strengthening the overall MIYCF training and education delivery within Ghana.

METHODS

Study Design

In-depth interviews with Ghanaian health care providers were conducted as part of a larger study that used qualitative methods to assess the feasibility, validity, and cultural appropriateness of a responsive feeding guide for Ghanaian caregivers of children younger than 36 months living in the Central Region of Ghana. The aim of this analysis was to explore factors that influence the MIYCF and RF training of health care providers and education delivered to Ghanaian caregivers of young children. A grounded theory approach was utilized to develop a conceptual model of the training cascade as well as future target areas to enhance the training and education delivery for MIYCF and specifically RF topics. The authors were granted IRB approval from both Ghana Health Services and Yale University to collect and analyze the data.

Participants and Recruitment

A convenience sample of health care providers (N=14) were identified by key informants from the Awutu Senya East District and the Gomoa East District of Ghana. Participants were eligible if they were health care providers, provided MIYCF training to other health care providers

and/or provided MIYCF education to Ghanaian caregivers of infants, and were stationed within the Central Region Health Directorate or health facilities within the Gomoa East or Awutu Senya East District.

Prior to recruitment, permission was obtained from the District Health Director in Awutu Senya East and the Regional Health Director within the Cape Coast Regional Health Directorate to conduct interviews with regional, district, and subdistrict level staff within the Cape Coast Municipal, Awutu Senya East or Gomoa East districts.

Key informant interviews were conducted with district level staff in the Awutu Senya East and Gomoa East Districts to identify health care workers that provided MIYCF training or who delivered MIYCF education to Ghanaian caregivers of young children. Nutrition officers (NO), Health Promotion Officers (HPO), Community Health Nurses (CHN), Staff Nurses (SN), Midwives (MW), and Public Health Nurses (PHN) were identified as trainers and/or educators within both districts. Enroll Nurses (EN) were also identified in Awutu Senya East but not in Gomoa East. Likewise, Community Health Workers (CHW) were only identified as MIYCF educators in Gomoa East.

A list of all relevant MIYCF health care providers in the Awutu Senya East and the Gomoa East District was generated and a sample of each was chosen to interview. Eligible participants were initially contacted by the key informant from their district. Once the participant agreed to participate they were contacted by study staff to schedule the interview.

The final sample was selected to ensure that at least one health care worker within each role that trained or delivered MIYCF education were interviewed in each district. Interviews were also conducted with regional and district level staff to better understand their role in overseeing MIYCF training within Awutu Senya East and Gomoa East districts. Therefore, interviews were

conducted with 1 HPO and 4 NOs at the district and regional level plus 3 CHNs, 1 EN, 2 SNs, 1 CHW, and 2 MWs at the facility level (see Table 1). Interviews with PHNs were not able to be conducted despite being identified as participating in MIYCF training. Two PHNs were identified, but one was unable to be contacted and the other was not comfortable being consented.

Data Collection

Two semi-structured interview guides were developed one for health care providers that delivered MIYCF education to caregivers (educators), and one for health care providers that delivered MIYCF training to staff (trainers). If a participant's role overlapped, then they were asked questions from both the educator and trainer guide. Both interview guides included basic demographic information and assessed the feasibility of the RF package that was developed. Images and examples of the RF package counseling cards and key messages were shown to the health providers and they were asked to describe the training that would be needed to incorporate the messages and counseling cards into the existing MICYF training and education. The integration of the RF curriculum was analyzed; however the feasibility and cultural appropriateness of the messages will be reported elsewhere.

The interview guide administered to educators focused on what education topics were being delivered to caregivers, the delivery method of the MIYCF education, barriers and facilitators of education delivery, their pre-service and in-service MIYCF training received, and areas of improvement for MIYCF training. The interview guide administered to MIYCF trainers focused on their pre-service and in-service MIYCF training received, trainings they delivered to other health care staff, topics within MIYCF delivered during training, the delivery method, the recipients of training, and areas of improvement for training that they recommended for their

district. Interview guides were revised slightly to include new themes and questions as they emerged.

All interviews were conducted by the lead author (MT). Interviews were conducted in English and lasted approximately two hours each. All interviews were audio-recorded. Participants were compensated with phone credit (~\$5USD) for their time.

Data Analysis

Audio recordings of the interviews were transcribed by trained study staff or with the use of the transcription service (GoTranscript) and were all reviewed by MT for accuracy. Qualitative analyses of the interviews were conducted by the research team (MT, RPE, AHF), which included two maternal and child experts with vast experience working in Ghana. Half of the transcripts (n=7) from the facility-, district-, and regional-level and across a variety of roles were coded independently by each team member to develop domains, themes, and subthemes for a comprehensive codebook. Coding for each transcript was discussed and consensus was reached on the domains, themes, and subthemes. Saturation of themes was reached after the seven interviews (50% of interviews) resulting in the final codebook. The remaining seven interviews were then coded using Dedoose by MT using the finalized codebook (Dedoose Version 8.1.21, 2019). The conceptual model built through integration of findings from the fourteen interviews was the result of a consensus process among the three investigators.

RESULTS

Participant Characteristics

The 14 participants were employed by Ghana Health Services and were between 22 and 42 years of age. The participants varied in their MIYCF role, from training other staff members or providing education directly to caregivers. Although seven participants indicated that their duties

overlapped with both the trainer and educator role, depending on the needs of their facility or the availability of other staff, they each identified primarily with either a trainer or educator role related to MIYCF.

Table 1 below describes participant characteristics for those that primarily provided MIYCF training to other health providers which included NOs, HPOs, and MWs. Of the 6 participants that primarily identified as trainers, they were on average 36.67 years old ($SD \pm 4.72$), had been in their position for 4 years ($SD \pm 2.28$) on average, and had 4 years ($SD \pm 0.63$) of education post-high school. Two also provided some education to caregivers as part of their duties.

Table 2 below describes participant characteristics for those that primarily provided MIYCF education to infant and young child caregivers which included the CHNs, ENs, SNs, CHWs and MWs. Of the 8 providers that primarily provided education, they were on average 27.75 years old ($SD \pm 3.54$), had been in their current position for an average of 3.5 years ($SD \pm 2.67$), and had 2.31 years ($SD \pm 1.03$) of post-high school education. Five described some experiences with training other health providers that were newly posted in their facility, but this was not their primary role.

The overall health care duties that participants took on was dependent on the degree program they had attended in school. Some programs, such as those training ENs or SNs primarily included treating illnesses and other medical procedures, whereas MW programs focused more on the pregnant mother and the postnatal period up to one month.

Table 1. MIYCF Trainers Characteristics

Positions (n)	Level of Position	Average Age (sd)	Average # of Years of Tertiary Education (sd)	Average Length of Post (sd)	Primary Duties
NO (4)	District and Regional	35 (4.83)	4 years (2.94) Bachelor's in Public Health or Bachelor's in Home Economics & Nutrition	3.75 years (0.5)	See to the nutritional needs of children under 5 and pregnant women, and noncommunicable disease prevention, counsel mothers, train staff, implement nutrition policies
HPO (1)	District	38 (-)	4 years (-) Bachelor's in Public Health	4 years (-)	Health education
MW (1)	Facility	42 (-)	5 years (-) Midwifery and Community Health Nursing Programs	4 years (-)	In charge of reproductive health at facility and regional trainer for family planning

MIYCF=Maternal Infant and Young Child Feeding, sd=Standard Deviation, NO=Nutrition Officer, HPO=Health Promotion Officer, MW=Midwife

Table 2. MIYCF Educators Characteristics

Positions (n)	Level of Position	Average Age (sd)	Average # of Years of Tertiary Education (sd)	Average Length of Post (sd)	Primary Duties
CHN (3)	Facility	31 (2.65)	2.5 years (0.5) Community Health Nursing	4.67 years (2.08)	Outreach, conducting CWC, home visits, school health, counseling sessions, monitor the weight of child, immunization, antenatal visits with mothers
EN (1)	Facility	25 (-)	1 years (-) Certificate Program	2 years (-)	Take care of the sick
SN (2)	Facility	27 (0)	3 years (0) Community Health Nursing	1.5 years (0.7)	Weighing, counseling, home visiting, school health, treatment of minor ailments, immunization, reduce teenage pregnancy and family planning

MW (1)	Facility	28 (-)	3 years (-) Midwifery Program	8 years (-)	Conduct antenatal and postnatal care, conduct deliveries of babies, treat minor ailments during antenatal or postnatal period
CHW (1)	Facility	22 (-)	0 years (-) High School Diploma	2 years (-)	Sit with the CHNs during CWC, home visits, counseling mothers on child's growth, family planning

MIYCF= Maternal Infant and Young Child Feeding, sd=Standard Deviation, CHN=Community Health Nurse, EN=Enroll Nurse, SN=Staff Nurse, MW=Midwife, CHW=Community Health Worker, CWC=Child Welfare Clinics.

Primary Domains

Three primary domains emerged from the analysis process: MIYCF training, MIYCF education delivery, and implementation of RF curriculum. The first domain, MIYCF training, described the pre-service and in-service training received and delivered to health care providers. The second domain, MIYCF education delivery, described the delivery of MIYCF messages to Ghanaian caregivers. The final domain, the implementation of RF package, described health care provider recommendations for integrating a new RF curriculum into MIYCF in-service training and education delivery. Each of these domains overlapped, where training of staff impacted the education delivered to caregivers and informed the feasibility of implementing a new RF curriculum (see Figure 1).

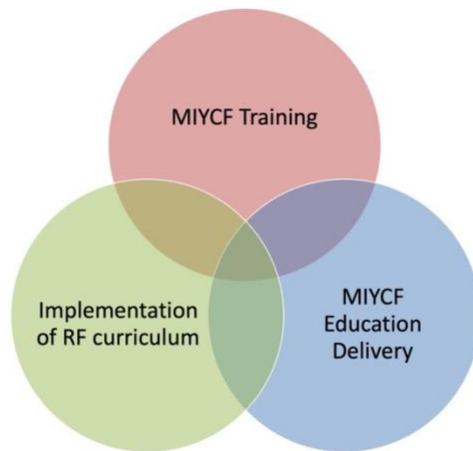


Figure 1. MIYCF Education Domains

MIYCF Training

MIYCF training in Ghana consisted of pre-service training that health care providers received during official education programs and in-service training received or delivered during their time employed within Ghana Health Services.

Pre-service MIYCF Training

Participants described their pre-service MIYCF training as being related to the position they would have after receiving their degree. The MIYCF topics that were taught included breastfeeding positioning and attachment, complementary feeding, malnutrition, immunization, and sanitation. When asked to describe their MIYCF pre-service training, many participants had difficulty describing in detail the topics or length of the training they had received while in school. For those that could describe their school curriculum in more detail, it was noted that MIYCF was embedded within other larger nutrition courses, often being touched on in smaller portions of lectures.

“...it was part of a semester...the courses that we do. So, it wasn't a specific training that we received.” (Participant 9)

In-service MIYCF Training

MIYCF and other nutrition training was delivered in a hierarchical manner, where those at the national level provide training to those at the regional level, who provide training to those at the district level (see Figure 2). The participants described a “training of trainers” model (Mormina and Pinder, 2018), such that master trainers from the national level, and regional level NOs and PHNs primarily provided training to other trainers. District level staff such as NOs, HPOs, PHNs, Disease Control Officers (DCO), provided training and supervision in MIYCF to other health facility level staff. Overall the CHNs were described as the “foot soldiers”, or those that delivered the most MIYCF education to caregivers. Other educators that received training within this cascade depended on the district, but included NOs, MWs, ENs, and SNs. While DCOs are included in this cascade and were identified by participants as recipients of MIYCF training, they were not included as targeted roles for participating in interviews. This was because our key informants described that DCOs attended trainings as a way of being able to monitor the duties of their supervisees and be apprised of the goings on for MIYCF education, but that they did not primarily deliver MIYCF training nor supervision directly to staff, nor were they directly involved in the MIYCF education of caregivers.

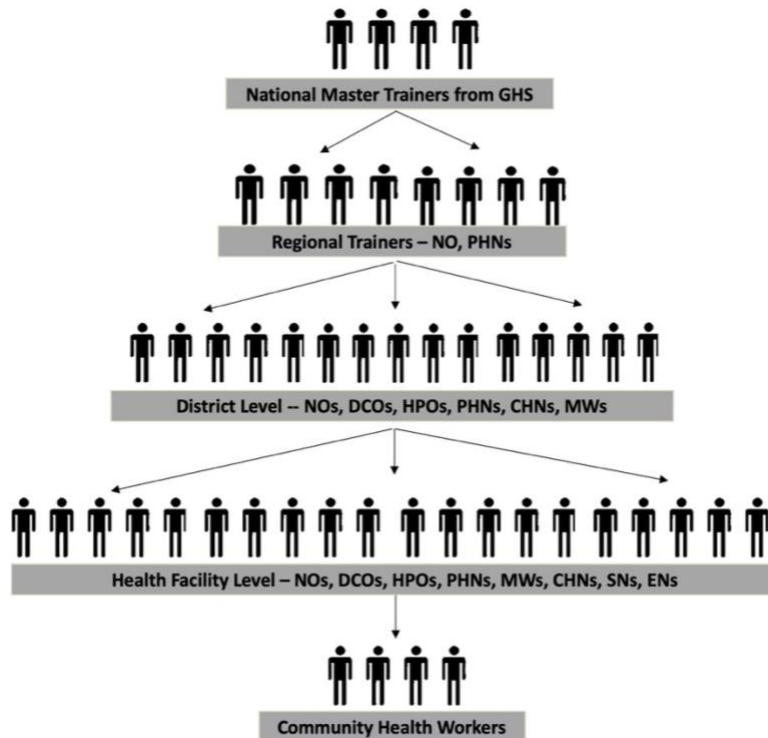


Figure 2. MIYCF Training Cascade

Number of silhouettes indicate proportion of individuals trained at that level. GHS=Ghana Health Services, NO=Nutrition Officer, PHN=Public Health Nurse, DCO=Disease Control Officer, HPO=Health Promotion Officer, CHN=Community Health Nurse, MW=Midwife, SN=Staff Nurse, EN=Enroll Nurse.

In-Service MIYCF Training Received

Health care providers received MIYCF in-service training in a formal or informal manner. Formal training consisted of scheduled workshops where relevant health care providers from each subdistrict would be invited to attend trainings at the district level that followed specific curriculums including UNICEF’s C-IYCF training, the ENA training, and the Community-based Management of Acute Malnutrition (CMAM) training. The UNICEF C-IYCF and ENA trainings use comprehensive infant feeding curriculums to promote optimal feeding and prevent malnutrition. Conversely, the CMAM curriculum is primarily used to improve infant feeding practices as a treatment for malnutrition.

Of the 14 participants, 10 described attending at least one formal in-service training since being posted that followed the specific curriculums listed previously. Participants reported that these formal trainings were usually scheduled if there were sponsors or donors to deliver them, but otherwise they received support from their supervisors or other higher-level providers on an as-needed basis. Formal trainings often were held at a central location where specific health providers would be invited to attend the training. The trainers usually followed a specific agenda and timetable to conduct the training. Trainings used a variety of materials including cut out images, PowerPoint slides, workbooks, dolls and dummy breasts, and the counseling cards which depended on the curriculum used.

Those that received formal training identified several barriers that affected the trainings, including that these trainings were usually time intensive, each lasting from 3-6 days and running late most days, such that many wanted them to be extended so that each day was shorter. They described these trainings as very packed with information, which made it difficult to retain everything, especially if there were no take-home materials to review.

Informal trainings consisted of supervisors or colleagues monitoring or educating other providers on-the-job, typically without a structured curriculum. Participants described several rationales for the use of informal training. Some described it as a mechanism to update providers on new parts of the MIYCF curriculum that may not require a full training to be delivered. Others described informal trainings as the mechanism to provide MIYCF information to a new staff member who just started. Often there was not enough funding to provide new staff a formal training every year, and so senior level staff were relied on to provide some form of training to their newly hired colleagues. Informal trainings were also used as a method for providing training

to other staff who were not chosen to attend the formal trainings so that the information could be shared.

The way informal training occurred varied. Providers that attended formal trainings would then deliver informal trainings to their colleagues during a group meeting setting or would provide the materials and run through updates on MIYCF topics, or answer questions about the new information. Participants that had received such training described how their colleagues that had been invited to the formal training would return to work and hold a gathering to disseminate the training materials if there were any, and to discuss the training topics. Participants described this as usually done within one meeting and would follow up with questions as needed.

“..that is also a challenge, you see when people [go to these] meetings they cannot go through everything with you. So they give you the materials and you will ask probing questions to understand it better because they sort of summarize the whole thing for you.” (Participant 2)

Most of the participants had received some form of informal MIYCF training. For 4 of the 14 participants, informal training was the only way they had been taught about MIYCF and how to educate the caregivers of infants and young children. Some providers had to learn about MIYCF practices through their own experiences as parents or by observing problems that caregivers bring to the clinics. Participants noted barriers to informal training, including lack of materials that could be referenced later and the fact that these trainings were not as in-depth.

In-service MIYCF Training Delivered

The participants that delivered in-service MIYCF training in a formal manner were primarily the NOs or HPOs at both the regional and district level. Two MIYCF curriculums were primarily taught between 2010 – 2016: UNICEF C-IYCF trainings were reported to have been delivered in 2010, 2012, and 2013 and the ENA trainings were reported to have been delivered in 2014 and 2016. District- and regional-level trainers described having attended MIYCF training

that taught skills for delivering the training to other educators, consistent with the “training of trainers” model.

Formal trainings including the ENA and the C-IYCF curriculums covered the following topics: complementary feeding, breastfeeding, positioning and attachment, breastfeeding in the context of HIV, counseling skills for health providers, immunization, and the four-star diet. Trainers that conducted formal MIYCF trainings described using training manuals and formal timetables that outlined the agenda for each day of the training in order to arrange the trainings, which were either provided by GHS (for example, the ENA training) or the sponsoring NGO (for example UNICEF C-IYCF). Training materials included using training manuals, presentations, flip charts, weighing cards, counseling cards, and cut outs of images to use for illustration. Informal trainings were inconsistent and varied across providers. Depending on the training topic, trainers often used field experiences to teach the health providers in a more hands-on way. Field experiences were favorable, compared to lecture or discussion.

“As I also said, active interaction with them so that it's not going to be a lecture teaching, but more of, sometimes demonstration, role plays, and other things to help participants really appreciate what you're doing. Most of them too, they are adults. Adults training, they have to be more interactive. For participation, usually, we need their full attention and to do that, we have to as a trainer or as a facilitator you should have a way of going about it so that it will be interesting, too. That they can fully participate in the program.” (Participant 8)

Regional level trainings were delivered to facility supervisors, which was inclusive of many types of health care providers:

“Usually, we have some sessions for nutrition officers. We have some sessions for community health nurses, public health nurses. In some cases, disease control officers but it's usually public health nurse, nutritional officers, and CHNs, community health nurses” (Participant 8)

District level trainings were delivered primarily to the CHNs, however other health providers were invited as needed according to roles of the providers at each facility, for example

if there was no CHN at a facility, or if more than one provider was invited to the training, a CHN and another provider with a different role may attend including ENs, SNs, and CHWs. This was to be sure that diverse groups of health care providers could step in and educate about MIYCF if needed.

However, these trainings primarily occurred only when funding was available, and were provided for only a portion of the staff at a time. Trainers depicted that when funding was available for training, they would train individuals in batches, only selecting specific health providers to attend.

“For now, we're usually getting support from UNICEF to do the training. Now, their concentration, I'll say is-- I don't want to say much, but we are no more getting that support anymore. As and when we get, it was 2014, 2015, we're able to train some number in CMIYCF and UNICEF support in that. Ever since, we've not had any.” (Participant 8)

Due to funding constraints, formal MIYCF training could not be delivered to everyone. Thus, informal in-service MIYCF training was delivered by supervisors or senior MWs, ENs, SNs, or CHNs to other junior providers while on the job to fill this gap. Some providers spoke of training their junior colleagues for a few weeks when they were first posted, whereas others described training on an ongoing basis, whenever problems arose, or their colleagues needed support. These senior providers were relied on to train their colleagues that had not had the opportunity to attend the formal trainings. In some cases, senior providers were not a part of the “training of trainers” model and may not have received specific training on how to train their colleagues, but rather relied on their experience, and delivered on-the-job support to their colleagues. The informal trainings covered a combination of any of the topics or materials described and varied in length and quality.

District- and regional-level staff provided supervision and monitoring to try to ensure MIYCF education was delivered consistently at facilities. The district and regional level trainers

such as the NOs and HPOs would provide this supervision on an ongoing basis to multiple facilities, but from an office separate from any of the facilities that delivered MIYCF education to caregivers. They would travel to and from facilities to provide this support or would be available by phone.

“...when they ask something and it’s above me I call our district and then they explain better” (Participant 4)

Some supervisors were posted at specific facilities and could hold meetings and provide support on a regular basis, allowing there to be a higher level of support and supervision for staff that provide MIYCF education at that facility. However, trained supervisors were not posted at every facility, and often times the district-level staff would be responsible for providing this monitoring and support for multiple facilities. There were often barriers to providing such a high level of monitoring including lack of funding for transportation. One supervisor spoke of the advantages of being able to provide support for her staff at the facility level:

“Our main challenge is the financing. When you call them you need to pay the T and T of participants and others, so if there are not enough funds there's no way you can organize the trainings. That is why we do monthly within our unit. That one doesn't require any transportation and the rest, but if we have to be called at the region or the district they need some finance to organize it.” (Participant 12)

Participants desired MIYCF training and requested additional MIYCF trainings be held in the future, especially to providers who may not have the primary role of MIYCF educator but may need to fill in when other staff are busy, or who may have undergone task shifting and are now taking on a new role as MIYCF educator. Some preferred that these trainings be formal and provided to everyone all at once at a central location, whereas others preferred trainers come to each facility individually, so that the training was given to a smaller number of people at a time and could provide more time for each person to ask questions and receive feedback.

“...They should train everybody. Like when there are new staff, they should train. When they are training too, they shouldn't train some and leave some. We should be trained, maybe, in batches. The staffs must be trained in batches, so that everybody will get knowledge in the program. And not to the specific people, every staff who is providing service.” (Participant 13)

For those that delivered training, some said they preferred going facility to facility instead of a larger, more structured training. The larger trainings we said to be difficult for everyone to have a high level of involvement in the activities, as they were often full. Trainers indicated that they thought their trainees were more comfortable asking questions and participating in a smaller group setting. Additionally, the smaller trainings allowed the trainers to provide more personalized instruction and feedback to the trainees.

Finally, all participants were not aware of any national or regional level policies that provide guidelines for MIYCF training, including who should be trained and how often. While it is possible that there are guidelines, but limited awareness of those who were interviewed, the two regional level participants also provided limited information about MIYCF training policies.

Education Delivery

MIYCF education was primarily delivered to mothers of infants and young children. Health providers taught caregivers either during one-on-one counseling sessions, or during group health talks primarily within Child Welfare Clinic (CWC) sessions, which are the weekly infant and young child weighing and growth monitoring sessions that take place at health facilities or community outreach posts. In addition to the counseling and group health talks, health providers conduct home visits within the community. Educators described the home visits as being key facilitators for reaching “defaulters” or those who do not regularly attend the CWC sessions. The topics covered during the education sessions included exclusive breastfeeding, complementary feeding, attachment and positioning, hygiene, malnutrition, and the Four-Star diet which describes a balanced diet to contain fruits, vegetables, legumes, and animal source proteins.

Participants described that one-on-one counseling was mainly focused on feeding children, to monitor weight and growth of the child and provide assistance accordingly, or any specific health concerns that caregivers would bring up. Group health talks covered broader topics such as breastfeeding attachment and the Four-Star diet. Group health talks would often include a hands-on demonstration, such as practicing positioning with either dolls or the caregiver's child or using food items to demonstrate the variety of foods.

The primary MIYCF educational tool used were the UNICEF C-IYCF counseling cards however other educational materials were used by the participants and those varied by location and access to the training materials at the facility. Many participants described how the UNICEF C-IYCF counseling cards were useful for one-on-one counseling but were harder to use during group talks because the images were hard to see due to the small size of the cards when held up by a health provider and the providers did not have key messages available. Health care educators used posters and other flip-charts such as materials from the GoodLife Campaign to supplement the UNICEF C-IYCF counseling cards during both group and one-on-one counseling in order to provide visual aids to the caregivers, despite the fact that these were not tools that were part of the C-IYCF curriculum. The mothers traveled to the CWC sessions with their child's weighing booklet which included charts to monitor the weight and growth of the child. These booklets contained information about proper feeding and variety of foods and would be used by the health providers to cover topics with caregivers.

Barriers and Facilitators of Education Delivery

Figure 3 below shows a theoretical framework for the pathway of how MIYCF knowledge is transferred from staff to caregivers. There were multiple barriers and facilitators that participants identified as influencing this MIYCF training and education pathway. A socio-ecological model

was used to organize these identified barriers and facilitators to illustrate how they can affect this pathway at any point from the training of staff to the education of caregivers.

Participants described the various challenges they faced delivering education. These were considered barriers that providers face (i.e. provider-level barriers) related to deficits in their own training and facility resources, or that caregivers face (i.e. caregiver-level barriers) related to the challenges of being able to understand or follow the provided education. The provider-level barriers included staff shortages which made it difficult for health care providers to attend to the large crowds at CWC sessions, the differences in MIYCF training for staff (i.e. where some were fully trained and others were not), and limited access to resources at the facility which included the materials used for education, or the funding to travel for training and education sessions (see Figure 3). The providers also spoke of the limitations of the materials they had access to, whether it was not having enough copies for the staff to use, or that some of the materials were not easy to use in some settings.

The participants spoke of the perceived challenges that the caregivers faced in following the education they provided (see Figure 3). The most prominent challenge was the lack of social support from caregivers' spouse or extended family in following MIYCF guidelines. This was often described as interconnected with cultural beliefs and practices of Ghanaian caregivers or those of their family members that did not reflect current MIYCF recommendations.

“Usually, the other members of the family try to give them their own ideas. The grandmothers, they'll give them the primitive ideas and this is a challenge. You teach them, they go to the house, and it's like they force it on them, that, "No, do it this way. No, give water to the child. A child needs water. Before six months, the child needs water, so give the child water." Although, you've taken that person through counseling, she knows, she has the idea, but when he goes to the house and want to practice it, other members of the family, especially the grandmothers and other community members, try to influence them in a negative way, so it's a challenge.” (Participant 8)

Providers also noted that language barriers impacted their education delivery, as some caregivers spoke other languages. Another challenge that providers noted was that caregiver attitude often impacted their MIYCF education, as they would ignore the advice of the educators. Some attributed this to the fact that behavior change interventions take repeated exposure for individuals to act on, others noted that caregivers did not practice the skills they had recently learned.

“The only challenge I will say is when the mothers don’t abide by what you say, maybe you tell them the kind of foods they should give to their child, even breastfeeding techniques, you tell them today and then the next time they come, they should repeat it and they are doing something else. It becomes very frustrating like say, you have to repeat it to just one particular person.”
(Participant 3)

Many providers attributed the low application of MIYCF knowledge to the lack of access to resources that parents faced and the enabling environment.

“...sometimes you give them all the beautiful, nice talks about feeding but the challenge is their enabling environment, they go back to the community, sometimes poverty or they don’t have money to be able to buy into whatever idea you’ve shown them, so that they can be able to make that choice.”(Participant 2)

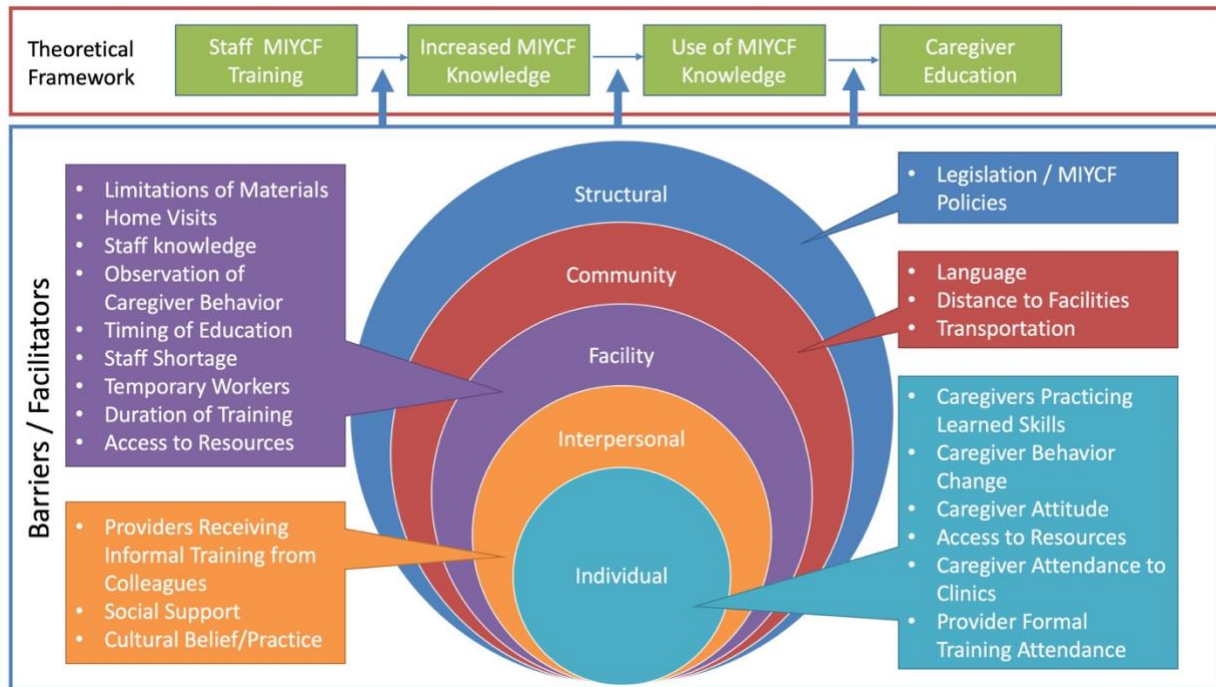


Figure 3. Provider- and Caregiver-Level Barriers/Facilitators to Delivering MIYCF Training and Education

Implementation of New Curriculum

After the RF counseling card package was shown and the key messages were verbally explained, providers expressed interest in a refresher training on the UNICEF C-IYCF counseling package that incorporated the original cards with newly designed RF counseling cards that were modeled after the UNICEF C-IYCF package. Whether this should be held in a formal way where select providers attend a training, or a more informal way where trainers go facility to facility, varied by participant. Likewise, the suggested length of the training varied by participant. Most proposed that the number of days for the training should be extended from the standard UNICEF training if the new guide was to be incorporated into the UNICEF C-IYCF training. Others suggested that a short 1- to 3-day training on just the new guide could be held for those that had already been formally trained in MIYCF. In order to hold such a training, participants suggested that the cards be developed with the key messages attached at the back, and training manuals be

developed so that trainers can follow along. Trainings that used field experiences or other forms of group exercises were preferred to those that lectured, as it allowed providers to practice the learned material and retain it better.

Some providers noted that the cost of transportation would need to be provided. Some suggested that sponsorship from an NGO or from the government could facilitate implementation. For the training it was noted that materials should be given to staff for them to review at the closing of the workshop and that refreshments should be provided to incentivize staff participation. Lastly, some expressed concern about the extra time that the new guide would add to both training and to the counseling sessions that are already lengthy and difficult to manage considering the shortage of staff.

Providers expressed interest in providing the RF messages during CWC and one-on-one counseling sessions. Various delivery methods were suggested by participants including providing messages in a poster form, or even broadcasting them on TV. Some participants suggested that the messages be included in the CWC maternal weighing cards so that caregivers could have a copy to review at home.

DISCUSSION

Overall, health provider responses indicated that MIYCF training, both pre-service and in-service should be strengthened. MIYCF was not always integrated into pre-service curriculum and if it was, the level of emphasis it was given did not appear to be consistent across health care provider training programs. This may highlight the lack of attention to MIYCF in training programs and the need for increased focus on MIYCF in allied health school curriculums for future health providers. Other MIYCF initiatives in Ghana highlighted the importance of providing high quality pre-service training for health care workers as key for promoting optimal infant feeding

practices both at the provider and caregiver level (Aryeetey et al., 2018). It is important that academic degree programs provide high quality training for future health care staff that aligns with the competencies required for optimal job performance.

The different degree programs train providers for specific roles, yet due to staff shortage, some individuals task shift and take on roles that may differ from their education. For example, there were SNs and ENs taking on positions that focused more on nutrition counseling and education such that they were performing the duties of a CHN. It may be more useful for all degree programs to include some level of MIYCF training, so that providers enter the work force with basic MIYCF knowledge. Studies conducted in Sub-Saharan Africa looked at the effect of task-shifting on health provider attitudes and competencies and found that many took on roles that were out of scope with their clinical abilities (Mijovic et al., 2016). Studies in Zimbabwe and Mozambique found that task-shifting was often used due to the lack of available staff, which meant that even fewer staff were able to attend trainings because sending staff for continued education left the clinics without the ability to perform their duties (Ferrinho et al., 2012). There is a large need to ensure that high quality training is delivered to all staff, especially in the context of task-shifting, to ensure that the needs of patients are met, and the facilities can continue to deliver high quality services.

Findings demonstrated that currently supervision and monitoring efforts are being made to strengthen MIYCF education being provided and ensure it is standardized. Yet, barriers can prevent this from happening at all facilities consistently, thus relying more on informal training. Formal in-service MIYCF training should be made available to all staff that are involved with MIYCF education or training in order to ensure that standardized education is provided to caregivers. A consistent monitoring and support plan should be in place so that senior providers

and supervisors can provide frequent follow-up training to their staff as needed. MIYCF training funding should be secured and incorporated into the national budget so that there can be sustained national level support for training, especially for newly hired staff. Guidelines, national targets, and goals should be shared during trainings to encourage staff throughout the training process. Training should incorporate both an on the job and more formal process of training, however the informal training should be standardized. Currently, the informal training pathway is not standardized, nor is it as rigorous as the formal training provided to some staff.

Education delivery can be strengthened by standardized training of staff, but there are certainly other barriers to address to provide optimal MIYCF education to caregivers. One larger barrier to education was the lack of materials or the inadequacy of the materials available for staff to use while counseling. Adequate materials should be disseminated and trained on so that facilities have access to enough copies according to their attendance. A variety of materials should be made in multiple sizes so that both individual and group learning can be facilitated, as the size of the images, particularly for the UNICEF C-IYCF counseling card package was not conducive for a group setting. Additionally, counseling messages and images should be distributed directly to the mothers for them to review on their own time, as many providers indicated that the caregivers would forget what was discussed at counseling sessions. The UNICEF C-IYCF facilitator guide provides three take-home brochures, however there was no mention of these being used by any of the participants (UNICEF, 2010). Furthermore, encouraging and incentivizing caregiver attendance to education, particularly for men, could help with education delivery and ensuring that there is enough social support for caregivers to follow the advice of the health care staff (Sanghvi et al., 2013). MIYCF strengthening has been implemented in Asia and Africa, showing that community mobilization, monitoring and evaluation plans, and national policies that promote

MIYCF practices such as reducing advertisement of infant formula and increased maternal leave have all helped in the MIYCF education delivery (Baker et al., 2013; Thow et al., 2017).

Prior studies have found that national policies have helped to sustain MIYCF efforts (Kouam et al., 2014). While the government of Ghana has created a national level policy to address nutrition, the guidelines are largely decentralized and multiple entities are responsible for monitoring (Government of Ghana, 2013). Additionally, the monitoring and funding of nutrition training for health care workers and education to caregivers is largely contingent on external donor organizations (Ghana Health Services and Ghana Ministry of Health, n.d.; Ghartey, 2010). In order to implement additional nutrition trainings, it is important to understand the context in which they will be delivered in order to best strategize the implementation of a new curriculum. This will inform the development a methodology to integrate or add a curriculum to the existing in-service training cascade.

Within the Central Region of Ghana, 22% of children under 5 are stunted, despite the relatively low rate of poverty (i.e. only 5% of the population fall in the lowest wealth quintile) compared to other regions (USAID, 2018). Nurturing care can mitigate the effects of poverty and promote child development by creating a stable environment, which can in turn provide behavioral, cognitive, and social benefits throughout the life course (Britto et al., 2017). RF can promote healthy eating habits while fostering an environment in which the child is supported, secure, and safe (Black and Aboud, 2011). Furthermore, reduced stunting has been attributed to RF interventions (Vazir et al., 2013). While some RF messages are included in the two curriculums (ENA and UNICEF C-IYCF) used in Ghana to train health care providers in MIYCF, they are not inclusive of all RF messages nor are they consistently taught to providers, thus providers do not teach them consistently to caregivers. It is important that going forward Ghana begins to strengthen

the delivery of MIYCF training and education. Findings show that RF can be integrated into the existing MIYCF curriculum, however decisions will need to be made as to whether this new topic is included in an existing training curriculum, or if it should be separate. The RF messages are something that providers would like to be introduced in their MIYCF education, and they described implementing this new curriculum as being feasible as long as the burden is not so large that the current system for MIYCF training and education cannot handle the addition. However, implementing a new curriculum would be an opportunity to provide more trainings and strengthen the system so that these trainings are more consistently delivered to staff.

Limitations to this study include potential biases of participant responses due to the recruitment mechanism. The sample was not random, as key informants were used to guide recruitment. However, because saturation of themes was reached after coding 50% of the interviews collected and the interviews were conducted with staff from two districts within the central region of Ghana, it is likely that the overall opinions of those districts were captured. However, results may not be generalizable to other districts within the Central Region, or to other regions in Ghana. Additionally, the two PHNs selected for the study could not be interviewed. Therefore the PHN perspective was missing from this analysis.

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