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Final Capstone Practicum Report

Study to identify the factors affecting the recovery from moderate acute malnutrition among children enrolled in a supplemental food program in a rural health center of Rwanda.

By

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University of Global Health Equity (UGHE)

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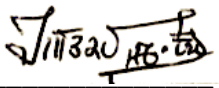
DECLARATION

I, Manasseh Eric Muvandimwe, hereby declare that the practicum capstone thesis has been written by me without any external unauthorized help, that it has been neither presented to any institution for evaluation nor previously published in its entirety or in parts. Any parts, words, or ideas in the thesis, however limited, that are quoted from or based on other sources, have been acknowledged as such without exception.

Signature:  Date: _____May 18, 2018_____

DEDICATION

This thesis work is dedicated to my lovely wife, Ganza, and sweet daughter SHIMA, who has patiently missed my presence and kept being a constant source of love and encouragement throughout the challenges of MGHD and life. I am so very thankful for your sacrifice.

This work is also dedicated to my parents, Nzirimo Manasse and Nyiramahoro Rachel, Father and mother-in-law Mukwiza Simeon and Nyirarukundo Zirayi, and my older brother Gahungu Charles and his wife Bukuru Gashugi Doris, for their unceasing prayers and who always inspired me to endure until I get the results. I am grateful for your unfailing support.

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Thank you.

ABSTRACT

Introduction: Malnutrition globally remains a public health concern affecting 206 million under-nutrition children that is complex and needs special attention. In Rwanda, stunting continues to be a threat to the development in various ways, including weakening the intellectual capacity of children. Moderate acute malnutrition (MAM) is higher among under-five children than severe acute malnutrition (SAM) and easy to manage through outpatient malnutrition programs, but still receives less attention. Poor recovery of MAM is a leading factor in stunting, however, the factors affecting the delayed recovery of MAM children remains unknown.

Objective: To identify the factors affecting poor growth among MAM children enrolled in the supplemental feeding program (SFP) in the rural health center of Rwanda, and provides proper recommendations.

Methods: Mixed method study, with 24 participants, both caregivers and healthcare workers working in the SFP in December 2017. The sample of eligible caregivers were obtained from the nutrition register book available at the Health Center among those whose children were enrolled in SFP from April to June 2017. A survey and semi-structured interview guide were used. The quantitative data summarized using

descriptive statistics, and the qualitative data using content and thematic analysis and presented as topics supported by quotes.

Results: Six factors affecting the delayed recovery of MAM children enrolled in the SFP were identified, enrolled children do not consume the provided support due to sharing/ selling, limited family planning, insufficient food and poverty, inadequate child care, poor service, and low attendance at the community-based nutrition program (CBNP). Furthermore, increasing the support or the length of SFP, the involvement of local leaders, establishing early childhood development centers, improving health service including communication and home visit, and accountability of caregivers, were proposed as ways forward. The major benefit of the SFP was the knowledge of nutrition practices.

Conclusion: Gaps in households and health facilities continue to affect MAM Children enrolled in the SFP. Interventions based on the identified contributing factors and suggestions obtained may improve the SFP and nutrition status of under-five children in Rwanda.

Keywords: Malnutrition, Moderate acute malnutrition, Supplementary food program, delay recovery, Rwanda

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LIST OF ACRONYM

%:	Percentage
CBNP:	Community-Based Nutrition Program
CHW:	Community Health Worker
DPEM:	District Plan to Eliminate Malnutrition
DRC:	Democratic Republic of Congo
ECD:	Early Child Development
HC:	Health Center
MAM:	Moderate Acute Malnutrition
MGHD:	Master of Science in Global Health Delivery
MoH:	Ministry of Health
NGO:	Nongovernment Organization
RDHS:	Rwanda Demographic and Health Survey
SAM:	Severe Acute Malnutrition
SFP:	Supplementary Food Program
UGHE:	University of Global Health Equity
UNICEF:	The United Nations Children's Fund
WHO:	World Health Organization

CHAPTER ONE: INTRODUCTION

1.1. Background

Malnutrition is a challenging and complex issue that needs special attention globally. In 2011, around 314 million children under five years of age presented with failure to reach full potential linear growth (known as stunting), and another 258 million presented with below normal weight (Stevens et al., 2012). These conditions of poor nutritional status have negative impacts on individual cognitive development and overall economic development of the countries (Fink et al., 2016). Stunting results from prolonged bouts of undernutrition and cycles of acute malnutrition both severe acute malnutrition (SAM) and moderate acute malnutrition (MAM), and such cycles are especially impactful during the first 2 years of a child's life (Collins, 2007a).

In Rwanda, despite many efforts to improve the nutritional status among children under five, 38% of children under-five years are stunted, and the rate is higher in the Western province, with 45% of children stunted (RDHS, 2015). In Rwanda, children with acute malnutrition and stunting are enrolled in various programs intended to improve their diets; however, only 22% of all children between one and two years of age received adequate nutritious diets (Republic of Rwanda, 2013). There is still a gap in the availability of supplementary food programs (SFP). Rubavu district in Rwanda has second highest rate of stunting nation wide (RDHS, 2010). Ironically, the district also has the highest animal and agricultural productivity (Institute of Statistics of Rwanda, Ministry of Agriculture and Animal Resources, 2012). This paradox indicates the

complexity of the problem of malnutrition, and that availability of the food in the community alone is not the answer to the problem.

Community-based programs are effective in improving the management of acute malnutrition and have demonstrated that more than 75% of all SAM cases can be treated in the community with minimal means compared to inpatient treatment (Bachmann, 2010). The Government of Rwanda has involvement community health workers to distribution and therapeutic foods in SAM management and supplementary food for support MAM management, with a particular focus in the first 2 years of life (The Republic of Rwanda, 2013).

In MAM management, the primary goal is to ensure that MAM children are able to recover within 10 weeks of treatment and thus prevent SAM and stunting (Collins, 2007b; James et al., 2016; MoH-Rwanda, 2012). However, among 84 malnourished children who were enrolled in the SFP program at Byahi Health Center, Rubavu district, in the last quarter of 2016, few recovered within 10 weeks (2009). This project seeks to identify the underlying reasons for the poor recovery among under-five children enrolled in the supplementary food program (SFP) and to provide recommendations to address this issue effectively.

1.2. Problem Statement

The recovery rate of children with moderately acute malnourished (MAM) within 10 weeks participating in a supplementary food program at the Byahi Health Center was low.

1.3. Objectives of the study

- To identify the factors affecting poor growth among MAM children enrolled in the SFP program in the Byahi health center by March 2018.
- To provide recommendations to address the factors affecting poor growth among MAM children enrolled in the SFP program by March 2018.

Long-term objective:

- To increase the percentage of MAM children enrolled in the supplemental food program at the Byahi health center that recover within 10 weeks of enrollment by March 2019.

1.4. Justification and beneficiaries of the study

The results of this study will provide basis for future studies to generate effective interventions to improve the growth of under-five children. The results will be able to inform policymakers in developing effective policy and intervention relate to moderate acute malnutrition (MAM). Understanding these factors can help the district and health centers to address the challenges, thus to improve the SFP. Ultimately, improving their growth and health will benefit the children.

1.5. The organization of this report

This report has six chapters. The first chapter introduces the context and the rationale for the problem of delays recovery of MAM children enrolled in the SFP as well

as explains the objectives of this study and the potential impacts. The second chapter provides the review of other related research. The literature review covers different parts such as key definitions, the burden of malnutrition national and globally, the correlation between MAM, SAM and stunting, the treatment of MAM, the recommended period for the SFP of MAM children and causes of delay recovery, and the impact of malnutrition. The third chapter describes the mixed methods used in this study to interview caregivers and healthcare workers as well as the study setting and the ethical considerations. The fourth chapter displays the results. The fifth chapter discusses the results, the causes of the delayed recovery of MAM, challenges encountered and limitations. Lastly, chapter six draws the conclusion based on the results and provides recommendations.

CHAPTER TWO: LITERATURE REVIEW

2.1. Malnutrition

Malnutrition referred as being poorly nourished (Hickson, 2006), can be (1) undernutrition - caused by inadequate intake of energy and other nutrients, (2) overnutrition or obesity - caused by excessive intake or dietary imbalance, and (3) deficiency - caused by lack of essential vitamins and minerals (Ge & Chang, 2001). This study focuses on undernutrition.

Nutrient deficiency during pregnancy can lead to low birth weight contributing to approximately 60 to 80 percent of neonatal deaths (UNICEF, 2013a) (Lawn et al., 2004; Rahman, Howlader, Masud, & Rahman, 2016). One of the consequences of malnutrition is poor schooling, Studies had shown that chronic malnutrition affects the intellectual capacity of children; children recovered from chronic malnutrition had the poorest performance at school compared to those never experiencing malnutrition (Casale & Desmond, 2016). And it is worse in developing countries where, 69.4 million of early-life growth faltering led to loss of educational attainment, associated with an economic cost of $176.8 billion; with 10.3 million human capital loss in the Eastern and Western Sub-Saharan Africa regions and 8.8 million in South Asia (Fink et al., 2016). Undernutrition presents in three different forms, including moderate acute malnutrition (MAM), severe acute malnutrition (SAM), and stunting. MAM is defined as a weight-for-height Z-score (WHZ) between -2 and -3 without edema, or mid-upper arm circumference (MUAC) between 115 millimeters and <125 millimeters (Laillou et al., 2014), while SAM is

defined when WHZ is < −3 or MUAC < 115 millimeters, or the presence of bilateral pitting oedema or severe wasting, and poor appetite. People with SAM have highly increased the risk of death (UNICEF, 2013b). When undernutrition becomes chronic, with height-for-age Z-score <-2, that is called stunting (Laillou et al., 2014).

If not managed well, MAM can become SAM and become stunting for children of under age of five years (World Health Organization (WHO), 2009). In 2011, out of 800,000 deaths attributed to acute malnutrition, 67.5% were SAM; and stunting caused 3.1 million child deaths, accounting for 45% of all child deaths (Black et al., 2013). Stunting is largely irreversible if occurs during the first 1,000 days of a child's life (Khan et al., 2016). Stunting, apart from increasing the risks of developing nutrition-related chronic diseases, can affect brain development and can detrimentally limit the child's ability to learn and earn (UNICEF, 2013a).

2.2. Global and National prevalence of Malnutrition

Malnutrition is one of the major public health problems worldwide (Amare, Negesse, Tsegaye, Assefa, & Ayenie, 2016), especially in developing countries (Govender, Pillay, Siwela, Modi, & Mabhaudhi, 2017). Approximately 45% of all child deaths globally are linked to malnutrition (WHO, 2016). In 2012, the MAM accounted for around 63% of the total acute malnutrition worldwide; with 33 million children had MAM and 19 million of SAM (WHO, 2013). Globally, it was estimated 206 million of children under 5 years suffered from undernutrition in 2015, of which 156 million were stunted and 50 million had acute malnutrition (UNICEF, WHO, World Bank, 2016). Although the number had

decreased from 161 million stunted and 51 million acute malnutrition in 2013 (UNICEF, 2013a) (Lu, Black, & Richter, 2016), under-five children in Sub-Saharan Africa are still 14 times more likely to die than children in developed regions with nearly a half of deaths attributed to malnutrition (Hug et al., 2017).

The prevalence stunting in Rwanda is one of the lowest in East Africa due to strong governmental support and multi-sectoral involvement, however, the rate is still high (MoH-Rwanda, 2013a; RDHS, 2015). Although the prevalence was decreasing in the past decades, stunting remains a threat to the country and was unable to meet the target of millennium development goals (MDGs) in 2015. The DHS 2015 revealed that 38% of children nationwide are stunted; child stunting is lowest in Kigali City (23%) and highest in the Western province (45%), whereas the Eastern and Northern provinces had 35% and 39% respectively (MoH-Rwanda, 2013a; RDHS, 2015).

2.3. Treatment of Moderate Acute Malnutrition (MAM)

According to the Pan American Health Organization, a healthy breastfed child between the age 9-23 months should be fed 3-4 times with additional 1-2 nutritious snacks offered per day (Pan American Health Organization, 2003). In addition to that, the feeding frequency should increase to 5-6 times per day if the meals are with a low energy density (0.6 kcal/g) (WHO, 2005). However, meeting the required meal frequency is still a challenge in the poor country, because the percentage of under-five children with minimum meal frequency in low-middle income countries is for example - 18% in Rwanda and 43% in India (Bentley et al., 2015; RDHS, 2015).

In general, supplementary food program (SFP) is the most standard recommended in the management of MAM. SFP has two components: 1) nutrition counseling and education, and 2) supplementary feeding; focusing on 1) preventing MAM children recovered from SAM from relapse, 2) improving treatment of MAM in order to not turn into SAM, and 3) preventing normal children to turn into MAM (Annan, Webb, & Brown, 2014). In Rwanda, the government provides fortified food for MAM children, focusing on the vulnerable household that can hardly afford basic needs, identified through social wealth quintile (*ubudehe)* 1 and 2 (MoH-Rwanda, 2013c). The MAM SFP is three times less expensive (US$40–80 per child) than treatment of SAM (US$200 per episode per child)(Wegner, Loechl, & Mokhtar, 2015; Horton, Shekar, Mcdonald, Mahal, & Brooks, 1995).

2.4. The recommended period for the Supplementary Food Program (SFP) of MAM children

WHO along with the Yemen nutrition department suggested that SFP should provide patients regular rations, systematic treatment, and appropriate complementary support for a minimum of 45 days, and up to 180 days for non-responders (UNICEF, 2013b).

In Rwanda, MAM children remain in SFP for 10 weeks until seeing growth-improvement (WHZ > -1 SD and MUAC > 125mm) (MoH-Rwanda, 2012).

However, the length of SFP remains a subject of debate. Studies have shown that increasing the minimum length to 12 weeks may effectively improve child's growth, help

maintain the normal nutrition status and reduce SAM and death risk at one-year follow up (Trehan et al., 2015). The first year after MAM recovery, children remain at high risks for malnutrition and even death, and thus MAM long-term risks must be taken into account (Chang et al., 2013).

2.5. The gap in literature

The government of Rwanda provides strong support to fight against malnutrition. Various programs were established and operates at the central, district and community levels to help the country to combat malnutrition, including the national protocol for the management of acute malnutrition as well as the MAM, National food and nutrition policy, national multisectoral strategy to eliminate malnutrition DPEM, and National school health policy (Ministry of Education, 2014; MoH-Rwanda, 2012, 2013a, 2013c; RDHS, 2015). Moreover, view the facts that malnutrition vulnerability is predominantly among children under two years with the rising of stunting from 18% to the peak of 49% among children age 6-8 months and 18-23 months, respectively; the government fostered community interventions and practices needed to improve household food security and the promotion of the first 1000 days to track the life of the child during pregnancy and lactation (RDHS, 2015).

Although there is still a gap in the assessment of the impact of many initiated programs, few programs evaluated, including the provision of livestock present significant impact towards the nutrition outcome (Rawlins, Pimkina, Barrett, Pedersen, & Wydick, 2014). And, the regular national screening as well as the Rwanda Demographic Health survey

conducted, revealed the significant decline of stunting from 51% to 38% in the past 10 years 2005-2015 attributed to the programs initiated by the government (Gatarayiha et al., 2006; RDHS, 2015). Despite the willingness and efforts of the government of Rwanda, the burden of malnutrition among children under-five continues to threaten the development of the country. His Excellency the president of the Republic of Rwanda Paul Kagame during the launch of the fourth edition of Rwanda Integrated Household Living Conditions Survey 'EICV' 2013/14 said "*What we are going to do from here is to consult and see what kind of measures as government, institutions and local government can be used to eradicate malnutrition*"(Kayihura, 2015).

Furthermore, in general, even though the factors of malnutrition are known, and relates to the characteristics of the child (age, gender, birth weights), socioeconomic demographic of the mother (age, body mass index, multiple pregnancy, education level and nutrition knowledge,..), the wealth Quintiles, and area of residence or province (Habyarimana, Zewotir, Ramroop, Ayele, & Habyarimana, 2016; RDHS, 2015); However, the factors affecting poor growth among MAM children specifically, remains poorly understood. In other developing countries with the similar context of Rwanda including Ethiopia, household food insecurity associated with the lack of the diversity of child's diet, lack of optimal breastfeeding, maternal malnutrition and unwanted pregnancy were identified as the factors affecting the poor growth of MAM children(Adamu, Jara, Alemayehu, & Burrowes, 2017). Little is known about the factors hindering the growth-improvement among MAM children receiving SFP, particularly in Rwandan setting. Thus, this study will examine the root causes in order to inform designing effective strategies

to improve growth among MAM children.

CHAPTER THREE: METHODS

3.1. Setting

Rubavu district is located in the western province of Rwanda and neighbors Goma in the Democratic Republic of the Congo where there is a large number of people crossing the border for business and other purposes. It has one district hospital Gisenyi and 13 Health centers located in 12 sectors. Among the 13 health centers, 2 of them are located in the urban area in Gisenyi city. Byahi health center is located 6 kilometers from Gisenyi hospital, in a rural area, but very close to the urban center, has a population of 31,417 spread into 4 cells and 24 villages (Byahi Health Center, 2017). As recommended by the Ministry of Health of Rwanda, each of the 24 villages of the Byahi health centers has one male and one female Community Health Workers (CHWs) in charge of the health of children ages 6-59 months (MoH-Rwanda, 2013a). Rubavu has a high stunting rate of 46.3% (RDHS, 2015). In the Byahi Health Center, the trend of malnutrition remains rigid or with a slow decline. The Byahi health center provides SFP to MAM. The SFP package apart from providing education session and *Shisha kibondo* (a fortified porridge) to those in social wealth quintile 1 as suggested by the current national management policy of SAM and MAM; the health center also provides 1 liter of milk per day to each MAM child. Additionally, with the support from Access to Health organization and UNICEF Rwanda, families were also given a small livestock (goats or sheep) and kitchen garden for vegetables.

3.2. Design

This study utilized mixed methods to conduct a cross-sectional interview of caregivers of children with MAM enrolled at the Byahi Health Center as well as the healthcare providers.

3.3. Sample

Caregivers

The participants included caregivers of MAM children under the age of five enrolled in SFP during the period of April to June 2017 at the Byahi Health Center.

Inclusion criteria of the caregiver:

- Must be age 18 or above
- Must be taking care of a MAM child who was between the age 6 and 59 months during the period of April to June 2017
- Must be taking care of a MAM child who was enrolled in the SFP at Byahi Health Center in April 2017 and remained in the program in June 2017 if not discharged

Healthcare workers

Staffs who were involved in the Byahi health center SFP

- *Inclusion criteria:*

- Either as: Community health worker supervisor, environmental health and nutrition officer, head of the health center, or vaccination officer
- Primary responsibility is to follow or provide support to children ages 6-59 months enrolled in the SFP program at the Byahi Health Center.
- Were working at Byahi Health Center at least since April 2017
- At least 18 years old

- Exclusion:
  - With <8 months of experience working in SFP program was excluded
  - Was not working at the Byahi health center during the period of April to June 2017

3.4. Measures

The study assessed the caregiver experience in the SFP, the healthcare workers experience in the SFP, factors to the delayed recovery of MAM children.

3.5. Data collection tools

Tools were developed based on literature review and input from the clinicians. The two data collection tools were used:

1. Caregivers survey:

   The survey has two parts.

a. Part one collected the demographic (i.e.: age, sex, marital status, etc.), social-economic (i.e.: education, occupation, social wealth quintile/ubudehe, etc.), and nutritional characteristics (i.e.: diagnosed place, CBNP attendance, child meal intake frequency per day, etc.) of the MAM child.
b. Part two included eight open-ended questions to understand knowledge and perception of caregivers.

2. Semi-structured interview guide for healthcare workers:

   The interview guide included 4 open-ended questions designed to gather views of healthcare workers on their experience with SFP, the frequency and support provided to caregivers, challenges encountered during SFP implementation and possible way to improve SFP.

3.6. Data collection procedures

The principal investigator prepared tools including the recorder, and identities of eligible caregivers obtained from the nutrition register book available at the Health Center. One day before starting the data collection, the Principal investigator contacted all participants and scheduled the meeting including the venue and time. Caregivers, who had no phone contact available in the registration book, were contacted via of CHW. The caregivers were scheduled to come one on one. The interviews held in privacy room, at a secondary school as students were on holidays; for the caregivers didn't manage to come to the venue as agreed; the investigator met them at home. For the

healthcare workers, the interview was conducted in the office of each during the break time. Before the interview began, the investigator asked a voluntary participation and administrated a consent form that was signed by all participants. Each caregiver responded first to the questions of multiple-choice in order to get demographic data and then continued responding to open-ended questions. The investigator completed the survey, recorded and took notes. No payment was given to participants, and the interview took 45 minutes on the average to complete all questions including closed questions and open-ended questions.

3.7. Data analysis procedure

- Quantitative data:
    - Demographic, social-economic, and nutrition status data were checked for completeness and cleaned. Frequency and percentage statistics were used to present the information disaggregated into two groups: children who recovered within 10 weeks and children who did not recovered within 10 weeks.
- Qualitative data:
    - Information from the open-ended questions was transcribed and translated by the principal investigator. The first data was recorded and transcribed before translation and a codebook for analysis was developed based on core issues directly from the interviews. All transcribed

statements were grouped by themes and the frequency of occurrence of theme was recorded.

Transcription and translation was conducted using Microsoft Word and analyses were conducted using Microsoft Excel for both qualitative and quantitative data.

3.8. Ethical consideration

This study obtained ethical review and approval from the UGHE Institutional Review Board (Annex 1, p.73). Before the data collection started, the investigator got an approval letter from UGHE research development office addressing to the Mayor of Rubavu district that ultimately approved the study (Annex 1, p.74-75). All participants signed the consent form that was available to them in Kinyarwanda (Annex 5, p.94; Annex 6, p.101), after having the full explanation of the aim, methodology, and tool including recorder used to collect data. Participants were informed and encouraged to voluntarily participate if they desired but it was also explained that to withdraw was participant's right. Participation in this study was voluntary and there was no direct benefit to the participants. The interview was conducted in a private area at a specific time and it was one on one conversation. The researcher guaranteed the participant of not sharing information provided to any person and the names, or specific positions in the health center, was not appearing in the paper sheet neither in audio record as coding was used, participants were informed that only the results will be shared with the UGHE, Access to Health Rwanda, and Rubavu district but this will be shared in aggregate and common themes to protect individual. Participants were informed that

the contain participants' information with created identifies will be kept in a locked cupboard. The coded file will be kept on the researcher's laptop locked with a password and also another coded copy will be kept with UGHE respecting research policy of data keeping. Data will be destroyed after 10 years of study

CHAPTER FOUR: RESULTS

4.1. QUANTITATIVE RESULTS

4.1.1. Demographic characteristics

A total of 20 caregivers participated in this study. All the caregivers interviewed were female. Ten caregivers interviewed had children who recovered from MAM within 10 weeks of the SFP (group 1), and ten had children who did not recovered within 10 weeks of SFP (Group 2). 50% of respondents were in the age group of 21-30 years, 45% of them have 7 or more members of their households, 60% of them have 3 children who were under age 5 in the household, 65% of them live with their partners and are native to the area, with similar proportions in both Group 1 and Group 2 (Table 1).

Table 1: Respondent and interview characteristics, Rwanda 2017

Respondent characteristic (n = 20)	**(Group 1)** ***n (%)***	**(Group 2)** ***n (%)***	**Total** **n (%)**
Sample size (N)	*10*	*10*	*20*
Age of Responding Caregiver			
<21	2 (20%)	0 (0%)	2 (10%)
21-30	5 (50%)	5 (50%)	10 (50%)
31-40	2 (20%)	4 (40%)	6 (30%)
>40	1 (10%)	1 (10%)	2 (10%)
Family Size			
3-4	2 (20%)	4 (40%)	6 (30%)
5-6	4 (40%)	1 (10%)	5 (25%)
7 and above	4 (40%)	5 (50%)	9 (45%)
Number of Children < 5 years old per household			
A household with one child <5 years old	4 (40%)	3 (30%)	7 (35%)
A household with two children <5 years old	6 (60%)	6 (60%)	12 (60%)
A household with three children <5 years old	0 (0%)	1 (10%)	1 (5%)
Marital status			

Not-married/single	2 (20%)	2 (20%)	4 (20%)
Married or living together with partner	7 (70%)	6 (60%)	13 (65%)
Separated/Divorced from partner	1 (10%)	2 (20%)	3 (15%)
Length of the period living in the district			
<8 years	2 (20%)	1 (10%)	3 (15%)
8 years and above	2 (20%)	2 (20%)	4 (20%)
Native	6 (60%)	7 (70%)	13 (65%)

Group 1: children progressed from MAM within 10 weeks of SFP
Group 2; children did not recover from MAM within 10 weeks since SFP

4.1.2. Social economic characteristics

The majority (70%, n=14) of caregivers had never been to school, with a slightly larger proportion among Group 2 (80%) than Group 1 (60%). 75% did not have health insurance and belonged to social wealth quintile 1 or 2 (poorer segments of the population), 90% of them did not receive any porridge flour support, and 30% received small livestock. More families in the group 2 received small livestock (50%) compared to only 10% in the Group 1 (Table 2).

Table 2: Social, economic, and demographic characteristics

Characteristics of caregivers interviewed	**(Group 1)** ***n (%)***	**(Group 2)** ***n (%)***	**Total** ***N (%)***
Education			
Never been to school	6 (60%)	8 (80%)	14 (70%)
Completed primary school	4 (40%)	2 (20%)	6 (30%)
Occupation			
Self-employed (business)	1 (10%)	0 (0%)	1 (5%)
Farmer without land	1 (10%)	1 (10%)	2 (10%)
Not working	2 (20%)	1 (10%)	3 (15%)
Informal business	6 (60%)	8 (80%)	14 (70%)
The Child with Community Health Insurance			
No	7 (70%)	8 (80%)	15 (75%)
Yes	3 (30%)	2 (20%)	5 (25%)

Household's social wealth quintile (UBUDEHE)			
1	3 (30%)	2 (20%)	5 (25%)
2	3 (30%)	7 (70%)	10 (50%)
3	3 (30%)	1 (10%)	4 (40%)
Do not Know	1 (10%)	0 (0%)	1 (5%)
Households supported with Shisha kibondo (porridge flour)			
No	10 (100%)	8 (80%)	18 (90%)
Yes	0 (0%)	2 (20%)	2 (10%)
Households supported with small livestock (chicken, Goats or sheep)			
No	9 (90%)	5 (50%)	14 (70%)
Yes	1 (10%)	5 (50%)	6 (30%)

Group 1: children progressed from MAM within 10 weeks of SFP
Group 2; children did not recover from MAM within 10 weeks since SFP

4.1.3. Nutrition characteristics

Table 3 shows nutrition service participation and knowledge. Nearly a half (40%, n=4) of caregivers in Group 2 never attended the Community Based Nutrition Program (CBNP); only one of them attended the CBNP session of the last month. The majority (70%, n=7) of group 2 got the malnutrition diagnosis from CHW versus only 40% from group 1. Most meals (75%) were prepared by mothers in both groups. The majority (90%, n=9) in Group 2 had less than 2 means in the previous day; while the majority (70%, n=7) of group 1 had 3-4 meals in the previous day.

Table 3: Nutrition characteristics

Characteristics of caregivers interviewed	**(Group 1)** ***n (%)***	**(Group 2)** ***n (%)***	**Total** ***N (%)***
Attendance at CBNP			
Never	2 (20%)	4 (40%)	6 (30%)
Participated last month	4 (40%)	1 (10%)	5 (25%)
Participated at least once in the past 6 months	3 (30%)	3 (30%)	6 (30%)

Attended > 6 months ago	1 (10%)	2 (20%)	3 (15%)
Malnutrition Diagnostic place			
At home by CHW	4 (40%)	7 (70%)	11 (55%)
At CBNP Site	3 (30%)	0 (0%)	3 (15%)
At health center	3 (30%)	3 (30%)	6 (30%)
Responsible to prepare child's meal			
Mom	8 (80%)	7 (70%)	15 (75%)
Dad	1 (10%)	0 (0%)	1 (5%)
Another adult that is at home	1 (10%)	3 (30%)	4 (20%)
Number of meals received previous day			
0-2 times	3 (30%)	9 (90%)	12 (60%)
3-4 times	7 (70%)	1 (10%)	8 (40%)

Group 1: children progressed from MAM within 10 weeks of SFP
Group 2; children did not recover from MAM within 10 weeks since SFP

4.2. QUALITATIVE RESULTS

Seven common themes generated from the interviews of all 24 participants, including the 4 healthcare workers. The Seven themes were grouped into two larger categories: six factors and proposed solutions.

4.2.1. The factors contributing to the delayed recovery of MAM children

4.2.1.1. Enrolled children do not consume the provided support due to sharing/ selling

Participants reported milk as the only food supplement provided as treatment for MAM children enrolled in the SFP at the HC. All (4) healthcare workers and the majority of caregivers whose children progressed well (Group 1) perceive challenges of the provided support being used as prescribed as the supplies do not last as long as they should, that

contributes to the delayed recovery of their child. For example, one health care worker followed by two caregivers (Group 1) shared:

> *"The reasons why it delays is because of misunderstanding of parents when we give them milk we suppose that it is like drugs for a patient (only the person who is sick), but for them (caregivers) they take it as a beverage of the whole family. Also, they sell milk so that they can buy other kinds of food. We used to do home visit and on the 3rd or 5th day after giving them you find that the milk for a week is over yet you have agreed that its for 7 days"* (Healthcare worker, 001)

> *"Many times I could see my fellows (caregivers) immediately selling the milk just after receiving it from the HC … The big bottle of milk that is normally for 1100 Rwandan francs, they could sell it for 500 Rwandan francs or even 300 Rwandan francs they just said, let me have the little money that I can use to buy potatoes for all family members" (*Mother of a child doing well, *025)*

> *"I remember one of them (mother with children delayed to recover) was caught over there, hmm (sad), she had a child who was very sick and they gave her a box of milk and she turned there in the shop and she sold it. The doctors (HC staff) went to bring it back from the shop where she sold it, yet her child was very very sick …"* (Caregiver of a child doing well, 023)

On the other hand, caregivers with children doing poorly also accept that they do use support received differently than instructions given, however, they explain the reasons related to try to meet the needs of the whole family. One said,

> "*Then, can you give that child while others are looking? They (the other children in the home) can kill the child. (She laughs), yeah, they can beat the child; it is shared (milk) because you could be causing division among children..."* (Caregiver of a child doing poorly, 009)
>
> *"Dear there is a benefit (from SFP), ….even my little sibling child could approach that one who was sick and shared the milk and also improved health (they both benefited"* (Caregiver of a child doing poorly, 007)
>
> *"I saw the benefits for both myself and even to all my children because we could be shared the milk all of us, which was good even for me to be able to breastfeed the child, unfortunately, they removed us from getting milk" (--- she laughed)* (Caregiver of a child doing poorly, 031)

4.2.1.2. Insufficient food and poverty

Both healthcare workers and caregivers in Group 1 and Group 2 emphasized that insufficient food and poverty were among the major cause of delay recovery and even relapse for MAM children enrolled in SFP. One of the healthcare workers emotionally (with tears and appeared to be very poor) reported,

> "*The most challenge we face is that parents, they do not have other things to give to those sick children with malnutrition they are poor. Most of the time you find that the child enrolled in the program will only drink milk without anything*

else as food, yet the milk is given as an addition, not as a meal. Then the major problem, when we release the child in yellow who was at least healed whereby we no longer provide milk to the child, I tell you the truth after only 2 months you find the child in red (SAM) this time, because they have no other food, hummm.. (Sad)" (Healthcare worker, 002).

Caregivers also confirm that the child relapsed after discharge from the SFP program because of insufficient food and poverty. One of them said,

*" … the child relapsed, when the child was taking the milk the child was doing fine, … but now the child has relapsed. It was after like three months. …. Maybe it is poverty because I didn't get the time to buy milk for the child." (*Mother of a child doing poorly, 008)

Caregivers of Group 2, as well as those in group 1, reported that children do not have adequate food to eat that is needed especially during the transition from breastfeeding to complementary; they relied on the support received from SFP, which resulted to the delayed recovery of those children as presented below:

*" Its poor nutrition and lack of food. Right now I eat once per day, and actually, that is when I am blessed because eating once a day it's a chance for me. This child has two years, but the problem of malnutrition started when the child started eating (6 months), the child has one year and a half in this program" (*Mother of a child doing poorly, 002)

The caregivers with children progressing well affirm that using the support received such as milk appropriately it's not enough, the availability of enough food and proper feeding

the MAM child contributed not only to the quick recovery but also prevent the child into relapsing.

> *"… The child should end the milk inappropriate time (as recommended) and do not think that the child will drink milk only when you do not search other food for the child, and plenty food; look, this have been around 4 months for my child being out of the program and still is doing well, will it be back (malnutrition)? I believe it will (malnutrition) not come again, the child was healed forever" (*Mother of a child doing well, 024).

4.2.1.3. Large family size contributes to malnutrition and poor recovery

Participants often discussed that household sizes are large, and that access to food for that large family is a factor leading to MAM and MAM to the delayed recovery. Almost all (3 of 4) healthcare workers reported that households with MAM children have a large family size (7 and above) and do not participate in family planning programs especially those with children delayed to recover, which increases the risk of having more than one child malnourished and causes the conflict between partners. One healthcare worker said:

> **"***Most of the time caregiver participated in the program has big family. And, you find that someone has a child in yellow (MAM), yet the older child also was once in the program-was in yellow (MAM), means that, parents enrolled in SFP they produce more children, and are more likely to have more than one child in yellow (MAM)"* (Healthcare worker, 001).

Another healthcare worker said: "*…The husband abandoned her mainly when the number of children becomes many and he realizes that he is incapable of continuing raising them. And it is clear that when the mother remains alone can't manage to care and properly feed the entire family"* (Healthcare worker, 002).

Some caregivers also confirm to have more than one malnourished child in the program, some of them at different times others at the same period. One caregiver who had two children enrolled in the SFP at the same period reported:

> *"The child spent almost a year in the program, and it's the same for the older child also who was discharged from the program before the younger one. However, after around 3 weeks the child relapsed and again put into the SFP."* (Caregiver of a child doing poorly, 031)
>
> *"For other children, they benefited from this (SFP) indirectly, because the 200 Rwandan francs that I used to plan to spend for the milk, now I could use it to buy a flour to make porridge for other children that I have. It is not easy to raise other children, not easy to feed all of them" (*Caregiver of a child doing poorly, 008).
>
> *"Those mothers with children who delayed to heal, do not participate in the Family Planning (FP), for us (Group 1) we were encouraged to control birth, but for instance I know one of those mothers who delivered twice in 2 years" (*Mother of a child doing well, 025).

4.2.1.4. Inadequate childcare

Participants brought up issues related to the care of children including leaving the child without an adult caretaker. Participants reported that mothers do leave children at an early age and grandmothers or another person raises them who cannot breastfeed the child as one caregiver said, *"…the child is orphan and I can't breastfeed the child (because the child is not her biological child)" (*Mother of a child doing poorly, 010). According to the participants, this leads to malnutrition and also contributes to the delayed recovery.

> "*After her mother left her, I started realizing that the child is losing weight because she stopped breastfeeding at an early age; she was one year and a half. That time I could give her a meal and she couldn't eat,… Such a child who was left by her mother have multiple problems, sometimes she could sit and you see that she is sad with sorrow because of missing her mother. …. I respected the advice I was given and I saw the kids started improving, the kid spent around 9 months in the program (SFP)" (*Mother of a child doing poorly, 007)

Participants mentioned that children do spend the day alone or with other children. Parents left children elsewhere and go for informal business, in a neighboring country-Congo.

> *"They do leave the child with other small children. They are even other children whom parents left them in a closed house and they went to work and come back in the late evening; so, you can't expect this child to grow well and again you can't stop the mother to work".* (Healthcare worker, 003).

One of the caregivers reported that leaving her child at home without an adult caretaker was a factor that leads to the MAM status of her child and that by changing her practices and providing adequate care her child was able to recover well from MAM. She said,

*"What I have changed is that I no longer go in Congo, I lost my ID and I can't go there and now I spend the whole day with the child. ….. The child to be recovery easily is to take care him/her and find a balanced diet and being with the child every time and the child can be recovered faster" (*Mother of a child doing well, 025).

4.2.1.5. Poor service at the Health Center

Both caregivers Group 1 and Group 2 reported long waiting time of the service at the Health Center, and also the stock out of milk as supplementary received in the SFP, that could even result to drop out for caregivers.

> *"…Sometimes we could spend a day and come back in the evening. And even the rendered service was not good because it was slow* (Caregiver of a child doing poorly, 031).
>
> *"… there is a time we went there and we did not find milk and they chased us and we came back the following day and they gave us little milk hahaha (she laugh) I reached home when the child has already finished the milk. …They told us that milk is not yet come."* (Mother of a child doing well, 025)

Also, caregivers of Group 2 mentioned long waiting of the service and stock out and how it's linked to the dropout. One of them said: *"…. they kept telling me you must come tomorrow, and so on, … I became tired of going to the CHW that's why I dropped out because they ignored me." (*Mother of a child doing poorly, 003). Others reported the discharge of children before recovery without notice. Furthermore, some of them claim to not get appropriate customer care during SFP session.

> *"Dropout… yes, she relapsed and I went to the HC but they looked bad at me and I decided to come back home. … They said that mother is already discharged from the program without even taking the weight of the child and see the current nutritional status". (*Mother of a child doing poorly, 010).
>
> *"… There is a time the doctors (healthcare workers) would come and speak to us badly and they think that we are the causes; they could embarrass us. …Do I hate this child? Many times for those who didn't experience, having a child who is malnourished may think that your child is sick because you wanted the child getting sick. But for me, it came accidentally as I couldn't believe that both my child could become sick" (*Mother of a child doing well, 032).

However, few others appreciated the service they had during child enrollment in the SFP *"I saw no problem because at HC they take care our problems and my child is recovering and CHWs are visiting us hour by hour." (*Mother of a child doing poorly, 001).

In relation with sharing and selling the milk and or other support received from the SFP, almost all caregivers of Group 1 reported that there was no clear known precautions for preventing caregivers especially those in Group 2 selling milk.

> *"…They (healthcare workers) used to encouraged us to report (reveal) those who sell the milk but we couldn't report them because nothing could be given to them as punishment and finally, you became like a persecutor"* (Caregiver of a child doing well, 025)

> *"I remember one of them (mother with children delayed to recover) was caught over there, hmm (sad),… we left when she was kind of prisoned in HC we didn't know what they did to her"* (Caregiver of a child doing well, 023)

> *"I remember one who was caught….they told us that they are going to punish them. …. We didn't know the punishment, we just left them at the HC when they were kind of prisoned and we didn't know the end"* (Caregiver of a child doing well, 022)

Nonetheless, healthcare workers reported decentralizing milk storage at the village level as a precaution to solve the problems of selling and sharing milk.

> *"Recently after discovering that ... we held the meeting with community health worker and agreed to store the milk (at the home of the CHW) ….. [Concerning*

transport from HC to CHW home] CHW do come here to get milk and we sometimes avail a person (HC staff) to do distribution especially for those CHW who are far from the health center. Before we thought to this solution, we used to provide the whole milk for a week to a mother and they sold the milk instead of giving it to the child. Others could share the milk in the family…" (Healthcare workers, 003).

Another one said *"….we have tried to solve the problem of selling milk and sharing … the milk is stored at the house of the CHW and each morning the mother bring the child to drink milk in the eyes of the CHW"* (healthcare workers, 002).

However, caregivers with children who delayed to recover and who were still enrolled in the program until when mentioned precaution was implemented, they appreciated the fact that they can now get milk closely as decision taken by the HC, but, they reported transport challenge shifting from caregivers to CHW with a small implication of the HC when challenges occurred.

"… sometimes we could spend a month (without milk), .. But this often occurred since when they decided to bring milk to the CHW where we could access it easily. …After a time we advised the CHW who was lazy for going to pick the milk at the HC, to allow us to go to the HC directly; but the CHW decided that we could contribute two hundred Rwandan francs each as transport fees. One time we reported this issue to the nutritionist at the HC but he did not change anything.

But actually to get it from the CHW is good because it's closer" (Caregiver of a child doing poorly, 031)

4.2.1.6. Poor attendance on CBNP and other government programs

Healthcare workers reported that caregivers enrolled in the SFP do not attend the CBNP, and thus they remain with inadequate information towards the nutrition of their children and unaware of other important programs of the government that support the poor. The poor CBNP attendance, as a result of limited local leader mobilization to encourage attendance and caregiver's other responsibilities, attributes to caregivers with children doing poorly also made the earlier identification of malnutrition difficult. This can be supported by nutrition data present in Table 3 whereby only (10%, n=1) of caregivers Group 2 affirm to attend the session of CBNP for the previous month and 40% of them never been to CBNP that is a monthly session.

" *Another challenge is that the attendance rate of caregivers during the CBNP session is low, and most of the time those without the problem are the ones who attended, but those who have malnourished children because they do informal business they do send an older child with the younger one at the site, and then the mother remained uninformed about the important programs"* (Healthcare worker, 002).

Another healthcare worker mentioned the CBNP difficulty they face and how it affects malnutrition treatment and delayed recovery. He said,

"It is hard to find earlier those who are sick because these parents they do not participate in CBNP, thus, most of the time we knew them late when they are already in need of treatment than simple support like advice/education" (Healthcare worker, 001).

Caregivers mainly those in group 2 reported malnutrition-diagnosis difficulty they encountered before they noticed what their child was suffering from. They affirm that they had limited information on the signs of malnutrition that could lead to the delay in seeking health care being enrolled in SFP. The first caregiver interviewed starts by saying that:

*"the child could select beans and eat rice only, … When you could give the child food the child could vomit you find that the child has no appetite. The CHW they took tests and find that the child has kwashiorkor, and the hair has been bend down. … the CHWs they took a test on the hand they find that the child has a worm parasitic called malnutrition (she think that malnutrition is another type of worm disease) ". (*Mother of a child doing poorly, 001).

Also, caregivers of group 2 didn't mention the CBNP or any regular program of detecting malnutrition. The weight measurement could be taken when the child is already malnourished closer or already in SAM status.

"*After a time the kid started to have edema on the body that is when I took the child at the Hospital and was treated, then when I was back the child was enrolled in the SFP program"* (Caregiver of a child doing poorly, 031)

From the interviews, caregivers of Group 1 demonstration seeking for help at early stage of signs of malnutrition. For instance, one caregiver reported that

> *"… I used to observe how the child eats and how the child behaves, and how the weight of the child was not improving radically: I was suspecting that there is a problem (malnutrition). I took the child to the vaccination center I find that the weight of the child is not improving at all 6kg for a child of 15 months I realized that it is too less. Then I went to speak to CHW. …. From what they told me (CHW), I acknowledge that some of those things (food) I do not give it to the child" (*Mother of a child doing well, 032).

Poor participation to the CBNP and SFP as well is also attributed to the local leaders that have an impact on data analysis and decision-making. One of the healthcare workers said,

> *"…There is still a poor collaboration with the community, local leaders, and even higher levels. We do not agree on the actual cases with local leaders, which even made the kid to get support late. …… We can only provide support to those children enrolled in the program, but how about those ones hidden"* (Healthcare worker, 001).

Only one caregiver of Group 1 for both group 1 and group 2 mentioned being visited by local leaders. She said,

> "*When I could try to give the child other food, the child could refuse and cry for milk. Until the time when the local leaders came to my home and they find that I*

*have a cassava tree that produces consumable leaves, and vegetables as well. …I showed everything to the leader because the child was refusing to eat even the food that was at the plate. They send me to the HC and they gave me milk" (*Mother of a child doing well, 032).

Ultimately, Caregivers reported that CHWs visited them but not other leaders *"no, I never been visited by any other person (Healthcare worker or local leaders). The only person who came and still coming is the CHW"* (Mother of a child doing well, 021)

Improved nutrition knowledge is a positive component of the nutrition program, but knowledge is not enough to improve feeding practice and promote recovery.

While the majority of discussions were around challenges for children in the program, there were some positive benefits that were reported. Caregivers reported that the provided nutrition education helped to improve nutrition status of the children, but only when food to apply the knowledge they gained was available. One healthcare worker reported, "*We do teach mothers concerning balanced diet and also how they should take care of their kids" (*healthcare workers, 04)

Also, almost all caregivers of both group 1 and group 2 affirm that they gained skills and knowledge on various health aspects, especially on nutrition that is important not only for the particular child enrolled in the SFP but also for the entire family. One caregiver by comparing her knowledge and the community perceptions towards vegetables and a balanced diet before attending the SFP and after, she said

".. The benefit I gained from the program is to know how to cook a balanced meal. Before I felt that cooking vegetables were not my habit and I could cook vegetables like once a year. . due to bad perception and ignorance even many people still have towards vegetables. They said, "I'm not feeding myself with vegetables/glasses I'm not a cattle or animal". …Before I joined the program (SFP) we could not eat vegetables, we used to take it all to Congo (DRC), thus the child of Congo could eat well and become healthy, whereas ours are suffering from malnutrition; but now I can't even accept someone to give me money so that I can give him/her vegetables." (Mother of a child doing poorly, 007)

"*On my side, the benefits that I got is that before I joined the SFP program I was ignorant, but since I reached there they trained us on dietary of the child. Other children also benefited from this program as well for, I could cook for them vegetables, mixed with the small food I got " (*Mother of a child doing poorly, 010)

*"….the benefit I have got is that now both my children are better, they have improved. Another thing they thought me how to take care of them, how to cook their meal. In general, I got skills" (*Mother of a child doing well, 22).

All most all (17 out of 20) caregivers from concluding that nutrition education session conducted during the SFP increased their knowledge towards balanced diet, health and childcare (dataset).

4.2.2. Proposed solutions by participants

During the interviews, participants shared their views on what they think can be done to address some of the causes of the delayed recovery mentioned above. Below are common solutions proposed that includes, increasing the support provided during SFP, establishment of ECD, reducing waiting time, preventing stock out, improving communication, increasing the length of SFP, putting back in the SFP children who were discharged before recovered properly or who relapsed, improving the involvement of local leaders, increase home visits and accountability of caregivers.

In order to address inappropriate use of the support and Insufficient food and poverty, participants suggested increasing the support provided during SFP in relation to the size of the family especially the number of children. One caregiver whose child was doing poorly said "…. *to be improved (SFP), is to give us what we deserve not little things. Surely the child cannot drink it alone! They can increase the quantity"* (Mother of a child doing poorly, 009). The similar suggestions was proposed by health care workers, one said:

> *"If we could have enough capacity, I would suggest increasing the quantity of the milk they do receive because it is still not sufficient for a child who doesn't have enough food"* (Healthcare worker, 004).

Concerning inadequate child care, all healthcare workers and some of the caregivers suggest having a safe place with an adult person where parents can leave children before they go to work like early child development (ECD) centers to be a solution.

> *"About 90% caregivers they go in Congo (DRC) to work, so they left their kids at home…. a safe place like early childhood development (center)"* (Healthcare worker, 002).

> *"It would be great if we can have like an institution or center where mothers can leave children before they go to seek for work and then come back to take them in the evening, I think this can be helpful. Something like early child development center, but which is affordable to everyone"* (Healthcare worker, 003).

A caregiver whose child progressed well after choosing to stop doing informal business said,

> *"…. what I think can be improved is to take care their children and stop throwing them aside (leaving the child alone and go to Congo). The child to be recovery easily is to take care him/her and find a balanced diet and being with the child every time and the child can be recovered faster" (*Mother of a child doing well, 025)

Regarding improving service at HC, some of the solutions caregivers highlighted include reducing waiting time spent at the HC seeking for SFP service, preventing stock out of milk or other SFP support, improving communication like to inform them in advance

when the support is not available, and increasing the length of SFP mainly for those identified with social-economical problems to prevent children to relapse. One of the caregivers with the children progressed well said,

> *" … For me, if the HC staff could give a specific time and make the service quick, and prevent mothers from spending a lot of time. Or they could select a day of giving milk when they are sure that the milk is available so that they will not invite caregivers to spend the whole day standing there and later on to tell them to go home without anything"* (Mother of a child doing well, 022)

One caregiver among caregivers with children progressed well, but claim their children to backslide suggested enrolling the child back in the SFP. She said, "*In brief what can be improved is that they should put me back into the program and receive milk and flour-porridge like others because the child is orphan" (*Mother of a child doing well, 032).

One of the healthcare workers by sharing his experience and suggestion said:

> *"…And also extend the SFP duration. ….Personally, sometimes I do prefer to keep some child in SFP for a while even though they have recovered because I know their family conditions and that once I let them graduate from the program they will relapse".* (Healthcare worker, 001).

Furthermore, Healthcare workers call upon the improved involvement of local leaders and good collaboration of all levels as the best way to mobilize caregivers and address the problem. One of them reported that,

"…These (CBNP and SFP) and malnutrition, in general, should be given importance like other activities of local leaders. Once local leaders will take it into consideration seriously, I can tell you caregivers also will be more responsible" (Healthcare worker, 003).

Additionally, caregivers admitted that following instructions received from HC and applying skills gained from SFP as one of the solutions even during the shortage of the support. Furthermore, they requested supervision and follow up from HC to ensure proper use of the support. One caregiver said:

"…. What can be changed is to us caregivers; to follow the advice the HC does give us that are beneficial even when there is no milk. You can keep following what they (healthcare workers) have taught you. And supervising some of us so that we cannot sell those aids (support) provided to the child. By selling it, it's violating the right of the child (Mother of a child doing well, 021)

CHAPTER FIVE: DISCUSSION

5.1. Interpretation and discussion of the factors affecting poor recovery

The goal of this review was to examine the factors affecting the delayed recovery of MAM children enrolled in the SFP. The results of this study show that enrolled children do not consume the provided support due to sharing/ selling, insufficient food and poverty, large family size, inadequate child care, poor service at the health center, poor attendance on CBNP, and other government programs, were the main causes.

This study revealed that the support received from the health center through SFP such as milk was not given to the child enrolled in the program as intended rather it was shared among members of the family or even sold, then the child enrolled in the program received a small quantity which contribute to the increase of intended recovery period or not recovery. A similar study conducted in rural Honduras revealed that sharing food among family members of the recipient as a challenge to the SFP by not addressing the recipient's micronutrient deficiency effectively (Mennillo & Rayess, 2013).

Sharing food received, as a support from the SFP among the family members is also linked to poverty and insufficient food for the household (Mennillo & Rayess, 2013). In this study, insufficient food and poverty were identified as not only being one of the factors affecting the delayed recovery of MAM children but also as the contributing factor of MAM and relapse. Social-demographic information showed that 90% of caregivers with children delayed to recover were poor (enrolled under social and wealth

quintile 1 and 2) and only a half of them received the support of small livestock through the district plan to eliminate malnutrition in order to ensure improved food security and resilience for the poor households (MoH-Rwanda, 2013c). The similar finding from other studies has identified poverty as an important barrier for implementing the integrated community-based interventions for the acute malnutrition (Tadesse, Ekström, & Berhane, 2016; Tette, Sifah, & Nartey, 2015), and that supporting the family with small livestock was a good way to improve the income of the family, empowering mothers and securing food security in the future in a rural context like the one of this study (Wong et al., 2017). Also, many (90%) children of the Group 2 did not meet the required meal frequency per day (Table 3).

The literature showed that inadequate meal frequency was common in Rwanda, whereby the study was done in 2015 covering the whole country has found that only 18% of Rwandan under-five children met the minimum meal frequency per day as recommended (RDHS, 2015). Studies revealed that there was a significant association between insufficient food intake and poverty of the household and the delayed recovery of MAM. The earlier study conducted in Ethiopia shown that 60% of MAM children of a household with food insecurity present low recovery compared to 40% of MAM children from a household with food security (Adamu et al., 2017). And, the MAM child who doesn't take at least four varieties of food per day has 74% risks of delay recovery (Adamu et al., 2017).

It is important to mention that, in this study, milk was the main support reported by caregivers and healthcare providers alike, which was not consistent with the treatment

described in MAM management guidelines including the national malnutrition protocol (Annan et al., 2014; MoH-Rwanda, 2012) which calls for a fortified corn-soya blend, sugar, and oil in order to meet the micronutrient, caloric, protein, and fat needs of the child for recovery. This was an interesting omission from the interviews with caregivers and healthcare providers where the fact that children are not receiving treatment according to protocols was never mentioned, which requires further intervention at higher levels to ensure treatment is available and providers are aware of treatment guidelines.

Furthermore, this study showed large family sizes as a contributing factor to MAM and also to the delayed recovery of MAM children enrolled in the SFP. From the background information collected via the survey, in both groups, 45% of MAM children are from the large family with seven and above people; with 50% of caregivers with the MAM children progressed poorly (group 2). The qualitative information affirmed that large family size was a contributing factor to MAM and also to the delayed recovery and that the caregivers of MAM children, especially those of group 2 had more than one child enrolled in the program. Further, participants agreed that treatment provided was shared among the household and the larger the family the more people likely to consume a treatment intended for one child further limiting how much benefit the enrolled children received.

In general, the family with many people requires more efforts to feed everyone, especially for the families with many children, the food consumption need becomes

more intense and as a result, more than one child can have poor nutritional status (Islam et al., 2013). From the same study conducted in Bangladesh, the illiteracy hinder mothers to not take the decision of family planning, that results in a large family that is a contributing factor of MAM (Islam et al., 2013), and similar to the findings of this study, the majority of caregivers, especially those in group 2 (80%) never been to school. Another study conducted in Nghean, Vietnam has proved family size contribute to the nutritional status of the child; a child from a big family size of seven and above members have 30% more risks to be underweight compared to those with equal or less than four (Hien & Kam, 2008). Hence, many of caregivers participated in this study have big families, therefore, family planning is important.

Leaving a child without a principal caretaker was another factor identified linked to the poor recovery of MAM for most of the children; 80% of caregivers of MAM children doing poorly (group 2) were doing informal business cross-borders, consequently the child was not receiving appropriate care, breastfeeding, and low meals frequency or milk on time. In this area where the study was conducted, the population was more involved in business crossing-border to DRC-Goma that limited the presence of the adult at home taking care of the child. This was consistent with high rates of reported leaving children alone or in the care of a child under 10 years in Rwanda as a whole 35% according to the recent studies (RDHS, 2015; UNICEF, 2014). However, the study conducted in Nghean-Vietnam revealed that extended family had a positive effect on nutrition status through improved child care that the child received (Hien & Kam, 2008).

In this study, some of the other identified factors affecting the delayed recovery of MAM are linked to the experience of caregivers at the health center and CBNP. At the health center, poor services were found among the themes of this study, and this is explained by the discharge before the recovery or without communication, long waiting such as spending the whole day at the HC looking for the service, stock out caregivers experienced during the enrollment period that affected them by coming without notice in advance and going back home without anything, and poor customer care such as an affront or healthcare workers talking inappropriately to caregivers. A recent qualitative study conducted in southern Malawi on the experiences of beneficiary caregivers in an SFP obtained the same findings as the factors affecting the delayed recovery, poor customer care or embarrassing caregivers (Breanne, Devika, Shelley, & Beatrice, 2017). This particular difference is a failure of healthcare workers to respond to the great commitment of the government accelerating the elimination of malnutrition, and to the ongoing sensitization activities to improve customer care (MoH-Rwanda, 2013c, 2015; Rodrigue, 2015). To expand more on this differ finding, almost all healthcare workers interviewed confirmed that caregivers with MAM children, including those whom children delayed recovering, are migrants from the neighboring district and that do not apply skills acquired from the program; however, our study showed that the caregivers and children were long-time residents and natives of the district. Thus, in addressing this controversy and meet the needs of caregivers, healthcare workers have to improve accountability and the service provided during SFP.

5.2. Interpretation and discussion of the proposed solutions

To address identified contributing factors, participants proposed various solutions that can be taken into consideration. To ensure that support provided through SFP is not sold or shared rather its given properly to the specific child especially for the households with food security, it is important to enhance follow up the activity that was proved in this study and other studies to be weak due to various challenges encountered by the CHWs such as overloaded work, insufficient motivation and monitoring from supervisors (Reed & Kouam, 2013). Also, even though it was for SAM and not MAM, but the same recommendation was proposed in the community-based outpatient therapeutic program in Ethiopia and indeed it is included in National food and nutrition policy as well as the MAM management protocol of Rwanda (MoH-Rwanda, 2012, 2013c; Tadesse et al., 2016). Improved home visits had shown significant impact on the behavior of caregivers whereby 94% of the child received supplementary food, consumed it properly as expected without sharing (Fabiansen et al., 2017; Gera, Pena-Rosas, Boy-Mena, & Sachdev, 2017). Home visits could also be a mechanism to try and reduce the sharing of food provided as a treatment for the malnourished child.

The context of the area in which this study was carried out is interrelated with the cross-border informal business that the majority of caregivers, especially those with children doing poorly (80%) does which is associated with poor child care as one of the factors affecting delay recovery identified in this study. To address inadequate childcare, all healthcare workers and some caregivers proposed home-based early development child

(ECD) centers as a solution, as it can help caregivers to leave children in a safe place before they went to cross-border business; however, the study conducted in South Africa exposed the complexity of challenges in implementing home-based ECD related to human resources, financial, shortage of non-profit organizations, lack of standards, and so on (Orgill & Sarah, 2010). Thus, it is important to consider the revealed challenges while planning for the implementation.

The findings of this study were not limited only to the factors affecting the delayed recovery of MAM children enrolled in the SFP. Similarly to the findings of other many relevant studies, the improved knowledge and skills of caregivers towards nutrition practices of their children and family members were the major benefit of this study (Annan et al., 2014; Breanne et al., 2017). Hence, it is important to consider nutrition education as a best practice of SFP that needs to enhance.

5.3. Challenges

This study aimed to understand barriers to recovery of children from malnutrition and propose solutions to improve the programs. One challenge encountered is related to the high level of political pressure to eliminate malnutrition. While this pressure is well intended, it also creates situations where there is an incentive to hide the problem of malnutrition rather than truly solve the underlying issues and ensure that no child is malnourished. Data interpretation was an effective way to overcome the barrier. Within

this project, data use and continuous discussion are important when addressing malnutrition in Rwanda.

5.4. Limitations

There are several limitations of this study. Interviews were subject to recall bias, misinterpretation and honesty as well. Caregivers with more than one child who had been enrolled in the SFP program had a tendency to mix experiences they had at different times and with different children. The researcher attempted to reduce the effects of recall bias and misinterpretation by repeating and reformulating the questions by focusing on experiences with the particular child enrolled in the SFP during the specified timeframe. An additional limitation is the fact that the study did not include community health workers (CHWs) among the participants; CHWs play a key role in the SFP encouraging behavior change and serving as the key players of the community-based nutrition program. Just before data collection, the Byahi health center decided to involve CHWs in milk distribution as one of the major components of the SFP; it could, therefore, be interesting to speak to the CHWs as people who have experience with both caregivers and healthcare workers. Therefore, they may have unique insights into the factors affecting delayed recovery from MAM. Additionally, the study did not include the views of the nutrition supervisor from the Gisenyi Hospital on the SFP program and the factors affecting the delayed recovery of MAM children. Finally, the study missed the male perspective; all participants of this study were female as male were not present at home and time for the researcher was limited, there was only one

participant male of the four healthcare workers. Therefore, the participants of this study might not be the representative of all caregivers and health care workers of MAM children enrolled in SFP in Rwanda.

CHAPTER SIX: CONCLUSION AND RECOMMENDATION

6.1. Conclusion

The findings of this study have revealed that, enrolled children do not consume the provided support due to sharing / selling, insufficient food and poverty, large family size, inadequate childcare, poor service, and low attendance of CBNP and other government programs, are the factors affecting poor recovery from MAM among children enrolled in an SFP in a rural health center of Rwanda. Findings will not only help the decision makers to design appropriate intervention but also to improve the growth of the MAM children enrolled in SFP.

The findings of this study also revealed a potential benefit of the increase of knowledge on nutrition for caregivers with children enrolled in the SFP. However, the improved nutrition knowledge would improve the growth of MAM children only when there is adequate food.

6.2. Recommendations

The findings of this study point to the following needs:

- To evaluate the impact of decentralization of milk and other support provided in SFP at the village level, as the way to prevent selling and sharing it. Also to know if the CHWs are able to continue providing effectively the nutrition education that was proved to be the major benefit of the caregivers from SFP.

- To continue enhancing education through Information Education communication (IEC) sessions, on best practices for feeding MAM children and after recovery to prevent relapsing by emphasizing on the quality and number of meals required per day, and consequences of sharing or selling the support.

- To improve healthcare service by preventing long waiting, stock out, and improving customer care and communication between healthcare worker and caregivers to ensure stigma-free, positive care experiences for all caregivers seeking to improve their children's nutritional status.

- As study participants reported only receiving milk as treatment, one option to improve SFP by ensuring that the support provided to MAM is appropriate and that matches with the recommended period of recovery. Ensuring the provision of full treatment according to the protocol can be a way to prevent the delay recovery and relapse of MAM children from poor families.

- To scale-up the provision of small livestock, availability of kitchen garden to all vulnerable families especially those in social and wealth quintile 1 and 2; and coaching them on food harvesting and storage to improve food security.

- There is high need of improving CBNP by ensuring the participation of caregivers; the involvement of local leaders must be improved to ensure the functionality and improve demand of the programs (CBNP).

6.3. Future studies

A Similar study should be conducted on large coverage (both settings and sample) in order to understand all possible factors affecting MAM children enrolled in SFP especially in the urban area of Rwanda. The large sample would help to more analyze the magnitude of each contributing factors, and the settings to generalized the findings; and thus to provide a more vigorous recommendation that can be applied at national wide.

Also, Future studies would include the missed participants and assess more on the impact of the SFP service on mothers and parenting.

REFERENCES

Adamu, W., Jara, D., Alemayehu, M., & Burrowes, S. (2017). Risk factors associated with poor health outcomes for children under the age of 5 with moderate acute malnutrition in rural fagita lekoma district, Awi Zone, Amhara, Ethiopia, 2016. *BMC Nutrition*, *3*(1), 88. https://doi.org/10.1186/s40795-017-0208-5

Amare, D., Negesse, A., Tsegaye, B., Assefa, B., & Ayenie, B. (2016). Prevalence of Undernutrition and Its Associated Factors among Children below Five Years of Age in Bure Town , West Gojjam Zone , Amhara National Regional State , Northwest Ethiopia. *Hindawi Publishing Corporation Advances in Public Health*, *2016*. https://doi.org/10.1155/2016/7145708

Annan, R. A., Webb, P., & Brown, R. (2014). Management of Moderate Acute Malnutrition (MAM): Current Knowledge and Practice. *CMAM Forum*. Retrieved from www.cmamforum.org

Bachmann, M. O. (2010). Cost?effectiveness of community-based treatment of severe acute malnutrition in children. *Expert Review of Pharmacoeconomics & Outcomes Research*, *10*(5), 605–612. https://doi.org/10.1586/erp.10.54

Bentley, A., Das, S., Alcock, G., Shah More, N., Pantvaidya, S., & Osrin, D. (2015). Malnutrition and infant and young child feeding in informal settlements in Mumbai, India: findings from a census. *Food Science & Nutrition*, *3*(3), 257–71. https://doi.org/10.1002/fsn3.214

Black, R. E., Victora, C. G., Walker, S. P., Bhutta, Z. A., Christian, P., Onis, M. De, & Ezzati, M. (2013). Maternal and Child Nutrition 1 Maternal and child undernutrition and

overweight in low-income and middle-income countries. https://doi.org/10.1016/S0140-6736(13)60937-X

Breanne, L., Devika, S., Shelley, W., & Beatrice, R. (2017). Experiences of Beneficiary Caregivers in a Supplementary Feeding Program in Southern Malawi. Retrieved April 9, 2018, from http://www.fasebj.org/doi/abs/10.1096/fasebj.31.1_supplement.640.20

Byahi Health Center. (2017). *GENERAL PRESENTATION OF THE BYAHI HEALTH CENTER*. Gisenyi.

Casale, D., & Desmond, C. (2016). Recovery from stunting and cognitive outcomes in young children: evidence from the South African Birth to Twenty Cohort Study. *Journal of Developmental Origins of Health and Disease*, *7*(2), 163–171. https://doi.org/10.1017/S2040174415007175

Chang, C. Y., Trehan, I., Wang, R. J., Thakwalakwa, C., Maleta, K., Deitchler, M., & Manary, M. J. (2013). Children successfully treated for moderate acute malnutrition remain at risk for malnutrition and death in the subsequent year after recovery. *The Journal of Nutrition*, *143*(2), 215–20. https://doi.org/10.3945/jn.112.168047

Collins, S. (2007a). Treating severe acute malnutrition seriously. *Arch Dis Child*, *92*, 453–461. https://doi.org/10.1136/adc.2006.098327

Collins, S. (2007b). Treating severe acute malnutrition seriously. *Archives of Disease in Childhood*, *92*(5), 453–61. https://doi.org/10.1136/adc.2006.098327

Fabiansen, C., Yaméogo, C. W., Iuel-Brockdorf, A.-S., Cichon, B., Rytter, M. J. H., Kurpad, A., … Friis, H. (2017). Effectiveness of food supplements in increasing fat-free tissue

accretion in children with moderate acute malnutrition: A randomised 2 × 2 × 3 factorial trial in Burkina Faso. *PLOS Medicine*, *14*(9), e1002387. https://doi.org/10.1371/journal.pmed.1002387

Fink, G., Peet, E., Danaei, G., Andrews, K., McCoy, D. C., Sudfeld, C. R., … Fawzi, W. W. (2016). Schooling and wage income losses due to early-childhood growth faltering in developing countries: National, regional, and global estimates. *American Journal of Clinical Nutrition*, *104*(1), 104–112. https://doi.org/10.3945/ajcn.115.123968

Gatarayiha, J. P., Mukanyonga, A., Kayirangwa, E., Kabeja, A., Rukundo, A., Kabagwira, A., … Barrère, M. (2006). Rwanda Demographic and Health Survey 2005. Retrieved from http://www.measuredhs.com

Ge, K. Y., & Chang, S. Y. (2001). Definition and measurement of child malnutrition. *Biomedical and Environmental Sciences : BES*, *14*(4), 283–91. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11862608

Gera, T., Pena-Rosas, J. P., Boy-Mena, E., & Sachdev, H. S. (2017). Lipid based nutrient supplements (LNS) for treatment of children (6 months to 59 months) with moderate acute malnutrition (MAM): A systematic review. *PLOS ONE*, *12*(9), e0182096. https://doi.org/10.1371/journal.pone.0182096

Govender, L., Pillay, K., Siwela, M., Modi, A., & Mabhaudhi, T. (2017). Ssfood and nutrition insecurity in selected rural communities of KwaZulu-Natal, South Africa—linking human nutrition and agriculture. *International Journal of Environmental Research and Public Health*, *14*(1). https://doi.org/10.3390/ijerph14010017

Habyarimana, F., Zewotir, T., Ramroop, S., Ayele, D. G., & Habyarimana, F. (2016).

Spatial Distribution of Determinants of Malnutrition of Children under Five Years in Rwanda: Simultaneous Measurement of Three Anthropometric Indices. *J Hum Ecol*, *54*(3), 138–149. Retrieved from http://krepublishers.com/02-Journals/JHE/JHE-54-0-000-16-Web/JHE-54-3-000-16-Abst-PDF/JHE-54-3-138-16-3000-Habyarimana-F/JHE-54-3-138-16-3000-Habyarimana-F-Tx[1].pmd.pdf

Hickson, M. (2006). Malnutrition and ageing, 4. https://doi.org/10.1136/pgmj.2005.037564

Hien, N. N., & Kam, S. (2008). Nutritional status and the characteristics related to malnutrition in children under five years of age in Nghean, Vietnam. *Journal of Preventive Medicine and Public Health*, *41*(4), 232–240. https://doi.org/10.3961/jpmph.2008.41.4.232

Hug, L., Sharrow, D., Sun, Y., Marcusanu, A., You, D., Mathers, C., … Mahmoud Ali, M. (2017). Levels and Trends in Child Mortality Report 2017. Retrieved from https://www.unicef.org/publications/files/Child_Mortality_Report_2017.pdf

Islam, M. M., Alam, M., Tariquzaman, M., Kabir, M. A., Pervin, R., Begum, M., & Khan, M. M. H. (2013). Predictors of the number of under-five malnourished children in Bangladesh: application of the generalized poisson regression model. *BMC Public Health*, *13*(1), 11. https://doi.org/10.1186/1471-2458-13-11

James, P., Sadler, K., Wondafrash, M., Argaw, A., Luo, H., Geleta, B., … Bahwere, P. (2016). Children with Moderate Acute Malnutrition with No Access to Supplementary Feeding Programmes Experience High Rates of Deterioration and No Improvement: Results from a Prospective Cohort Study in Rural Ethiopia. *PloS*

One, *11*(4), e0153530. https://doi.org/10.1371/journal.pone.0153530

Kayihura, G. (2015, September 15). We have ability to eliminate malnutrition , President tells leaders.

Khan, G. N., Turab, A., Khan, M. I., Rizvi, A., Shaheen, F., Ullah, A., … Soofi, S. B. (2016). Prevalence and associated factors of malnutrition among children under-five years in Sindh , Pakistan : a cross-sectional study. *BMC Nutrition*, 1–7. https://doi.org/10.1186/s40795-016-0112-4

Laillou, A., Prak, S., Groot, R. De, Whitney, S., Conkle, J., Horton, L., … Wieringa, F. T. (2014). Optimal Screening of Children with Acute Malnutrition Requires a Change in Current WHO Guidelines as MUAC and WHZ Identify Different Patient Groups, *9*(7), 9–15. https://doi.org/10.1371/journal.pone.0101159

Lawn, J. E., Cousens, S., Zupan, J., Lancet Neonatal Survival Steering Team, et, Deshmukh, M., Bernis, L. de, & Team, for the L. N. S. S. (2004). 4 million neonatal deaths: when? Where? Why? *Lancet (London, England)*, *365*(9462), 891–900. https://doi.org/10.1016/S0140-6736(05)71048-5

Lu, C., Black, M. M., & Richter, L. M. (2016). Risk of poor development in young children in low-income and middle-income countries: an estimation and analysis at the global, regional, and country level. *The Lancet Global Health*, *4*(12), e916–e922. https://doi.org/10.1016/S2214-109X(16)30266-2

Mennillo, H., & Rayess, F. EL. (2013). Successes and Challenges to Implementing an Early Childhood Supplemental Feeding Program in Rural Honduras: A Qualitative Study. Retrieved from http://www.rimed.org/rimedicaljournal/2014/04/2014-04-19-

contribution-honduras.pdf

Ministry of Education. (2014). NATIONAL SCHOOL HEALTH POLICY.

MoH-Rwanda. (2012). *Rwanda National Nutrition Protocol*.

MoH-Rwanda. (2013a). NATIONAL COMMUNITY HEALTH STRATEGIC PLAN, 2. Retrieved from http://www.moh.gov.rw/fileadmin/templates/CHD_Docs/CHD-Strategic_plan.pdf

MoH-Rwanda. (2013b). REPUBLIC OF RWANDA NATIONAL FOOD AND NUTRITION POLICY. Retrieved from http://www.moh.gov.rw/fileadmin/templates/summit2/NATIONAL_FOOD_AND_NUTRITION_POLICY_draft__29_Oct.pdf

MoH-Rwanda. (2013c). RWANDA NATIONAL FOOD AND NUTRITION POLICY. Retrieved from http://www.moh.gov.rw/fileadmin/templates/summit2/NATIONAL_FOOD_AND_NUTRITION_POLICY_draft__29_Oct.pdf

MoH-Rwanda. (2015). Health Sector Policy, 1–41.

Orgill, M. S., & Sarah, M. (2010). Challenges facing the implementation of community and home-based early childhood development programmes for vulnerable children aged 0-4 years in the Western Cape and Eastern Cape, South Africa. Retrieved from https://open.uct.ac.za/handle/11427/3709

Pan American Health Organization. (2003). GUIDING PRINCIPLES FOR C O M P L E M E N TA RY FEEDING OF THE BREASTFED CHILD, 21.

Rahman, M. S., Howlader, T., Masud, M. S., & Rahman, M. L. (2016). Association of Low-

Birth Weight with Malnutrition in Children under Five Years in Bangladesh: Do Mother's Education, Socio-Economic Status, and Birth Interval Matter? *PloS One*, *11*(6), e0157814. https://doi.org/10.1371/journal.pone.0157814

Rawlins, R., Pimkina, S., Barrett, C. B., Pedersen, S., & Wydick, B. (2014). Got milk? The impact of Heifer International's livestock donation programs in Rwanda on nutritional outcomes. *Food Policy*, *44*, 202–213. https://doi.org/10.1016/J.FOODPOL.2013.12.003

RDHS. (2015). *Rwanda Demographic and Health Survey 2014-15*.

Reed, S., & Kouam, C. E. (2013). Evaluation of Community Management of Acute Malnutrition (CMAM): Global Synthesis Report, (May). Retrieved from http://www.unicef.org/evaldatabase/files/Final_CMAM_synthesis_FINAL_VERSION_with_ExSum_translations.pdf

Rodrigue, R. (2015). We have ability to eliminate malnutrition, President tells leaders. Retrieved April 9, 2018, from http://www.newtimes.co.rw/section/read/192562

Stevens, G. A., Finucane, M. M., Paciorek, C. J., Flaxman, S. R., White, R. A., Donner, A. J., … Nutrition Impact Model Study Group (Child Growth), on behalf of N. I. M. S. G. (Child. (2012). Trends in mild, moderate, and severe stunting and underweight, and progress towards MDG 1 in 141 developing countries: a systematic analysis of population representative data. *Lancet (London, England)*, *380*(9844), 824–34. https://doi.org/10.1016/S0140-6736(12)60647-3

Tadesse, E., Ekström, E.-C., & Berhane, Y. (2016). Challenges in Implementing the Integrated Community-Based Outpatient Therapeutic Program for Severely

Malnourished Children in Rural Southern Ethiopia. *Nutrients*, *8*(5), 251. https://doi.org/10.3390/nu8050251

Tette, E. M. A., Sifah, E. K., & Nartey, E. T. (2015). Factors affecting malnutrition in children and the uptake of interventions to prevent the condition. *BMC Pediatrics*, *15*, 189. https://doi.org/10.1186/s12887-015-0496-3

Trehan, I., Banerjee, S., Murray, E., Ryan, K. N., Thakwalakwa, C., Maleta, K. M., & Manary, M. J. (2015). Extending Supplementary Feeding for Children Younger Than 5 Years With Moderate Acute Malnutrition Leads to Lower Relapse Rates. *Journal of Pediatric Gastroenterology and Nutrition*, *60*(4), 544–549. https://doi.org/10.1097/MPG.0000000000000639

UNICEF. (2013a). IMPROVING CHILD NUTRITION The achievable imperative for global progress. Retrieved from https://www.unicef.org/gambia/Improving_Child_Nutrition_-_the_achievable_imperative_for_global_progress.pdf

UNICEF. (2013b). Yemen Ministry of Public Health and Population Primary Health Care Sector Nutrition Department Interim Guidelines for Community-based Management of (Severe & Moderate) Acute Malnutrition. Retrieved from https://www.humanitarianresponse.info/system/files/documents/files/final_yemen_cmam_guidelines_-_feb_2014.pdf

UNICEF. (2014). Early Childhood Development and Disability: Baseline Evaluation in 20 Sites in Rwanda, 1–72.

UNICEF, WHO, World Bank. (2016). LEVELS AND TRENDS IN CHILD MALNUTRITION 156

MILLION. Retrieved from http://www.who.int/nutgrowthdb/jme_brochure2016.pdf

Wegner, C. W., Loechl, C., & Mokhtar, N. (2015). Moderate Acute Malnutrition: Uncovering the Known and Unknown for more Effective Prevention and Treatment. *Food and Nutrition Bulletin*, *36*(1_suppl1), S3–S8. https://doi.org/10.1177/15648265150361S101

WHO. (2005). GUIDING PRINCIPLES FOR FEEDING NON-BREASTFED CHILDREN 6-24 MONTHS OF AGE, 12. Retrieved from http://apps.who.int/iris/bitstream/10665/43281/1/9241593431.pdf

WHO. (2013). World Health Statistic 2013. Retrieved from http://apps.who.int/iris/bitstream/10665/81965/1/9789241564588_eng.pdf

WHO. (2016). WHO | Children: reducing mortality. Retrieved September 4, 2017, from http://www.who.int/mediacentre/factsheets/fs178/en/

Wong, J. T., de Bruyn, J., Bagnol, B., Grieve, H., Li, M., Pym, R., & Alders, R. G. (2017). Small-scale poultry and food security in resource-poor settings: A review. *Global Food Security*, *15*, 43–52. https://doi.org/10.1016/J.GFS.2017.04.003

World Health Organization (WHO). (2009). Management of moderate malnutrition in under-5 children by the health sector.

APPENDICES

Annex 1: Approvals

University of Global Health Equity Institutional Review Board
Academic Ethics Review

Notification of Approval

November 18, 2017

Protocol Title: Examining the root causes of poor recovery from moderate acute malnutrition among children enrolled in a supplemental food program in a rural health center of Rwanda.
Principal Investigator: Manasseh Muvandimwe
Protocol #: 0044
Funding Source: none
Initial IRB Review Date: October 23, 2017
IRB Review Type: Expedited Review of Resubmission with Minor Modifications
IRB Review Action: Approved
Effective Date: November 18, 2017
Expiration Date: November 18, 2018

Manasseh Muvandimwe,

On November 17, 2017, the University of Global Health Equity Institutional Review Board (UGHE IRB) approved this resubmission with modifications review. **Please note that the approval for this protocol will lapse after one (1) year and must be renewed according to the procedures of the UGHE IRB.**

The IRB reminds you that you are responsible for fulfilling the following requirements:

- Changes, amendments, and addenda to the protocol or consent form (if applicable) must be submitted to the committee for review and approval, prior to activation of the changes.
- Only approved consent forms are to be used for the enrollment of participants.
- All consent forms signed by subjects must be retained on file, and are submitted to inspection, along with other project materials, during routine onsite visits or audits.
- Failure to submit an application for continuing review will result in the suspension or termination of the study.
- The UGHE IRB must be notified at the closure of the study.

Please contact the UGHE IRB via email at irb@ughe.org with any questions.

Sincerely,

P. Henley

Phaedra Henley, IRB Chair

AEQUITAS • MMXV

UNIVERSITY OF
Global Health
EQUITY

November 22, 2017

Subject: Request to allow Mr. Manasseh Muvandimwe to conduct a research study entitled "Examining the root causes of poor recovery from moderate acute malnutrition among children enrolled in a secondary feeding program in a rural health center of Rwanda" at your institution.

To the honorable Mayor of Rubavu District:

I am writing on behalf of the University of Global Health Equity (UGHE) to request your permission for our student, Manasseh Muvandimwe, to conduct a research project entitled "Examining the root causes of poor recovery from moderate acute malnutrition among children enrolled in a secondary feeding program in a rural health center of Rwanda" in your district.

Manasseh is enrolled in the Master of Science in Global Health Equity program at UGHE. He is required to complete a project in the workplace to satisfy the requirements of the Practicum course and the MGHD degree overall.

This project has received ethical approval from UGHE's Institutional Review Board (IRB Protocol #0044, see attached letter) and been deemed by the University's faculty as a scientifically sound study that will make a valuable contribution to knowledge and practice related to the treatment of malnutrition among children in Rwanda . The study protocol is attached here for your reference, and Manasseh can answer any questions that you might have about the work.

I thank you in advance for your consideration of this request, and I ask that you please reach out to me at jlogan@ughe.org if you require any additional information about the MGHD program or Manasseh's requirements for completion.

Sincerely,

Jenae Logan

Jenae Logan
Research Development Officer
University of Global Health Equity

UNIVERSITY OF
Global Health
EQUITY

Kigali Heights, Plot 772, 7 Ave. 5th Floor, 5th Floor, Kigali. | P.O.Box 6955 Boulevard de l'Umuganda, Kigali. | www.ughe.org

REPUBLIC OF RWANDA

Rubavu, 16/01/2018
No 149 /07.03.03/19/20

WESTERN PROVINCE
RUBAVU DISTRICT
B.P. 173 GISENYI
E-mail: rubavudistrict@rubavu.gov.rw

TO: Jenae Logan
Research Development Officer
University of Global Health Equity

RE: Approval Letter to Conduct Research in Rubavu district

Dear Jenae Logan,

Reference is made to your letter of November 22,2017 requesting us to allow **Mr Manasseh Muvandimwe** to conduct a research study in Rubavu district at Byahi health center on "Examining the root causes of poor recovery from moderate acute malnutrition among children enrolled in a supplemental food program in a rural health center of Rwanda.";

I take this opportunity to approuve your request and I will provide any assisstance necessary for the successful implementation of this study.

Sincerely.

Gilbert HABYARIMANA
Mayor of Rubavu district

Cc:
- Governor of Western Province/ **Karongi**
- President of Rubavu District Council

Annex 2: Survey

Study to identify the factors affecting the recovery from moderate acute malnutrition among children enrolled in a supplemental food program in a rural health center of Rwanda.

Interview questionnaire

Date: …./……/…. **Parent's Code:**…….

Quantitative questions (Survey)

SOCIO-DEMOGRAPHIC INFORMATION ON HOUSEHOLDS

1. Age of respondent (years) ……
    a) *<21*
    b) *21-30*
    c) *31-40*
    d) *41-50*
    e) *>51*

2. Gender
    a. *Male*
    b. *Female*

3. What is the highest level of education you have completed?

   a. *Never been to school*

   b. *Completed primary school*

   c. *Completed secondary School*

   d. *Completed diploma and above*

   e. Others ……

4. Status of occupation

   a) *Employed by a business, cooperative or other organizition*

   b) *Self-employee (business)*

   c) *Farmer with land*

   d) *Farmer without land*

   e) *Pensioner*

   f) *Not working*

   g) *Others: ……*

5. How many people living in your household? ……..

   a. *Children < 5 years old: ……*

   b. *Children from 6 – 10 years olds: ……*

   c. *Children from 11 – 18 years: ……*

   d. *Adults above 18 years: ……*

6. Participation at CBNP

    a) *Never*

    b) *Participated in the past month*

    c) *Participated at least once in the past 6 months*

    d) *Participated more than 6 months ago*

7. Children's malnutrition status was dignosed:

    a) *At home by CHW*

    b) *At CBNP site*

    c) *At health center*

    d) *Others ……*

8. Is your child covered by mutuelle?

    YES NO

9. What is your household's social category (ubudehe)?

    1 2 3 4 Don't Know

10. Marital Status?

    a) *Not-married/single*

    b) *Married or living together with partner*

c) *Seperated/Divorced from partner*

d) *Others: ……*

11. Who in your family is responsible for preparing food and feeding the children?

a) *Mother*

b) *Father*

c) *Other adult in the households*

d) *Children in the household*

e) *Other: _____*

12. How many times did your child have meal intakes yesterday?

a) *0-1 times per day*

b) *2 times per day*

c) *3 times per day*

d) *4 times per day*

e) *5 and above*

13. Since enrollment in the SFP program, did you receive any of the below support?

(Select all apply)

a) *Has not received any support*

b) *Sosoma*

c) *Shishakibondo*

d) *Milk*

e) *Chicken*

f) *Goats or sheep*

g) *Kitchen garden Vegetable seeds*

h) *Others ……*

14. Length (years) of the period living in Rubavu district: ……..

1.

Qualitative (interview)

1) How, When and how did you notice that your children suffered malnutrition?

2) What do you think was the causes of this problem/ malnutrition?

3) Since when you discover that:

   a. Did your kid recover? If yes why?

   b. Did he/she relapse or not recover? If yes why?

   c. Did you change anything since you are enrolled in the SFP? What is it? (food, sleeping)

4) Were there visits to the health center where you did not receive any food/drink for your child? If yes, what happen? What do they told you?

5) Did you see any benefit/ disadvantage for joining in the SFP program?

   a. To your self

   b. To the kid

   c. To the family including other children and husband or wife if any (family relationship, stress, finance)

6) Did you ever drop out from the program?

   a. If not, why

   b. If yes, why?

      i. Has anyone from the health center come to visit your home or sent someone to check on how the child is doing since you stopped attending?

      ii. How is your child doing today?

7) Are there challenges you experience with taking your child to the SFP program?

8) What do you think can be improved in MAM Program?

Specific questions for healthcare workers:

1. Tell me about your experience in working in SFP program?
    a. How long have you been working in the program?
    b. How are your interactions with the caregivers and children?
2. How often and what kind of support does the health center provide through SFP?
3. Are there challenges do you experienced in SFP program at Byahi Health Center?
4. What do you think can be improved in SFP? :

Annex 3: Consent form / caregivers

PRACTICUM PROJECT INFORMATION AND CONSENT FORM CARE GIVERS

caregivers

Study to identify the factors affecting the recovery from moderate acute malnutrition among children enrolled in a supplemental food program in a rural health center of Rwanda.

December 8, 2017

Research identification

Main researcher: Manasseh Eric Muvandimwe

Master of Science in Global Health Delivery candidate, University of Global Health Equity

Dear participant,

You are being invited to participate in a research project because you meet the selection criteria of the targeted population of this study that is to have or once had MAM children in not more than, or more than 10 weeks in SFP, or dropped out. Before accepting to join this project, you must understand and take into consideration the contents of this form, since it contains important information to assist you in deciding whether to participate or not.

This project is being conducted as part of a core requirement for the Master of Science in Global Health Delivery at the University of Global Health Equity. The project has received required ethical approval from UGHE and complies with international ethical standards for research to be carried out in Rwanda. Permissions have also been obtained from University of Global Health Equity, Rubavu health unit and Byahi Health Center.

The purpose of this project

The purpose of this project is to understand the factors affecting poor growth among under five children in the SFP program located in the catchment area of the Byahi Health center.

The procedure for participation in this project

If you chose to participate, you will be invited to conduct an interview of around 30 minutes, whereby you will respond to some of the questions related to this topic at your best. In this regard, with your permission I will need to tape-record the interview.

The possible benefits of taking part in this project

Your participation will help to know the causes of poor growth improvement of MAM children and measures can be taken to improve the SFP. You will receive no compensation.

Possible risks or discomforts related to taking part in this project

If you choose to participate, you may find some of the questions about your child nutrition status and or family status to be sensitive, however, there is not any risk anticipated to you related to your participating in this study. The information that you will provide will not be shared, neither your names to appear anywhere throughout the research processing and result presentation.

Protection of your privacy

The interview will be done in a private room between you and the research only; the information collected will be kept anonymous and confidential. It will not include any of your names and will only be accessed by the project team. The results will be used for research purposes only, not for your child or family evaluation. We will not share your individual responses with anyone outside the research team at any time. All project data will be kept safe in locked storage or with computer and file passwords, and will be destroyed after 10 years.

If I have any questions, concerns or complaints about this project, who can I talk to?

In case: 1) You have questions, concerns, or complaints, 2) You would like to talk to the project team, 3) You think the project has harmed you, or 4) You wish to withdraw from the study; please feel free to contact: Manasseh Eric Muvandimwe, The principal investigator, via +250 788785090, m.muvandimwe@ughe.org.

Participation is voluntary

It is your right to decide to participate in this project or not. If you choose to participate, you may change your mind and leave the study at any time. Refusal to participate or stopping your participation will involve no penalty.

Statement of consent

Your signature (or finger print) below indicates you acknowledge that:

- You have understood the content of this form.
- You have had the opportunity to ask questions and received answers that were satisfactory.
- If needed, you took time to discuss this information with others to help you decide whether to participate.

- You will receive a dated and signed copy of the form.
- You agree to participate in this project.

Participant name	Signature/ finger print	Date
Researcher name/person requesting consent	Signature	Date

Annex 4: consent form / Healthcare workers

PRACTICUM PROJECT INFORMATION AND CONSENT FORM FOR HEALTHCARE

Healthcare workers

Study to identify the factors affecting poor recovery from moderate acute malnutrition among children enrolled in a supplemental food program in a rural health center of Rwanda.

December 8, 2017

Researcher identification

Main researcher: Manasseh Eric Muvandimwe

Master of Science in Global Health Delivery candidate, University of Global Health Equity

Dear participant,

You are being invited to participate in a research project because you meet the selection criteria of the targeted population of this study that is being a healthcare worker with more than 9 months (including April to June 2017) of experience working in SFP at Byahi Health center. Before accepting to join this project, you must understand and take into

consideration the contents of this form, since it contains important information to assist you in deciding whether to participate or not.

This project is being conducted as part of a core requirement for the Master of Science in Global Health Delivery at the University of Global Health Equity. The project has received required ethical approval from UGHE and complies with international ethical standards for research to be carried out in Rwanda. Permissions have also been obtained from University of Global Health Equity, Rubavu health unity and Byahi Health Center.

The purpose of this project

The purpose of this project is to understand the factors affecting poor growth among under five children in the SFP program located in the catchment area of the Byahi Health center.

The procedure for participation in this project

If you chose to participate, you will be invited to conduct an interview of around 30 minutes, whereby you will respond to some of the questions related to this topic at your best. In this regard, with your permission I will need to tape-record the interview.

The possible benefits of taking part in this project

Your participation will help to know the causes of poor growth improvement of MAM children and measures can be taken to improve the SFP. You will receive no compensation.

Possible risks or discomforts related to taking part in this project

If you choose to participate, you may find some of the questions about the service you provides in SFP to be sensitive, however, there is not any risk anticipated to you related to your participating in this study. The information that you will provide will not be shared, neither your names to appear anywhere throughout the research processing and result presentation.

Protection of your privacy

The interview will be done in a private room between you and the research only; the information collected will be kept anonymous and confidential. It will not include any of your names and will only be accessed by the project team. The results will be used for research purposes only, not as evaluation for you and for the Byahi health center. We will not share your individual responses with anyone outside the research team at any

time. All project data will be kept safe in locked storage or with computer and file passwords, and will be destroyed after 10 years.

If I have any questions, concerns or complaints about this project, who can I talk to?

In case: 1) You have questions, concerns, or complaints, 2) You would like to talk to the project team, 3) You think the project has harmed you, or 4) You wish to withdraw from the study; please feel free to contact: Manasseh Eric Muvandimwe, The principal investigator, via +250 788785090, m.muvandimwe@ughe.org.

Participation is voluntary

It is your right to decide to participate in this project or not. If you choose to participate, you may change your mind and leave the study at any time. Refusal to participate or stopping your participation will involve no penalty.

Statement of consent

Your signature (or finger print) below indicates you acknowledge that:

- You have understood the content of this form.

- You have had the opportunity to ask questions and received answers that were satisfactory.
- If needed, you took time to discuss this information with others to help you decide whether to participate.
- You will receive a dated and signed copy of the form.
- You agree to participate in this project.

Participant name	Signature/ finger print	Date

Researcher name/person requesting consent	Signature	Date

Annex 5

KINYARWANDA Version

IMPAMVU ZO GUTINDA GUKIRA KU BANA BAFITE UBURWAYI BW'IMIRIRE MIBI IDAKABIJE BAHABWA AMAFUNGURO Y'INYONGERA MU KIGO NDERABUZIMA CY'ICYARO MU RWANDA.

Urupapupuro rw'ibibazo

Itariki: …./……/…. **Nimero (ID) iranga umubyeyi/code:**……

Ibibazo bitanga amakuru ashobora gushyirwa mu mibare (Questions on quantitative data)

AMAKURU AREBANA N'IMIBEREHO NDETSE N'AGACE UMURYANGO UHERERERYEMO

1. Imyaka y'amavuko y'ubazwa (umubyeyi w'umwamwana cyangwa umuhagarariye): ……
    a) *<21*
    b) *21-30*
    c) *31-40*
    d) *41-50*

e) *>51*

2. Igitsina

   a) *Gabo*

   b) *Gore*

3. Amashuri umubyeyi (cyagwa umuhagarariye) yize

   a) *Ntiyize*

   b) *Yarangije amashuri abanza*

   c) *Yarangije amashuri yisumbuye*

   d) *Yarangije icyiciro cya kabiri cya Kaminuza*

   e) *Ayandi mashuri (yavuge): ……*

4. Akazi akora

   a) *Akora mukigo cyangwa muri koperative*

   b) *Arikorero/aracuruza*

   c) *Umuhinzi uhinga ubutaka bwe*

   d) *Umuhinzi udafite ubutaka bwe ahingamo*

   e) *Ari mu kiruhuko cy'izabukuru*

   f) *Ntabwo akora*

   g) *Ibindi (bivuge): ……*

5. Muri abantu bangahe mu rugo rwanyu? …….

    a) *Abari munsi y'imyaka 5 : ……..*

    b) *Abari hagati y'imyaka 5-10: ……..*

    c) Abari hagati y'imyaka 11-18: ……..

    d) *Abarengeje imyaka 18: ……..*

6. Kwitabira gahunda yo gupimisha ibiro by'umwana mu mudugudu/ PNBC (*umushakashatsi arebe nimba igipande cy'imikurire y'umwana cyujuje*)

    a) *Nta narimwe arajyayo*

    b) *Yagiyeyo mu kwezi gushize*

    c) Aherukayo mu mezi 6 ashize

    d) *Aherukayo birenze amezi atandatu ashize*

7. Aho imirire mibi (bwaki) y'umwana yapimiwe:

    a. *Mu rugo n'umujyanamawubuzima*

    b. *Kuri site yo gupima mu mudugudu*

    c. *Ku kigonderabuzima*

    d. *Ahandi (havuge):……..*

8. Ese uyu mwana wawe afite mitiweli?

    Yego Oya

9. Ni ikihe cyiciro cy'ubudehe umuryango wawe ubarizwamo ?

   1 2 3 4 Ntacyonzi

10. Irangamimerere?

    a) *Ntiyubatse/ ingaragu*

    b) *Arashatse (abana n'umugabo/umugore we)*

    c)Yatandukanye n'uwo bashakanye

    d) *Ibindi ……*

11. Ni inde mu muryango ushinzwe gutegura igaburo ry'umwana no kumugaburira?

    a) *Mama*

    b) *Papa*

    c) Abandi bari murugo bakuze

    d) *Abana bari murugo*

    e) *Abandi: _____*

12. Ni inshuro zingahe umwana wawe yafashe igaburo ejo hashize?

    a) *Inshuro 0-1 kumunsi*

    b) *Inshuro 2*

    c)Inshuro 3

    d) *Inshuro 4*

    e) *Inshuro 5 zirenga*

13. Kuva umwana wawe yashyirwa muri gahunda yo guhabwa ifunguro ry'inyongera, waba warigeze uhabwa bumwe muri ubu bufasha? (hitamo ubufasha bwose yahawe)

    a) *Nta bufasha na bunwe yahawe*

    b) *Sosoma*

    c)Shishakibondo

    d) *Amata*

    e) *Inkoko*

    f) Ihene cyangwa Intama

    g) *Imirama y'akarima k'imboga*

    h) *Ibindi……*

14. Igihe (imyaka) umaze utuye muri aka karere ka Rubavu…….

Ibibazo bitanga amakuru "Qualitative" (Questions on qualitative data)

1. Ni ryari kandi ni gute mwamenyeko umwana wanyu afite ikibazo cy'imirire mibi?
2. Utekerezako iki kibazo cyaba cyaratewe n'iki?
3. Kuva ubimenye:
    a) Umwana wawe yarakize? Niba ari yarakize, yakijijwe n'iki?
    b) Ese yaba yarasubiye inyuma cyangwa atarakize? Niba ari yego, byatewe n'iki?

c) Ese hari ikintu waba warahinduye mubyo wari usanzwe ukora cyangwa umuha nyuma yo kumujyana muri gahunda yo kubakurikirana ku kigo nderabuzima? Ni iki wahinduye? (ibiryo, kumuryamisha, ..)

4. Ese har igihe waba waragiye ku kigo nderabuzima ukagaruka udahawe ifunguro cyangwa ikinyobwa byo guha umwana? Niba ari yego, byagenze gute? Bakubwiye iki?

5. Ese hari inyungu/ikibi wabonye mu kujyana umwana wawe muri gahunda yo kubafasha ku kigonderabuzima?

   a) Kuri wowe

   b) Ku mwana

   c) Ku muryango, kubandi bana ndetse no kumugabo/umugore wawe niba umufite (ku imibanire yanyu, umunaniro ukabije, guhagarika umutima, mu mutungo)

6. Ese waba warigeze wikura muri iyi gahunda itangwa n'ikigo nderabuzima cya Byahi?

   a) Niba ari oya, kubera iki?

   b) Niba ari yego, kubera iki?

      i. Haba hari umukozi wo ku kigo nderabuzima wigeze uza kugusura akubaza impamvu wavuye muri gahunda, ndetse no kureba uko umwana amerewe kuva uharitse gahunda y'ubufasha?

      ii. Umwana wawe ameze ate uyu munsi?

7. Ese haba hari imbogamizi uhura nazo mu kujyana umwana wawe muri iyi gahunda ku kigonderabuzima?
8. Ni iki utekereza cyahinduka muri iyi gahunda yo gukurikirana abana bafite ikibazo cy'imirire imibi dakabije?

Ibibazo byihariye bireba abakozi bo ku kigonderabuzima:

5. Mbwira ku bijyanye n'ubunararibonye bwawe mu gukora muri iyi gahunda yo gukurikirana abana bari muri gahunda ya SFP, by'umwihariko abari mu muhondo?
    a) Umaze igihe kingana iki ukora muri iyi gahunda?
    b) Ese nigute mukorana n'ababyeyi b'aba bana?
6. Ese ni uubuhe bufasha ikigonderabuzima gihereza aba bana? Mubutanga inshuro zingahe?
7. Ese haba hari imbogamizi muhura nazo muri iyi gahunda ya SFP hano ku Kigonderabuzima cya Byahi?
8. Ni iki utekereza cyanozwa muri iyi gahunda?

Annex 6

PRACTICUM PROJECT INFORMATION AND CONSENT FORM

UMUBYEYI W'UMWANA

IMPAMVU ZO GUTINDA GUKIRA KU BANA BAFITE UBURWAYI BW'IMIRIRE MIBI IDAKABIJE BAHABWA AMAFUNGURO Y'INYONGERA MU KIGO NDERABUZIMA CY'ICYARO MU RWANDA.

Nzeri 30, 2017

Amakuru y'Ibanze k'umushakashatsi:

Umushakashatsi mukuru: Manasseh Eric Muvandimwe

Master of Science in Global Health Delivery candidate, University of Global Health Equity

Mutumirwa,

Utumiwe mu gikorwa cy'ubushakashatsi kuberako wujuje ibisabwa by'abatumirwa b'ubu bushakashatsi, aribyo kuba ufite cyangwa warigeze kugira umwana muri gahunda yo gukurikirana abana bafite imirire mibi (SFP) mugihe kitarenze, cyangwa kirenze

ibyumweru 10, cyangwa warayivuyemo igihe cyo gusezererwa kitaragera. Mbere yuko wemera kudufasha mur'iki gikorwa, ugomba gusobanukirwa ibiri muri iyi nyandiko kuko harimo ubumenyi bw'ingirakamaro bwagufasha muguhitamo kudufasha cyangwa kutadufasha muri iki gikorwa.

Ubu bushakashatsi burakorwa nka kimwe mubintu nkenerwa by'ingenzi mu masomo y'icyiciro cya gatatu cy'amashuri makuru muri Kaminuza ya "Global Health Equity". Ubu bushakashatsi bwahawe ibyemezo bikwiriye bivuye muri Kaminuza ya "Global Health Equity" kandi bwubahirije ibisabwa ku rwego mpuzampahanga kugirango bukorwe mu Rwanda. Twahawe kandi uburenganzira n'urwego rukuru rushinzwe ubuzima mu karere ka Rubavu ndetse n'ikigonderabuze cya Byahi kugirango dukore ubu bushakashatsi.

Impamvu y'ubushakashatsi

Impamvu y'ubu bushakashatsi ni ugusobanukirwa impamvu nyamukuru zitera gutinda gukira kw'abana bari munsi y'imyaka itanu, bafite ikibazo cy'imirire mibi idakabije bakurikiranwa n'ikigonderabuzima cya Byahi.

Uko ubushakashatsi buri bukorwe

Niwemera kugira uruhare muri ubu bushakashatsi, uratumirwa mukiganiro kimara hafi iminota 30, aho uri busubize ibibazo bimwe nabimwe birebana n'iyi nsanganyamatsiko

y’ubushakashatsi uko ubishoboye. Kubwiyo mpamvu, nubinyemerera ndaza gukenera gufata amajwi y’iki kiganiro.

Inyungu zaturuka mu kwitabira ubu bushakashatsi

Kwitabira ubu bushakashatsi bizafasha kumenya impamvu zitera gutinda gukira kw’abana bari munsi y’imyaka itanu bafite ikibazo cy’imirire mibi idakabije, ndetse n’ingamba zafatwa mu kunoza gahunda yo kubafasha. Ntagahimbazamusyi/insimburamubyizi uri buhabwe.

Ibibazo cyangwa imbogamizi byaturuka mu kwitabira ubu bushakashatsi

Nta kintu na kimwe twabonyeko cyagutera ikibazo giturutse ko uzaba witabiriye ubu bushakashatsi. Cyakora hari igihe wasangamo ibibazo tukubaza wumvako byinjira cyane mu buzima bwihariye bw’imirire y’umwana ndetse n’umuryango wawe. Amakuru uri butange ntabwo azatangwa kubandi, ndetse n’amazina yawe ntazigera agaragara haba muri iki gihe cyo gukora ubu bushakashatsi cyangwa mu gihe cyo kumurika ibyavuye mu ubu bushakashatsi .

Kurinda amakuru twakiriye ku buzima bwanyu

Iki kiganiro kirakorerwa mucyumba cyihererereye kirimo wowe n'umushakashatsi gusa. Amakuru azava muri iki kiganiro azagirwa ibanga. Amazina yanyu ntazagaragarizwa abandi, keretse ikipe iyoboye iki gikorwa yonyine. Ibisubizo byanyu bizakoreshwa muri ubu bushakashatsi gusa. Ntabwo tuzatangaza ibisubizo byawe byihariye ku bantu bari hanze y'ikipe y'ubushakashatsi. Ibizava muri ububushakashatsi bizabikwa neza ahantu hafunze, maze biteshwe agaciro nyuma y'imyaka 10.

Ngize ikibazo cyangwa impungenge bijyanye n'iki gikorwa, ni nde navugisha?

Mu gihe; 1) ufite ibibazo cyangwa impungege, 2) wifuza kuvugisha uyoboye iki gikorwa, 3) wumva ko wahohotewe cyangwa waguwe nabi biturutse ku ubu bushakashatsi, 4) cyangwa ushaka kuva muri iki gikorwa; wahamagara Muvandimwe Eric Manasseh uyoboye ubu bushakashatsi kuri telephone +250 788785090 cyangwa ukamwandikira kur e-mail: m.muvandimwe@ughe.org.

Gufatanya natwe muri ubu bushakashatsi ni ubushake

Kugira uruhare muri iki gikorwa ni ubushake bwanyu. Niwemera kugira uruhare muri iki gikorwa, ushobora kwisubiraho, ukava muri ubu bushakashatsi igihe icyaricyo cyose. Kwanga gufatanya natwe cyangwa kuva mu ubu bushakashatsi nta ngaruka byakugiraho.

Inyandiko yo kwemera gufatanya natwe muri ubu bushakashatsi

Umukono wawe cyangwa igikumwe uza gutera hasi kuri uru rupapuro biraba byerekana ko:

- Wumvise ibigize iyi nyandiko
- Wabashije kubaza no kubona ibisubizo binoze
- Mu gihe wabikenera, ko wafashe igihe cyo kubiganiraho n'abandi kugirango bigufashe mu gufata icyemezo cyo gufatanya natwe muri ubu bushakashatsi;
- Uhabwa uru rwandiko ruriho itariki n'umukono
- Wemeye kugira uruhare mu gikorwa cy'ubu bushakashatsi

Izina ry'umutumirwa	Umukono/ Igikumwe	Itariki
Izina ry'umushakashatsi/ushaka icyemezo	Umukono/ Igikumwe	Itariki

Annex 7

PRACTICUM PROJECT INFORMATION AND CONSENT FORM

UMUKOZI WO KUKIGONDERABUZIMA CYA BYAHI

IMPAMVU ZO GUTINDA GUKIRA KU BANA BAFITE UBURWAYI BW'IMIRIRE MIBI IDAKABIJE BAHABWA AMAFUNGURO Y'INYONGERA MU KIGO NDERABUZIMA CY'ICYARO MU RWANDA.

Nzeri 30, 2017

Amakuru y'Ibanze k'umushakashatsi:

Umushakashatsi mukuru: Manasseh Eric Muvandimwe

Master of Science in Global Health Delivery candidate, University of Global Health Equity

Mutumirwa,

Mutumiwe mu gikorwa cy'ubushakashatsi kuberako wujuje ibisabwa by'abatumirwa b'ubu bushakashatsi aribyo kuba uri umukozi w'ikigonderabuzima cya Byahi kandi ukaba umaze igihe kirenze amezi 8 ukurikirana abana bafite imirire mibi muri gahunda ya (SFP). Mbere yuko wemera kudufasha mur'iki gikorwa, ugomba gusobanukirwa ibiri muri iyi

nyandiko kuko harimo ubumenyi bw'ingirakamaro bwagufasha muguhitamo gukora cyangwa kudakora iki gikorwa.

Ubu bushakashatsi burakorwa nka kimwe mubintu nkenerwa by'ingenzi mu masomo y'icyiciro cya gatatu cy'amashuri makuru muri Kaminuza ya "Global Health Equity". Ubu bushakashatsi bwahawe ibyemezo bikwiriye bivuye muri Kaminuza ya "Global Health Equity" kandi bwubahirije ibisabwa ku rwego mpuzampahanga kugirango bukorwe mu Rwanda. Twahawe kandi uburenganzira n'urwego rukuru rushinzwe ubuzima mu karere ka Rubavu ndetse n'ikigonderabuze cya Byahi kugirango dukore ubu bushakashatsi.

Impamvu y'ubushakashatsi

Impamvu y'ubu bushakashatsi ni ugusobanukirwa impamvu nyamukuru zitera gutinda gukira kw'abana bari munsi y'imyaka itanu, bafite ikibazo cy'imirire mibi idakabije bakurikiranwa n'ikigonderabuzima cya Byahi.

Uko ubushakashatsi buri bukorwe

Niwemera kugira uruhare muri ubu bushakashatsi, uratumirwa mukiganiro kimara hafi iminota 30, aho uri busubize ibibazo bimwe nabimwe birebana n'iyi nsanganyamatsiko y'ubushakashatsi uko ubishoboye. Kubwiyo mpamvu, nubinyemerera ndaza gukenera gufata amajwi y'iki kiganiro.

Inyungu zaturuka mu kwitabira ubu bushakashatsi

Kwitabira ubu bushakashatsi bizafasha kumenya impamvu zitera gutinda gukira kw'abana bari munsi y'imyaka itanu bafite ikibazo cy'imirire mibi idakabije, ndetse n'ingamba zafatwa mu kunoza gahunda yo kubafasha. Ntagahimbazamusyi/insimburamubyizi uri buhabwe.

Ibibazo cyangwa imbogamizi byaturuka mu kwitabira ubu bushakashatsi

Nta kintu na kimwe twabonyeko cyagutera ikibazo giturutse ko uzaba witabiriye ubu bushakashatsi. Cyakora hari igihe wasangamo ibibazo tukubaza wumvako byinjira cyane muri serivisi mutanga hano ku kigonderabuzima cya Byahi. Amakuru uri butange ntabwo azatangwa kubandi, ndetse n'amazina yawe ntazigera agaragara haba muri iki gihe cyo gukora ubu bushakashatsi cyangwa mu gihe cyo kumurika ibyavuye mu ubu bushakashatsi .

Kurinda amakuru twakiriye ku buzima bwanyu

Iki kiganiro kirakorerwa mucyumba cyihererereye kirimo wowe n'umushakashatsi gusa. Amakuru azava muri iki kiganiro azagirwa ibanga. Amazina yanyu ntazagaragarizwa abandi, keretse ikipe iyoboye iki gikorwa yonyine. Ibisubizo byanyu bizakoreshwa muri

ubu bushakashatsi gusa. Ntabwo tuzatangaza ibisubizo byawe byihariye ku bantu bari hanze y'ikipe y'ubushakashatsi. Ibizava muri ububushakashatsi bizabikwa neza ahantu hafunze, maze biteshwe agaciro nyuma y'imyaka 10.

Ngize ikibazo cyangwa impungenge bijyanye n'iki gikorwa, ni nde navugisha?

Mu gihe; 1) ufite ibibazo cyangwa impungege, 2) wifuza kuvugisha uyoboye iki gikorwa, 3) wumva ko wahohotewe cyangwa waguwe nabi biturutse ku ubu bushakashatsi, 4) cyangwa ushaka kuva muri iki gikorwa; wahamagara Muvandimwe Eric Manasseh uyoboye ubu bushakashatsi kuri telephone +250 788785090 cyangwa ukamwandikira kur e-mail: m.muvandimwe@ughe.org.

Gufatanya natwe muri ubu bushakashatsi ni ubushake

Kugira uruhare muri iki gikorwa ni ubushake bwanyu. Niwemera kugira uruhare muri iki gikorwa, ushobora kwisubiraho, ukava muri ubu bushakashatsi igihe icyaricyo cyose. Kwanga gufatanya natwe cyangwa kuva mu ubu bushakashatsi nta ngaruka byakugiraho.

Inyandiko yo kwemera gufatanya natwe muri ubu bushakashatsi

Umukono wawe cyangwa igikumwe uza gutera hasi kuri uru rupapuro biraba byerekana ko:

- Wumvise ibigize iyi nyandiko
- Wabashije kubaza no kubona ibisubizo binoze
- Mu gihe wabikenera, ko wafashe igihe cyo kubiganiraho n'abandi kugirango bigufashe mu gufata icyemezo cyo gufatanya natwe muri ubu bushakashatsi;
- Uhabwa uru rwandiko ruriho itariki n'umukono
- Wemeye kugira uruhare mu gikorwa cy'ubu bushakashatsi

Izina ry'umutumirwa	Umukono/ Igikumwe	Itariki
Izina ry'umushakashatsi/ushaka icyemezo	Umukono/ Igikumwe	Itariki