

**NUTRITION CARE AND SUPPORT SERVICES OF PEOPLE
LIVING WITH HIV/AIDS AT CARE AND TREATMENT CLINIC:
THE CASE STUDY OF KAGERA REGION REFERRAL HOSPITAL**

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THE CASE STUDY OF KAGERA REGION REFERRAL HOSPITAL**

**By
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**An Evaluation Report Submitted in Partial Fulfillment of the Requirements to the
Award of Degree of Master of Science Health Monitoring and Evaluation
(MSc.HM&E) of Mzumbe University**

2015

CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance the Mzumbe University, a dissertation entitled **nutrition assessment counseling and support services of people living with HIV/AIDS at care and treatment clinic: The case study of Kagera region referral Hospital** in partial fulfillment for award of the Degree of Master of Science Health Monitoring and Evaluation (MSc. HM&E) at Mzumbe University.

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Accepted for the Board of School of Public Administration and Management

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DEAN, SOPAM

DECLARATION

I, TINKAMWESIGILE, NICOLAUS.T do hereby declare to the Senate of Mzumbe University, that this evaluation report is the product of my own original work done within the period of registration and has neither been submitted nor being concurrently submitted, and will never be submitted in any other institution for the same purpose .

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Date

(MSc.HME Candidate)

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DEDICATION

This work is dedicated to my wife Annastela Tinkamwesigile for her courage to undergo this study and for caring our children in my absence. I would further like to dedicate this work to Tinkamwesigile's family, my children; Kamala, Kaiza, Nyangoma and Ishengoma for their patience on my absence.

ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
ART	Anti-Retroviral Therapy
ARV	Anti-Retroviral
CDC	Center for Disease and Control
CHMT	Council Health Management Team
CSO	Civil Society Organization
CTC	Care and Treatment Clinic
HBC	Home Based Care
HIV	Human Immunodeficiency Virus
HMT	Hospital Management Team
HSHP	Health Sector HIV/ AIDS Strategic Plan
HTC	Testing and Counseling
M&E	Monitoring and Evaluation
MDG	Millennium Development Goals
MKUKUTA	Mkakati wa Kukuza Uchumi na Kupunguza Umasikini Tanzania
MOHSW	Ministry of Health and Social Welfare
MOi/c	Medical Officer incharge
MSD	Medical Stores Department
NACP	National AIDS Control Programme
NACS	Nutrition Assessment Counselling and Support
NGO	Non-Governmental Organization
PEPFAR	President's Emergency Plan for AIDS Relief
PITC	Provider Initiated Testing and Counseling
PLWHA	People Living with HIV and AIDS
PMTCT	Prevention of Mother to Child Transmission of HIV
RAS	Regional Administrative Secretary
RHMT	Regional Health Management Team
RMO	Regional Medical Officer

STI	Sexually Transmitted Infections
TACAIDS	Tanzania Commission for AIDS
TB	Tuberculosis
THMIS	Tanzania HIV/AIDS and Malaria Indicator Survey
UNGASS	United Nations General Assembly Special Session on HIV and AIDS
URT	United Republic of Tanzania
USAID	United States Agency for International Development
VCT	Voluntary Counseling and Testing
WHO	World Health Organization.
TFNC	Tanzania Food and Nutrition Centre
BMI	Body Mass Index
SAM	Severe Acute Malnutrition
NMOHSW	Namibian Ministry of Health and social welfare
MUAC	Mid Upper Arm Circumference
RMR	Rest Metabolic Rate
REE	Rest Energy Expenditure
TEE	Total Energy Expendure

ABSTRACT

Introduction: A process evaluation on nutrition assessment counseling and support services of PLWHA at CTC conducted at Bukoba region referral hospital-Kagera region with the aim of ascertaining level of programme implementation.

Methodology: Mixed methods were used to assess evaluation dimensions. The semi structure questionnaire, interview guide, observation checklists and documentary review were used to obtain information about programme context, implementation process, reach, fidelity, dose, adaptation and mechanisms of the impacts of the services provided to PLWHA.

Evaluation findings: The evaluation findings revealed that programme was fairly implemented with overall 51% score of weighted factors. The evaluated factors show that implementation process was 42.8% and fidelity of the implementation is 43.5%. While dose and reach of the programme implementation show 38.64% and 79.64% respectively. Stakeholders were less engaging to the programme services as contextual limiting factors and integration of nutrition services to CTC services note as mediator of mechanisms of achieved reach. Using weight trend of PLWHA as nutrition status determination index seen as programme adaptation

Conclusion: The CTC had inadequate implementation process that include limited number of staff to assist nutrition services, inadequate equipment, materials and supplies to better optimal programme implementation. Implementation components such as fidelity, dose and reach are imbalance implemented for optimal quality programme implementation.

Recommendation: Hospital and regional health managements and ministry of health through TFNC and NACP with their nutrition stakeholders are urged to improve CTC capacity to better nutrition assessment, counseling and support services implementation for betterment of PLWHA.

TABLE OF CONTENTS

CERTIFICATION	i
DECLARATION	ii
COPYRIGHT	iii
ACKNOWLEDGEMENTS	iv
DEDICATION	v
ACRONYMS	vi
ABSTRACT	viii
TABLE OF CONTENTS	ix
LIST OF TABLES	xv
LIST OF FIGURES	xvi
OPERATIONAL DEFINITIONS	xvii
 CHAPTER ONE: INTRODUCTION	 1
1.1 Background	1
1.1.1 Nutrition and HIV/AIDS	2
1.1.2 Nutrition status in Tanzania in respect to HIV/AIDS	3
1.2 Description of the programmed evaluated	5
1.2.1 Introduction	5
1.2.2 Expected program effects	6
1.2.3 Major strategies	7
1.2.4 Program activities and resources	7
1.2.5 Logical model of Nutrition care and support for PLWHA	8
1.2.5.1 Inputs	8
1.2.5.2 Activities/process	8
1.2.5.3 Outputs	8
1.2.5.4 Outcomes	9
1.2.5.5 Impact	9
1.2.6 Stakeholders	11

1.2.6.1 RHMT, HMT and CTC provider	12
1.2.6.2 PMTC, HBC, VCT, ICAP, TFNC and Community	12
1.2.6.3 STI/HIV and TB/HIV Providers	12
1.3 Statement of the problem	14
1.3.1 Evaluation questions for process evaluation	15
1.3.2 Objectives of the process evaluation.....	15
1.3.3 Significance and scope of the evaluation	16
CHAPTER TWO: LITERATURE REVIEW	17
2.1 Introduction	17
2.1.1 Theoretical part	17
2.1.2 Interaction of nutrition and HIV	17
2.1.3 Interactions of nutrition and ART	18
2.1.4 Nutrition assessment methods for PLWHAs	18
2.1.5 Iron, zinc nutrients and immune system	21
2.1.6 Macronutrients (Energy, Protein and Fats) requirement and PLWHA.....	21
2.1.7 Implementation and evaluation theories in process evaluation.....	23
2.1.8 Theory based evaluation approach in process evaluation	23
2.1.9 Intervention, theory and logic modeling in process evaluation	24
2.1.10 Programme theory and process evaluation	24
2.1.11 Theories and implementation in process evaluation	25
2.1.12 Implementation frameworks in process evaluation	25
2.1.12.1 Donabedian's structure- process outcomes model.....	26
2.1.12.2 The RE-Aim framework	26
2.1.12.3 Carrol and colleagues' conceptual framework for fidelity	27
2.1.12.4 The Oxford implementation index	27
2.1.12.5 United Kingdom Medical Research council guideline for process evaluation framework (MRC-framework).....	27
2.2 Empirical part of the evaluation.....	29
2.3 Conceptual framework for this process evaluation.....	30

2.3.1 Summary of the assumption.....	32
CHAPTER THREE: EVALUATION METHODS	33
3.1 Evaluation approach.....	33
3.2 Evaluation design	33
3.3 Evaluation period	34
3.4 Study area.....	34
3.5 Study population	35
3.6 Units of analysis.....	35
3.7 Focus and dimension of the evaluation.....	36
3.7.1 Focus of evaluation	36
3.7.2 Evaluation Dimensions	37
3.7.3 Matrix of evaluation.....	40
3.7.4 Determination of final programme implementation level.....	40
3.7.5 Judgments criteria	42
3.8 Sample size and sampling techniques	42
3.8.1 Sampling technique.....	42
3.8.2 Sample size determination	44
3.9 Inclusion and exclusion criteria	44
3.10 Type and Source of Data.....	45
3.11 Data Collection methods	45
3.11.1 Questionnaire	45
3.11.2 Interview guide.....	46
3.11.3 Observation check lists	46
3.11.4 Data collection field work.....	46
3.11.4.1 Exit interview questionnaire	46
3.11.4.2 Interview	47
3.11.4.3 Observation checklists	47
3.12 Validity issues	48
3.12.1 Training of evaluation Assistants.....	48

3.12.2 Pre-testing of tools and methodology	48
3.12.3 Daily Quality Checks	49
3.13 Data management and analysis	49
3.13.1 Quantitative data analysis	49
3.13.1.1 Data entry	49
3.13.1.2 Data cleaning.....	49
3.13.1.3 Data Analysis	50
3.13.2 Qualitative data analysis	50
3.14 Ethical Issues.....	51
CHAPTER FOUR.....	52
4.1 PRESENTATION OF THE EVALUATION FINDINGS	52
4.1.1 Overview	52
4.1.2 Socio-demographic Characteristics of the Respondents	52
4.2 Objective1: The extent to the nutrition care and support services reached the PLWHA	53
4.2.1 Reach and dose of nutrition care and support services	53
4.2.2 Nutrition counselling and education for PLWHA.	55
4.2.3 Overall reach and dose of nutrition assessment and counselling.....	56
4.3 Objective 2: The capability of the care and treatment clinic to execute the nutrition care support services.	58
4.3.1 Implementation process	58
4.4 Objective 3: The acceptance of nutrition care and support services among PLWHA	60
4.4.1 Satisfaction of nutrition assessment counselling and support.....	60
4.5 Objective 4: The services' adherence to guidelines, procedures and protocols.....	60
4.5.1 Fidelity of implementation of the nutrition care and support services.....	60
4.6 Qualitative analysis	61
4.6.1 The extent to Nutrition care and support services reached to PLWHA.....	62
4.6.1.1 Theme 1: Coverage and completeness.....	62

4.6.1.2 Theme 2: Adequacy of resources and structures.....	62
4.6.1.3 Theme 3: Contextual factors hindering or enabling services.....	62
4.7 The acceptance of nutrition care and support services among PLWHA	63
4.7.1 Theme 4: Participant’s responses to, interactions and mediators	63
4.8 The services’ adherence to guidelines, procedures and protocols	64
4.8.1 Theme 5: Quality and adherences of procedures	64
4.8.2 Theme 6: Adaptation of the nutrition care and support services	64
4.9 Determination of final implementation level	65
CHAPTER FIVE: DISCUSSION OF FINDINGS.....	67
5.1 Socio-demographic Characteristics of the study population.....	67
5.2 Objective 1: The extent to Nutrition care and support services reached by PLWHA.....	67
5.2.1 Reach of implementation	67
5.2.2 Dose of programme implementation.....	69
5.3 Objective 2: The capability of care and treatment clinic to execute the nutrition care and support services.	70
5.3.1 Implementation process of the nutrition care and support services	70
5.3.2 Human resources	71
5.3.3 Materials and equipment	72
5.3.4 Commodities for nutrition supplement	72
5.3.5 Stock management and recordkeeping.....	73
5.3.6 Monitoring and evaluation	74
5.3.7 Contextual factors of the implementation	74
5.4 Objective 3: The acceptance of nutrition care and support services among PLWHA	75
5.4.1 Mechanism of impacts of the process evaluation outcomes	75
5.5 The services’ adherence to guidelines, procedures and protocols	76
5.5.1 Fidelity of implementation.....	76
5.5.2 Adaptation of programme implementation services	79
5.5.3 Process evaluation outcomes.....	80

5.6 Evaluation dissemination plan	81
CHAPTER SIX: SUMMARY, CONCLUSION AND RECOMMENDATIONS	82
6.1 Summary of Findings.....	82
6.2 Recommendations.....	86
6.2.1 Care and treatment clinic	86
6.2.2 Hospital management team	87
6.2.3 Regional management team	87
6.2.4 Ministry of Health and Social Welfare, TFNC and NACP.....	88
6.2.5 Other stakeholders including ICAP and MDH	88
6.3 Limitations of this evaluation.....	89
6.4 Areas for further evaluation	89
REFERENCE	90
APPENDICES	103

LIST OF TABLES

Table 1.1: Stakeholder Aanalysis.....	13
Table 3.1: Composite indicators with denominator	39
Table 3.2: Calculation of final implementation level.....	41
Table 3.3: Stakeholder Programme judgment criteria	42
Table 4.1: Socio-economic characteristics of the respondents	53
Table 4.2: Percentage and frequency of the discussion topics during nutrition counselling and education	55
Table 4.3: Percentage and number of education and support topics covered during period 2013-2014	56
Table 4.4: Percentage of actual and overall of Reach and Dose services of nutrition assessment and counselling.....	57
Table 4.6: Percentage of components weighted scores and final implementation level of nutrition care and support services.....	65

LIST OF FIGURES

Figure 1.1: Relationship between HIV/AIDS and nutrition.....	3
Figure 1.2 : Kagera Regional referral hospital CTC Nutrition care and support services program logic model.	10
Figure 2.1: Nutritional assessment by relationship between weights against height (BMI)	20
Figure 2.2: Facility and Community rapid nutrition assessment tool-MUAC color coded	20
Figure 2.3: Evaluation conceptual framework of nutrition assessment counseling and support service of PLWHA at CTC BRRH	31
Figure 3.1: Spider diagram of evaluation dimensions and indicators.....	38
Figure 4.1: Percentage of resources and structures of nutrition care and support services	59
Figure 4.2: Percentage comparing the actual and average fidelity of nutrition care and support services.....	61
Figure 4.3: Percentage of services Reach and dose of nutrition assessment.	54

OPERATIONAL DEFINITIONS

Nutrition care and support services for PLWHA: Services provided to PLWHA from formal institutions (CTC) that involve nutrition assessment, nutrition counseling, nutrition education, and provision of food blended products (fortified/supplement)

Nutrition is the body's process of taking in and digesting food; using it for growth, reproduction, immunity, breathing, work and health; and storing nutrients and energy in appropriate parts of the body.

Nutrients are chemical substances or components of food that are released during digestion and can be metabolized to provide energy to maintain, repair or build body tissues. These nutrients are divided into macronutrients (carbohydrates, protein and fat), which are needed in large amounts and micronutrients (vitamins and minerals), which are needed only in small amounts.

Process evaluation: Evaluation that focuses on the program inputs, activities and outputs by assessing their functionality according to the program plans.

Logical model : Visual and systematic way to present the relationship between the intervention and effect including needed resources to make the program operational, planned activities, and changes or effects that the program intends to achieve for PLWHA.

Stakeholders: These are organizations, groups or individuals that are affected directly or indirectly by the implementation and outcome development initiatives of PLWHA.

Reach is the proportion of intended target audience that participates in an intervention. It is “coverage” or the proportion that the program has contacted the participants/audiences with services.

Dose of the intervention is how much the programme has delivered to the participants; it represents the completeness of the interventions offered to audiences.

Fidelity component refers to as “adherence”, “integrity” and “purity”, measures the extent to which the intervention was delivered as planned, and it focuses on the program procedures, protocol and guideline.

Implementation process of programme include structures, resources and mechanisms of delivery achieved by the program

Context of the program in process evaluation it involves with internal and external factors that might have caused any effect of the programmes’ performance results

Mechanisms of impacts in process evaluation it involves participant’s responses to and interaction with interventions looks on the mediators and unanticipated pathways and consequences

Adaptation of the program is alteration or reinvention of the intervention to fit to the environment.

CHAPTER ONE: INTRODUCTION

1.1 Background

HIV/AIDS and poor nutrition have negative interaction to People Living with HIV/AIDS (PLWHA). As Family Health International 360 (FHI 360, 2010) indicates malnourished PLWHA have 4 percent higher probability of dying than their cohort. The situation is alarming for PLWHA who start Ante-Retroviral Treatment therapy (ART) while they are malnourished. Food and Nutrition Technical Assistance (FANTA) found a person living with HIV/AIDS starting ART while Body Mass Index (BMI) is below 17kg/m^2 is likely to die six times higher than one with higher BMI.

Morbidity and mortality statistics due to HIV/AIDS are world shocking. UNAIDS (2005 in PEPFAR, 2006) has shown more than 40 million people live with HIV throughout the world. Over 25 million have lost their lives to HIV/AIDS, leaving behind orphaned children and ravaged communities.

UNAIDS (2008) has shown the greatest burden of the disease concentration in the developing countries. The countries of sub-Saharan Africa and the Caribbean are home to approximately 30 million people living with HIV/AIDS. In these regions, HIV/AIDS has deepened poverty, exacerbated nutrition and food insecurity, and diverted state resources. Deaths of PLWHA have many thoughts in developing countries. Stougaard (2009) indicates that increase deaths in the developing countries to be associated with existing malnutrition among PLWHA. As WHO (2003) shows that causes of deaths from HIV/AIDS are varied moreover, poor nutrition is the most. Further, FANTA (2006) states that increased mortality of PLWHA might be due to different factors such as starting of ARVs when the disease is in advanced stage, together with poor nutrition and health status at the time of infection. Hence Knowledge and understanding of these factors are crucial for the effort to improve the outcome of PLWHA management in developing countries. Similarly, Family Health international 360 (FHI 360) has recorded increased percent of malnutrition among PLWHA than any other disease in developing

countries, recorded 47 percent of PLWHA who had body mass index below 17kg/m^2 which was higher compared to other diseases (FHI360,2009).

The increased numbers of HIV/AIDS cases and their adverse effect have led to the states and development partners to initiate immediate responses to cushion the malnutrition problem among PLWHA. The responses include provision of Anti-retroviral Treatment (ART) services to strengthen and prolong the life of PLWHA, food, nutrition care and support for PLWHA to improve their health, and home based care for those seriously ill at home. Others include the development of policies, guidelines as directives to deal with PLWHA issues (PEPFAR, 2006). In May 2006, World Health Assembly passed the resolution WHA 59.11 on Nutrition and HIV/AIDS. The resolution urges the Member States to make nutrition services as integral part of responses to PLWHA by identifying nutrition interventions as an immediate integration into HIV/AIDS programming (WHO, 2006). Besides, USAID/SPRING (2013) stated that the states and development partners are eagerly investing in nutrition care and support for PLWHA management simply because improved nutrition status of PLWHA is a basic principle to successful management of PLWHA.

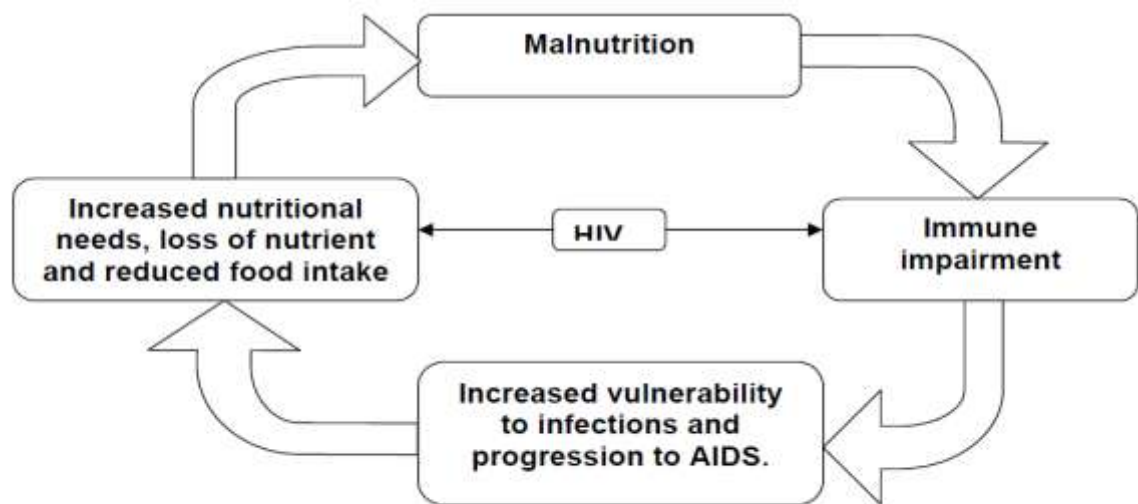
1.1.1 Nutrition and HIV/AIDS

Many studies and scholars have reported HIV/AIDS and poor nutrition to have closer relationship. Both, HIV/AIDS and poor nutrition status have a big role in affecting the body immunity, a vital component in body defense. Poor nutrition status affects body immunity (Food and Nutrition Commission (TFNC), 2003).

Poor nutrition status impact PLWHA negatively, which include low level of immunity to resist opportunistic infections, increases progression of HIV to AIDS, increases loss of nutrients through diarrhea and vomiting. Deaths are inevitable when no immediate intervention is made (WHO/FAO, 2002). Positively, the improved nutrition status among PLWHA has many benefits which include improved quality of life, reduction in medical expenses, and maintains a good appetite. Others include enhanced effectiveness of medicines, less illness and quickly recovery, and promotes good adherence for ART

(TFNC, 2012). Refer figure1. Consequently, PLWHA with poor nutrition status are double burdened. In addition, ART and food and nutrition have big interaction too (PEPFAR, 2006). Some nutrients have good effect to ART up take metabolically while others play the opposite leading to ineffective ART. The same to their cohort, some ART do impair nutrient up take by the body leading to malnutrition. So the nutrition care and support in CTC service is a core component to lead positive health results for PLWHA.

Figure 1.1: Relationship between HIV/AIDS and nutrition



Adapted from: Semba and Tang (1999)

1.1.2 Nutrition status in Tanzania in respect to HIV/AIDS

Nutrition problems especially undernourishment remains a big problem in Tanzania. The data shows 66% of under-five children are undernourished in which 42% are stunted that is exceeding by 2% of the 40% WHO standard, 21% are underweight and 3% wasted. Furthermore, 71.8% of the under five children are anemic. Data also indicate women aged 15-49 years are micronutrients deficient in which 37% is vitamin A and 48% have iodine deficient respectively. Moreover, the same age of women, 40% have iron deficiency anemia (Tanzania Demographic Health Survey (TDHS), 2010; NNS, 2011).

As well, food insecurity still is alarming. Many households in Tanzania are food insecure because they lack money to produce or purchase sufficient food for their households members. The 44% of Tanzanians consume too few calories to even sustain light work, and diets are undiversified, with 71% of all energy obtained from staples (FAO, 2006 & Tinkamwesigile, 2013). The recent increase in the cost of food worldwide is severely impacting on the lives of those who are already food insecure (NNS, 2011). Undernourishment in the country has becomes even more serious concern in the era of HIV/AIDS.

Malnutrition is particularly detrimental in the context of HIV and AIDS as it can exacerbate the progression and effects of the disease, makes antiretroviral treatments less effective, and lessens the ability of households affected by HIV and AIDS to care for their members. According to HIV/AIDS/STI surveillance report found that 10.9% of women and 9.5% of men aged 36-45 years are infected with HIV among blood donors (NACP, 2013). To date, more than 1.4 million people have been affected with HIV in Tanzania since 1983 when the first case of HIV/AIDS was diagnosed and more than 48% are on ART while 57 die in every 1000 PLWHA annually (PEPFAR, 2006;NACP, 2013 & THIS, 2011/2012).

Tanzania like other member countries of World Health Organization has put efforts to ensure that there is improved nutrition status of PLWHA. NNS (2011) indicates that all national directive strategies such as Tanzania vision development plan 2025, National health policy 2007, MKUKUTA II, Health Sector Strategy Plan II and HIV/AIDS policy 1998 all include improved nutrition care and support for people living with HIV/AIDS component. Ministry of health has operationalized and focused nutrition care and support services as strategy; in 2003 through Tanzania Food and Nutrition Centre (TFNC) developed nutrition care and support for PLWHA guideline to assist all stakeholders who work with PLWHA programs (TFNC, 2003). Also, in 2004, the National AIDS Control program (NACP) integrated Nutrition care and support guideline to National guideline for management of HIV and AIDS first edition to be one of the

HIV/AIDS routine services (NACP, 2004) Furthermore, in 2011 Tanzania Food and Nutrition Centre introduced Nutrition Assessment and counseling and support (NACS) as facility Based Service in which PLWHA was one targeted population (TFNC, 2011). However, these strategies as efforts to assist the nutrition of PLWHA still there were less or none practical evidences on nutrition care and support services for PLWHA were documented (NNS, 2011). NACP (2013) show 23 international and national HIV/AIDS indicators to be monitored annually through HIV/AIDS/STI surveillance. However, none of them report nutrition status of the PLWHA.

1.2 Description of the programmed evaluated

1.2.1 Introduction

The National HIV Care and Treatment program has decades of implementation following its launch in October 2004. NACP coordinates the scale up of quality HIV care and treatment services at all health facility levels through development and use of key program tools such as; National Guidelines for management of HIV and AIDS, Training Curricular for different health cadres, Monitoring systems (patients, medicines/ other supplies and equipment), Supportive supervision and clinical mentoring guide. (URT, 2012). Ministry of Health and Social Welfare through NACP has tasked Tanzania Food and nutrition Centre to oversee and strengthen issues focused to food and nutrition in relation to people living with HIV/AIDS (HSHSP, 2013-2017).

The Ministry of Health through NACP and TFNC had developed several nutrition management guidelines for people living HIV/AIDS. The developed guidelines focus on assisting staff working in CTC such as nurses and clinicians to manage the PLWHA accordingly. Care and treatment services integrated the nutrition care and support services for PLWHA. They use guidelines that focus to nutrition care and support services to PLWHA. Guidelines used consider nutrition services for PLWHA as routine services. They ensure that the services provided at CTC are not comprehensive until nutrition care and support services are included.

Nutrition care and support services include; nutrition assessment, nutrition counseling and education, provision of food and supplement, make appropriate referral, and provision of food psychosocial support services for people living with HIV/AIDS. The guidelines provide areas for concentration which include nutrition assessment, nutrition counseling, nutrition education and nutrition support (URT, 2009). The guidelines specifically recommend anthropometric assessment, nutrition education, and nutrition counseling as routine activities for every PLWHA attending the services at CTC.

Further, it guides those found severely malnourished to be referred for nutritional food/supplement. Tools for assessment such as weighing machines, tape measures for Mid Upper Arm Circumferences (MUAC), and height and length boards for height and lengths measurements are provided. Nutrition assessment protocols, job aids are produced showing cut-of points such as 18.5-24.5Kg/M². Body Mass Index (BMI) considered normal and outliers considered as abnormal for adult and non-pregnant women. While WHz $\geq$ -2 cut off point for children from six months up to 14 years and for pregnant/ post-partum women cut off point by MUAC to be > 23.0 cm were provided.

Special trainings on nutrition management as a back-up for health workers were conducted by Tanzania Food and nutrition Centre in collaboration with NACP. Materials and job aids such as pamphlets, posters, leaflets, nutrition counseling kit, and brochures were produced to ensure the effectiveness and efficiencies are with hands of staff working at CTC. Tanzania Food and Nutrition Centre institution with mandate in food and nutrition has roles of ensuring the supportive supervision on nutrition. Likewise, fortified food prepared specifically for those found severely malnourished is to be supplemented to attain the immediate effect (TFNC, 2003).

1.2.2 Expected program effects

- i. To Provide information and education on nutrition to PLHIV at CTC through staff providing CTC services

- ii. To provide nutrition supplements (RUTF) to PLHIV who are appropriate for the services
- iii. To promote operational research on nutrition to PLHIV at CTC and beyond
- iv. To Develop national nutritional guidelines to PLHIV to be followed by facility service providers
- v. Coordinate other organizations implementing nutritional interventions to PLHIV at CTC

1.2.3 Major strategies

- i. Improving nutrition status of the PLWHA through nutrition assessment, care and support services.
- ii. Increasing nutrition knowledge among PLWHA through behavioral change communication.
- iii. Supporting PLWHA with specialized food.

1.2.4 Program activities and resources

- i) Conducting nutrition assessment
- ii) Conducting nutrition education
- iii) Conducting nutrition counseling
- iv) Provision of nutrition supplement
- v) Conduct awareness sessions on nutrition care and support
- vi) Design and develop IEC materials
- vii) Conducting supportive supervision
- viii) Develop protocol and guidelines
- ix) Program staff
- x) Funds

1.2.5 Logical model of Nutrition care and support for PLWHA

Logical model is a visual and systematic way to present the relationship between the intervention and effect including needed resources to make the program operational, planned activities, and changes or effects that the program intends to achieve. According to Patton (2008) logical model of the project as the complete sequence of objectives that links inputs to activities, activities to outputs, outputs to outcomes and outcomes to ultimate goals constitutes to a project logical model. Refer figure 2. The explanations of each component of the logical model of nutrition care and support services are demonstrated herein.

1.2.5.1 Inputs

The inputs required include finance, trained human resource, therapeutic food/supplement, nutrition assessment equipment, IEC materials, guidelines, protocols and registers. These inputs are fundamental resources for ensuring that activities of the programs are undertaken.

1.2.5.2 Activities/process

The activities/process undertaken include staff training, awareness creation, provision of therapeutic food, conducting the nutrition counseling, conducting nutrition education and provision of nutrition assessment to people living with HIV and AIDS. The conducting of these activities is the further step toward to immediate output of the program.

1.2.5.3 Outputs

The expected outputs following undertaking activities include number of staff trained, number of awareness creation meetings conducted, number of patients assessed, number of patients referred for therapeutics food, number of patients counselled on nutrition, number of nutrition education sessions conducted, number of IEC materials distributed

to patients. The outputs are advanced stage of performed activities that would lead to outcomes.

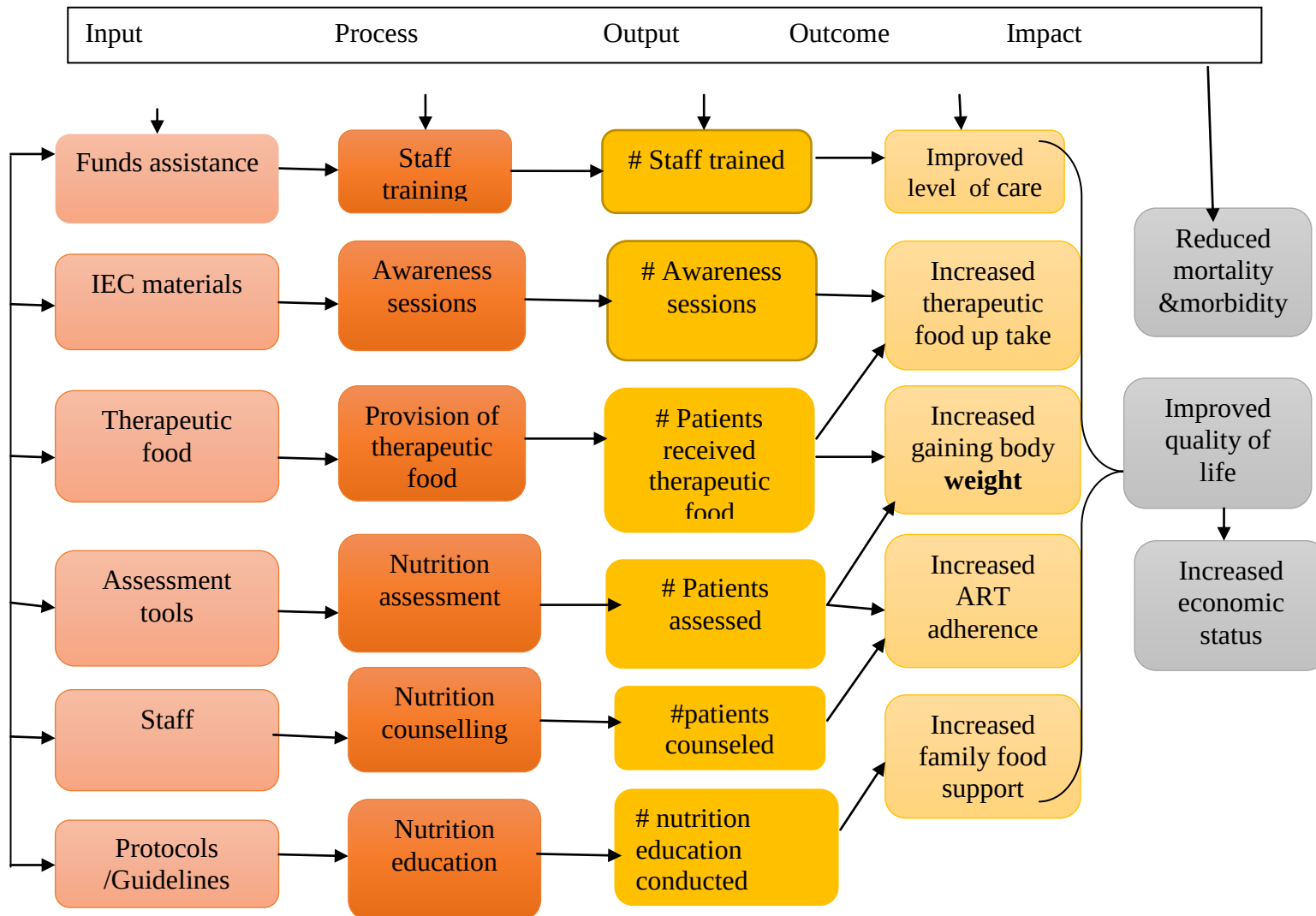
1.2.5.4 Outcomes

The outcomes expected include improved nutrition care and support services, increased of patients with increased body weights, increased patients adhering to ARV, increased patients who are taking the therapeutics food and increased the patients who are receiving community support. Moreover, the outcomes are further step towards to the impact.

1.2.5.5 Impact

The overall impact of nutrition care and support services for people living with HIV/AIDS is reduced morbidity and mortality, but also improved quality of life to people living with HIV/AIDS.

Figure 1.2 : Kagera Regional referral hospital CTC Nutrition care and support services program logic model.



Source: Evaluator and stakeholders, 2015

1.2.6 Stakeholders

Kusters, *et al.*, (2011) stated that stakeholders can be organizations, groups or individuals that are affected directly or indirectly by the implementation and outcome of development initiatives. Kayunze (2011), explains the stakeholders as people or organizations which either (a) stand to be affected by the project or (b) could ‘make or break’ the project’s success. They may be winners or losers, included or excluded from decision-making, using the project results, or participating in the project process.

Further, he describes the stakeholder analysis as an identification of a project’s key stakeholders, an assessment of their interests, and the ways in which these interests affect program evaluation ‘riskiness’ and viability. He groups them into primary and secondary stakeholders according to their importance and influences in the project evaluation as decision makers, donors, implementer or beneficiaries. Foundation for Advances Studies on International Development (FASiD) describes the stakeholder analysis as a method of obtaining the necessary information through people and organization on the program concern to gain their interest and roles in program cycle management and program evaluation (FASiD,2008).

However, Rossi et al., (2004) classifies stakeholders, and the definition was referred to for this study as an individuals, groups or organizations having a significant interest in how well program functions, for instance, those with decision making roles over the program, funders and sponsors, administrators and personnel, and clients or intended beneficiaries as demonstrated in table. The purpose of stakeholder analysis is to develop a strategic understanding of the human and institutional landscape, and the relationships between the different stakeholders and the issues they care about most with the program. It is very important to think about which stakeholders should be included or excluded in the evaluation simply because stakeholders stay in the environment contextual so know much about the program. For this evaluation in respect of nutrition care and support for people living with HIV/AIDS program, there are many stakeholders who influence

services at CTC directly, or indirectly, and whose influence can be high, medium or as detailed in Table1.

1.2.6.1 RHMT, HMT and CTC provider

This group of stakeholders is classified as high in the level of importance in the evaluation considering their roles in the program to be evaluated and their interest of evaluation results utilization. They have big different roles in the program to be evaluated, for instance RHMT and HMT are tasked on supervision role ensuring the program is implemented according to the guideline. But also ensures program resources are allocated accordingly. CTC staff as the implementer of the program has the role of day to day activity ensures the program activities are being implemented following all guidelines and protocols developed. But also ensures allocated resources are committed according to the set plan. Therefore, they need a full participation and involvements in the evaluation process ensuring the obtained results fit into their interest.

1.2.6.2 PMTC, HBC, VCT, ICAP, TFNC and Community

These are another groups of stakeholders identified as medium level of the importance according to their roles in the program being evaluated. This group has indirect roles of the implementation of the program activities, for instance VCT have role of attending the clients of their own objectives and only become involved in the CTC when they diagnose the HIV positive or meet a client who is malnourished. Therefore, they need to be involved since they need to utilize the evaluation results to improve their work

1.2.6.3 STI/HIV and TB/HIV Providers

These are third group of the stakeholders identified as low in the level of importance in the evaluation. This is due to their program implementation role they have and the expectation of the evaluation results utilization. Therefore, the utilization of the evaluation results is assumed to be low according to the role they have in nutrition care and support. Moreover, their involvement cannot be neglected in the evaluation.

Table 1.1: Stakeholder Aanalysis

<i>S/n</i>	<i>Stakeholder</i>	<i>Role in the programme</i>	<i>Interest or perspective on evaluation</i>	<i>Role in evaluation</i>	<i>Means of communication</i>	<i>Level of importance</i>
1	RHMT	Supervision	effectiveness	Development of key questions and results use	Face to face /interview	High
2	HMT	Supervision	effectiveness	Development of key questions and results use	Face to face	High
3	CTC provider	implementation	Effectiveness	Development of key questions and results use	Face to face	High
4.	PMTc provider	Implementation	effectiveness	Interviewed/ result use	Face face/ interview to	Medium
5	HBC provider	Implementation	effectiveness	Interviewed/ result use	Face face/ interview to	Medium
6	VCT provider	Implementation	effectiveness	Interviewed/ result use	Face face/ interview to	Medium
7	STI provider	implementation	effectiveness	Interviewed	Face face/ interview to	Low
8	TB provider	implementation	effectiveness	Interviewed/ result use	Face face/ interview to	Low
9	ICAP provider	Supervision/donor	effectiveness	Results use	Face to face /phone	Medium
10	TFNC	Supervision/guideline developers	effectiveness	Result use	Email/phone	Medium
11	Community	Beneficiaries	Better services	Providing information	Face to face	Medium.

Source: Evaluation stakeholders analysis, 2015

1.3 Statement of the problem

Nutrition assessment, counseling and support services for people living with HIV/AIDS are the least implemented services among services provided at Care and Treatment Clinic at Kagera region referral hospital. According to annual Kagera region referral hospital reports show either none or less reporting on nutrition care and support services for PLWHA at CTC. In 2009 and 2010 total of 9,708 and 9,585 PLWHA were served at CTC respectively, however, no information was provided on nutrition care and support services to PLWHA. Furthermore, in 2011 and 2012 total of 9,628 and 9,885 were served at CTC respectively and only 403 were reported on receiving nutrition care and support services.

On the other hand, according to Bukuhuba (2010) nutrition monitoring among PLWHA is a mandatory exercise at any institution providing care and support services because HIV/AIDS and poor nutrition have negatives in lives of PLWHA.

It correlates with Stougaard (2009), nutrition assessment study in rural Tanzania among PLWHA in Kagera region that found more than 75% of PLWHA were underweight ranging from moderate to severe malnutrition. This rate suggests that the majorities of PLWHA in Kagera region and referral hospital CTC are malnourished and are left unattended.

Furthermore, WHO (2003) reports that the causes of deaths of PLWHA are varied but poor nutrition is suggested to be the leading cause. In 2009 and 2012 the CTC reported accumulative 323 and 407 deaths of PLWHA respectively. These numbers of deaths suggest that poor nutrition status among other causes, might be a contributing cause followed by inadequate nutrition care and support services among PLWHA.

TFNC,(2011) and NACP,(2012) provided a guidelines to facility based service providers that nutrition care and support services to PLWHA should be a routine service, it should include nutrition education, nutrition counseling, nutrition assessment and nutrition

support. Similarly, it gives clarifications that malnourished PLWHA should be categorized as not malnourished, moderate malnourished or severe malnourished and those with severely malnutrition should be given nutrition supplement as therapeutic food or supplemental food. However, still there was no suggestive evidences either documented or published at Kagera region referral hospital CTC that showed a good compliance with given nutrition care and support guidelines for PLWHA.

Therefore, there was urgent need to conduct process evaluation on nutrition care and support services of the PLWHA at CTC to ascertain the level of implementation of nutrition care and support services at CTC .

1.3.1 Evaluation questions for process evaluation

The evaluation was conducted through use of following evaluation questions

1. What percentage of PLWHA is covered with nutrition care and support services at CTC?
2. Does CTC have staff, equipment and material, and systems required to execute nutrition care and support services to PLWHA?
3. What are the perception of PLWHA about the process of nutrition care and support services at CTC?
4. Do the nutrition care and support services at CTC follow guideline/policy that provided by Ministry of Health and Social Welfare,(TFNC/NACP).

1.3.2 Objectives of the process evaluation

1. To evaluate the extent the services are reaching the target group.
2. To examine the organization staff, equipment and materials, and systems undertaking the nutrition care and support services
3. To find out the perception of PLWHA towards nutrition care and support services.

4. To explore the conformity of the services performance to the National guidelines from the MOHSW/TFNC.

1.3.3 Significance and scope of the evaluation

The evaluation study looked at the process of implementation of nutrition care and support services to PLWHA at CTC in Kagera region to ascertain level of implementation. The evaluation looked the nutrition assessment by anthropometric measurement method while leaving biochemical, clinical and dietary nutrition assessment methods as out of the scope of the evaluation. It included nutrition counseling, nutrition education and support at CTC while leaving out the psychosocial type of food assessment.

The evaluation was conducted due to the fact that information in implementation process of nutrition care and support services was limited regardless of existence of efforts put to the nutrition care and support services by the government and other stakeholders to PLWHA. The efforts included development of nutrition care and support services guidelines, protocols, job aids, integrating nutrition care services at CTC, training health staff on nutrition care and support but still were no suggestive evidence of implementation process and implementation level of the services. So obtaining information of implementation process of nutrition care and support is to fill up the information gap on nutrition care and support services. And, also as results of this evaluation; the national, the Regional Management Team (RHMT), the Hospital Health Management Team (HMT), and other nutritional stakeholders will be able to plan, design and set appropriate interventions specifically for improving implementation process of nutrition care and support services to the PLWHA at CTC. Likewise, the information obtained from the evaluation will add up to the academic knowledge in the areas of nutrition care and support services to PLWHA.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter describes the literatures reviewed in alignment with the evaluations on process undertaken that focused on nutrition care and support services to PLWHA. Moreover, three parts are under this chapter thus; theoretical, empirical and conceptual of the evaluation.

2.1.1 Theoretical part

2.1.2 Interaction of nutrition and HIV

The nutrition status of PLWHA needs to be assessed at every visit at CTC due to existing association between HIV/AIDS and poor nutrition. Medical staff nowadays see the importance of conducting nutrition assessment at health units compared to previous of non HIV infection era. As Gillespie and Kadiyala (2005) point out that the nutrition assessment for PLWHA have become more important following negative effects existing between HIV and Nutrition status to body immunity. They report increased progression of HIV to AIDS of malnourished PLWHA when compared to well-nourished ones. According to USAID (2007) the synergistic effects of undernourishment and HIV can be described as a vicious cycle. The undernourishment in HIV is caused by an inadequate dietary intake, loss of nutrients, metabolic changes, and increased body requirements. This leads to most common physical signs of HIV/AIDS which is weight loss. Loss of appetite and the inability to eat are known biological factors associated with the HIV infection and leading to an inadequate dietary intake. As Bhaskaram (2002) states, infections worsen micronutrient deficiencies by means of reduced nutrient intake and increased losses, which interfere with utilization by altering metabolic pathways.

Semba and Tang (1999) argue that HIV infection combined with pre-existing undernourishment represents a tremendous burden on people's ability to remain healthy

and economically productive. In resource limited settings HIV/AIDS often induce a decline in the accessibility of food due to a decrease or complete loss of the household's socio-economic foundation leading to food insecurity.

Likewise, there is a great metabolic change among PLWHA. The body's ability to digest and absorb nutrients is reduced under the influence of HIV due to opportunistic infections, such as diarrhea and vomiting, inducing loss of vital nutrients. In addition, WHO&FAO (2002) states that metabolic changes promoting protein catabolism and changes in fatty acids metabolism occur due to the immune system's response to the HIV infection. Beside, this interaction between ART and food, and nutrition can influence both the efficacy and the nutritional status of the receiver of ART.

2.1.3 Interactions of nutrition and ART

It is very important to assess nutrition of PLWHA due to the big interaction and antagonism between ARVs and food that exist. ARVs alter absorption and utilization of nutrients in the body as side effect of the medicines. Some of them are taken with food, others not, and others have specific food restrictions. Some of them create side effects that reduce food intake and absorption (TFNC 2004). The ARV taken without following nutrition information and medical advice brings big side effects. The side effects include anorexia and taste changes due to medicines. The ARV unwanted side effects can be easily managed through dietary management. Besides additionally, as TFNC (2003) states, most of PLWHAs abscond from taking ARV due to the unwanted side effects.

2.1.4 Nutrition assessment methods for PLWHAs

There are various methods used for nutrition assessment and these include anthropometric measurements, biochemical methods, dietary assessment and clinical assessment methods. These are direct nutrition assessment methods since they look at individuals. According to (WHO 1995; Fawiz et al, 2005) classification methods of

anthropometric measurements consider relationship between weight, height, arms and head circumferences, while biochemical methods consider laboratory investigation of human body tissues and fluids such as blood, urine, serum, and hair.

Dietary assessment refers to quality and quantity of the food taken by the individuals and clinical assessment considers history taking and physical examination of the individuals. Although existences of methods of assessment have inherent strengths and limitations weighing up the pros and cons when making a choice is imperative. Factors such as assessment objectives, the characteristics of the individuals, the response burden, time frame and the available resources all have to be taken into consideration (Gibson,2005). In developing countries including Tanzania, anthropometric method is recommended for nutrition assessment of PLWHA (Fawiz et al, 2004; TFNC, 2003). Stadiometer, weighing machines and tape measures are appropriate tools recommended in resource limited country like Tanzania.

Body Mass Index, which is obtained by relationship between weight and height, is commonly used (refer to Figure 2). The cut-off point $18.5-24.5\text{Kg/M}^2$ for adults is considered normal and outliers are abnormal. Also, Mid Upper Arm Circumference (MUAC) using color-coded paper strip is used for children as well as adults (refer to Figure 3). Monitoring of nutrition status of PLWHA requires assessment of every patient attending for services at CTC and classified accordingly. No visual method is recommended in assessing the nutritional status of PLWHA (NACP, 2009).

Figure 2.1: Nutritional assessment by relationship between weights against height (BMI)

200	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	29	30	30	
198	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	26	26	27	27	28	28	29	29	30	30	31	
196	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	26	26	27	27	28	28	29	29	30	30	31	
194	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	26	26	27	27	28	28	29	29	30	30	31	31	
192	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	29	30	30	31	31
190	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	30	31	31	32	
188	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	31	31	32		
186	10	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	30	31	31	32		
184	11	11	12	12	13	13	14	14	15	15	16	16	17	17	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	30	31		
182	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	30	31	31	32		
180	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	30	31	31	32			
178	11	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	30	31	31	32				
176	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	30	31	31	32				
174	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	30	31	31	32					
172	12	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	30	30	31	31	32					
170	12	13	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	30	30	31	31	32						
168	13	13	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	30	30	31	31	32						
166	13	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	30	30	31	31	32							
164	13	14	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	30	31	31	32									
162	14	14	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	30	31	31	32									
160	14	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	30	30	31	31	32									
158	14	15	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	30	30	31	31	32										
156	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	30	30	31	31	32										
154	15	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	30	30	30	31	31	32											
152	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	29	30	30	31	31	32											
x Uzito (kg)	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110	112	114	116	118	120	

Adopted from NACP, 2012

Figure 2.2: Facility and Community rapid nutrition assessment tool-MUAC color coded

Age category	Severe malnutrition	Moderate malnutrition	Normal
0-5 years	< 11.5cm	11.5cm – 12.5cm	> 12.5cm
5-10 years	< 13.5cm	13.5cm -- 14.5cm	> 14.5cm
10-17 years	< 16.0cm	16.0cm -----18.5cm	>18.5 cm
Adults	< 18.5cm	18.5cm -----22.0cm	> 22.0cm

Adopted from NACP, 2012

2.1.5 Iron, zinc nutrients and immune system

PLWHA need to be assessed nutritionally and advised what kind of food they should eat in order to obtain micronutrients. It is now evident that some micronutrients are vital to the health of PLWHA. According to Calder and Jackson (2000) an efficient immune response requires adequate amounts of nutrients. In a situation where this is not the case, a down-regulation of the immune response will take stronghold which will augment the virulence of pathogens and thus morbidity and mortality. As it has been quoted from Rink and Gabriel (2000), the human body contains 2-4g of zinc, but in the plasma, zinc only occurs in concentrations of 12-16 mol/l. Zinc is required by the human being and is an essential tracer element for both the innate and the adaptive immune systems and its effects are multifaceted. The activity of natural killer (NK) cells is important for a strong immunity against infection. A decreased zinc level will therefore have a negative effect on immunity.

According to NACP (2012), the normal iron content per normal individuals healthy adult male have an iron content of approximately 35-45mg/kg bodyweight and premenopausal women has less due to menstruation. Iron is essential for many functions in living cells. A change to either deficiency or overload will therefore have unfavorable functional consequences on the immune system. Iron is required by infectious pathogens for replication and survival. Thus, restricted access of iron to infected microorganisms is essential. Yet, suitable concentration of iron is necessary to sustain an optimum immune response. Excess amount of iron should be avoided as it may induce free radical-mediated damage (Oppenheimer, 2001).

2.1.6 Macronutrients (Energy, Protein and Fats) requirement and PLWHA

The energy imbalance occurring in HIV/AIDS patients has often been linked to increased resting energy expenditure (REE). According to WHO (2003), this relationship has been confirmed in several studies of REE in HIV-infected adult patients compared with healthy controls. Generally, an increase of REE at around 9-10 % even in the

absence of acute secondary infection has been shown to PLWHA. Nevertheless, energy balance is not determined solely by Rest Metabolic Rate (RMR), but also by Total Energy Expenditure (TEE), where the weight loss occurring in HIV cannot be ascribed only to the increased RMR. Even though REE is increased the same is not the case for TEE mainly due to decreased physical activities, which result in a decreased quality of life. Likewise, it has been noted that inadequate dietary intake was the main reason for weight loss in HIV/AIDS patients and not increased energy expenditure (TFNC, 2003). Considering the increased REE, the recommended energy requirements for asymptomatic HIV-infected adults to maintain body weight and physical activity are to be increased by 10 % and during symptomatic HIV/AIDS by approximately 20-30 %.

Protein is another nutrient to consider in PLWHA management. According to Kurpad (2006), infections results in hyper-metabolism and a negative nitrogen balance, increased gluconeogenesis, and an increased fat oxidation, this is modulated by hormones, cytokines, and is compounded by reduced food intake. The extent of the negative nitrogen balance depends on the type of infection and its duration. The HIV-infection induces wasting and undernourishment through many mechanisms, making the effect of protein energy malnutrition (PEM) on HIV progression difficult to determine.

Researchers (Sutter Mann, 1995; Wheeler, 1998) have shown that many research conducted in developed countries indicated that loss of body weight together with opportunistic infections has been found to increase the risk of the HIV-infection progressing into AIDS and death. The decreased rate of weight, specific micronutrient deficiencies and opportunistic infections known in developing countries are likely to have a negative impact on wasting. Research conducted in Sub-Saharan Africa have observed the effect of wasting and Protein Energy Malnutrition on HIV-related outcomes and found that Protein Energy Malnutrition and wasting have an impact on mortality both in children and adults (Keith & West, 2006). Regardless of the increased metabolism due to infection, the protein recommendation for people living with

HIV/AIDS is the same as for healthy individuals, corresponding to 12-15% or 0.83 g/Kg body weight (WHO/FAO/UNU, 2007).

Fat is another very important nutrient in the body. With fat body gets heat but also acts as insulators in the body. In the era of HIV the evidence shows that there is increased need of fat supplementation in the patient suffering from HIV compared to uninfected ones. WHO (2003) enumerates that fat recommended to normal men and women is 15% and 20%, respectively. The same amount is applied to PLWHA at latent phase but amount increases at active phase and advanced stage.

2.1.7 Implementation and evaluation theories in process evaluation.

Up to recently, there is no unified connotation of process evaluation. Many evaluations apply the term varying from simple stratification question to complex mixed methods of evaluation (Moore et al., 2013). According to Craig et al., (2008a the emphasis of MRC) argues that process evaluation can be used to assess fidelity and quality of implementation, clarify casual mechanism and identify contextual factors associated with variation in results. Moore et al.,(2013) points out that some influential frameworks that examine these core themes explicitly mentioned by Craig et al, by using the term process evaluation; others provide theoretical or methodological guidance in evaluating one or more of these themes but do not refer to themselves as process evaluation.

2.1.8 Theory based evaluation approach in process evaluation

In process evaluation two commonly used theory driven approaches are Theory based evaluation (Weiss, 1997) and realistic evaluation (Pawson Tilley, 1997). Theory Based Evaluation (TBE) aims to examine how hypothesised causal chain plays out in practices. It allows information to be gathered about the stages at which the causal chain might break down (Weiss, 1997). Theory based evaluation may focus on intervention theory (mechanisms through which intervention produced change) the implementation theory (how successful implementation is achieved or combination of the two). Incorporating

the mediation into an intervention's theory of change mean extending causal assumption from if intervention X is implemented Y will occur to X is implemented, this will lead to change in the mediating variable, which will turn lead to change in outcome Y (Baron & Kenney, 1986).

Realistic evaluation places change mechanism at heart of the evaluation. However, it emphasises the contextually contingent nature of those mechanisms, it views intervention as working by introducing mechanism that are sufficiently suited to their context to produce change. Hence, evaluation aims to uncover context- mechanism outcome configurations. In order to understand what works for whom, under what circumstances. However, realistic evaluation approach is least used in evaluation due to its limitation to position in opposition to experimental methods (Moore, 2013).

2.1.9 Intervention, theory and logic modeling in process evaluation

Developing clear definition of the intervention is central to planning a good quality process evaluation. As Michael et al., (2009) states that, it is usual for evaluation to be understood by limited or unclear description of the intervention underlying. Contemporary review reports that many reports on social and behavioral evaluation intervention do not give links to intervention proposals/manuals (Grant et al., 2013b). Therefore the reader is left with data on where or not intervention works, but little into what intervention is. Montgomery et al., (2013b), argue that there is a need to fully describe interventions from evaluation articles prior to synthesis so that make it comparable and guiding the reader or reviewer to have the links of the data and intervention performance.

2.1.10 Programme theory and process evaluation

Programme theory clarifies assumptions about how the intervention works. In planning a process evaluation, it makes sense to start by carefully considering what these theories are. This makes intervention assumptions clear by constructing a logic model a

diagrammatic representation of the relationships between an intervention's resource activities and intended outcomes (Kellogg foundation 2004) Logic models may depict the intended core components of the intervention, how they interact to produce change, anticipate short, medium and long term outcomes, and resources and structures in place to ensure implementation. Logic model may expose weak links or potentials conflicts and contraindications in the hypotheses causal chain or understanding of the intended intervention.

2.1.11 Theories and implementation in process evaluation

A good theory leads to good implementation. Early process evaluation frameworks were capturing what delivering in practices. Linnan and Steckler (2002) argues that the capturing implementation (conceived as a combination of fidelity, dose and reach) is central to avoiding dismal of sound intervention theories due to a failure to implement them effectively. While (Windsor, Clark, Boyd, & Goodman, 2004 in Branscum¹ and Kaye,2012) states that by failing to monitor fidelity and attendance, researchers and practitioners run the risk of making what is known as a Type III error, where weak or null outcomes and results can be attributed to poorly executed or incorrectly implemented interventions

2.1.12 Implementation frameworks in process evaluation

There several frameworks that focuses on implementation. Implementation and fidelity need to be understood their variability in process evaluation. As Moore et al., (2013) enumerates literatures defining fidelity. Moncher and Prinz (1991) define fidelity as extent to which the independent variable was manipulated as planned in programme. While Lichstein et al, (1994) define the fidelity by looking participant engagement with the intervention, and the behavioral intervention into everyday life. Steckler and Linnan (2002) in their process valuation framework also define fidelity as a quality of the delivery, emphasizing the need to capture the qualitative nature (sprit) of what was delivered not just the technical aspects of delivery. Further, Bellg and colleagues (2004)

include consideration of intervention design, training delivery, receipt and enactment. Moore et al. (2013) points out number of literatures whose frameworks focus on implementation and fidelity; Donabedian's structure-process outcomes model, The RE-AIM framework, Carrol and colleague's conceptual framework for fidelity, the Exford implementation index and MRC implementation framework.

2.1.12.1 Donabedian's structure- process outcomes model

The frameworks have been widely used in assessing the quality of the health care. Efforts to assess health care quality often focus on instrumental outcomes, for instance, reduce mortality rate at health care unit may be taken as the indication of the good quality of care. Still, Donabedian (1988) contends that results are flawed measure of quality of care because are function of the power of the particular course of action to produce result, and the extent to which that action was applied properly. Though health care professional act with a degree of agency whether a course of action can be applied properly will also depend on the extent to which structural aspects of the setting facilitate effective care. Hence attention is focused on how relationship between context and actions of patients and care providers are associated with outcomes. The model also recognizes that understanding implementation requires focus not only on what was delivery but also on the mechanisms through which it was delivery in context.

2.1.12.2 The RE-Aim framework

The RE-Aim framework (Glasgow et al, 2001; Glasgw et al., 1999) focuses on efficacy without considering how the findings might translate into real world impact. The RE-Aim framework presents public health impact as a function of an interventions reach (proportion of the target population that participated in the intervention) effectiveness (success rate), adaptation (proportion of the eligible setting that adopt the intervention) implementation (extent to which the intervention is implemented as intended) and maintenance (extent to which the intervention is maintained overtime). It focus attention

on capturing the extent to which dimensions including implementation are achieved in the short or longer term through, less on the process through which this occurs.

2.1.12.3 Carrol and colleagues' conceptual framework for fidelity

Carrol et al., (2007) propose a conceptual framework which defines fidelity or adherence) as a combination of context; frequency and duration of delivery and coverage. However, Carrol and colleagues framework goes further in that it invites evaluators to examine moderators of the implementation like how effectively resources as applied the consideration issues such as intervention complexity, comprehensiveness of the intervention's description, effectiveness of the strategies to facilitate implementation and how participant response to intervention moderates delivery.

2.1.12.4 The Oxford implementation index

Oxford implementation index provides systematic review with guidance in extracting data on implementation from primary studies (Montgomery et al., 2013b in Moore, 2013). The index provides the check list focused on the four domains; intervention design (whether core components are clearly specified). Delivery by practitioners (staff qualification, the quality and use of materials, dosage administered) Uptake by participants and context factors. The delivery aspect of this index emphasizes consideration of resources, structures and process needed to achieve successful implementation, rather than description of what is delivered.

2.1.12.5 United Kingdom Medical Research council guideline for process evaluation framework (MRC-framework)

This framework focuses on implementation, mechanism of the impact and contextual factor (Moore, et al., 2013). It tries to harmonize gaps noted in different frameworks and theories to inform the process evaluation. It looks process evaluation theoretically but also considering the practical issues as real world.

2.1.12.5.1 Implementation

Implementation is looked in two faces, how it delivery achieved while other hand looking what actually delivered. How is delivery achieved is looked by considering various implementation frameworks these are; The oxford implementation index Montgomery et al.,2013 and Carrol and colleagues,2007 fidelity framework focus on assessing wealth the structure and resource in place are adequate to achieve successful implementation. More in depth engagement with issues surrounding implementation process and how new intervention are integrated into their setting can be found in work on systems thinking (Hawe et al., 2009) It consider some issues of implementation theory; diffusion of innovation (Rogers, 2003). On what is actually delivered; the framework considers Steckler and Linnan, 2002 and Carrol et al.,2007 on components of reach (extent of target audience is covered) dose (the quantity of what is delivered) and fidelity (quality of what is delivered).

2.1.12.5.2 Mechanisms of impact

The framework put mechanisms of impact as one of the processes evaluation to consider as their contribution in the intervention has great impact to the intervention outcomes. It considers them as moderator or mediator to the noted process outcomes. It question on how does the delivered intervention work. It guides to use inductive and exploration questions in case of qualitative to provide insights into unanticipated causal processes and consequences. While in quantitative provides opportunity to examine the interaction through measuring satisfaction or acceptability of the audience towards intervention process (Moore,et al, 2013). Linnan and Steckler (2002) considered participants responses as dose received as to tap the interaction between the participants and intervention.

2.1.12.5.3 Contextual factors

The framework considers these factors as other components that should be included in the process evaluation. It considers their presence or absence in intervention can affect

the process indirect by shaping of what is implemented, and directly through shaping whether the delivered activities. Steckler and Linnan's (2002), context is considered primarily in terms of pre-existing conditions that may facilitate or impede implementation fidelity. Participants are seen as agents, whose pre-existing circumstances, attitudes and beliefs will shape how they interact with the intervention. Hence, the aim of evaluation is to identify context- mechanism- outcome configurations, and to explain variability in intervention outcomes

2.2 Empirical part of the evaluation

Literatures reviewed focusing on the empirical side of evaluation process on nutrition care and support services for PLHWA at care and treatment clinic are very limited. However, an assessment conducted in Mozambique by FANTA and family health international on nutrition service provided in outpatient care focusing on nutrition messages, the results showed that only nutrition education was focused, leaving other services like nutrition counselling (FANTA and FHI360, 2013).

On the other hand, study by Thararey et al., (2013) in Haiti assessing integration of nutrition in HIV program in health facilities found that nutrition assessment among PLWHA was fairly provided and unstandardized in all the facilities assessed. In that evaluation also revealed that human resources and infrastructure were not supporting the environment to carry quality nutrition services to PLWHA.

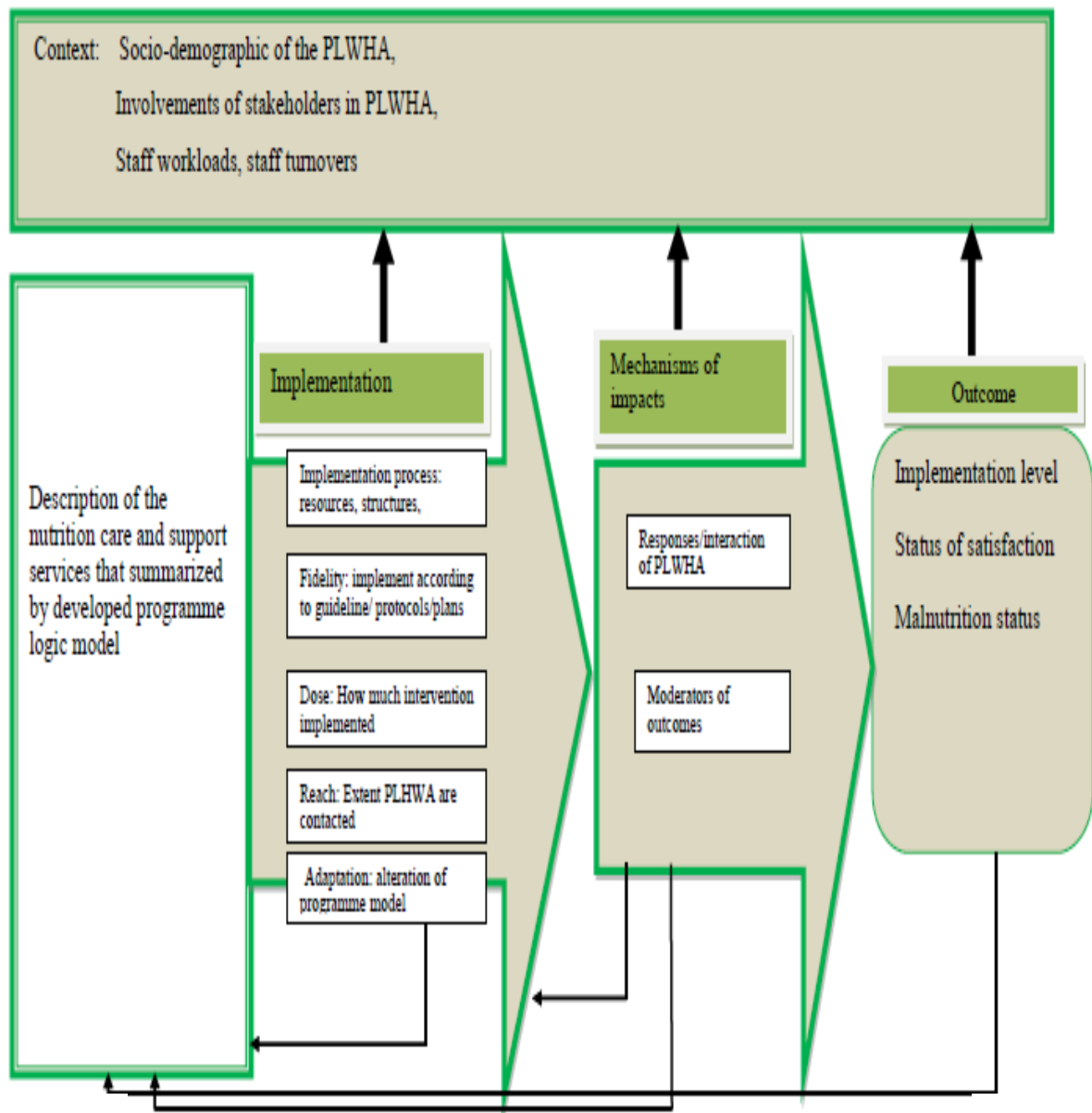
FANTA (2010), conducted evaluation on nutrition assessment counseling and support services among PLWHA in Ghana and evaluation revealed inadequate infrastructures as the limiting factor for better implementation of the program. Also the same evaluation found nutrition services were mainly implemented by the peer educators and other supportive staff.

Nakabaateb et al, (2013) on evaluation in Uganda found nutrition assessment was mainly implemented by considering primary methods of nutrition assessment such anthropometric measurements, biochemical, clinical nutrition assessment, dietary assessment. Moreover, noted anthropometric measurement was more focused compared to others. Further, reported that weight trend was mostly used to assess nutrition status, and weight and height with calculated BMI/MUAC were very rare practiced at CTC.

2.3 Conceptual framework for this process evaluation

The evaluation used MRC framework (Moore et al., 2013). The framework commends three components of process evaluation which include context, implementation (implementation process, reach, fidelity, dose and adaptation), and mechanisms of impacts. This conceptual framework chosen simply because works at broad term by looking not only issues of utilizations and organizations of the programme but also issues of contextual factors and mechanisms of the impacts. The conceptual framework chosen and its components are detailed in figure 5.

Figure 2.3: Evaluation conceptual framework of nutrition assessment counseling and support service of PLWHA at CTC BRRH



Source: Process evaluation conceptual frameworks adopted from MRC-framework, 2014 with some modification.

2.3.1 Summary of the assumption

The summary of assumptions the process evaluation framework of nutrition care and supports

It is assumed that implementation; mechanisms of impacts and context work in synergetic to produce results. They links and then gives the feedback mechanism to the components;

2.3.1.1 Implementation

Both in terms of *how* the intervention was delivered (e.g. the training and resources necessary to achieve full implementation), and the quantity and quality of *what* was delivered communicate to mechanisms of the impacts.

2.3.1.2 Mechanisms of impact

Linking intervention activities to outcomes and feed back to intervention logic model/ programme description.

2.3.1.3 Context

In which the intervention is delivered affects both what is implemented and how outcomes are achieved.

CHAPTER THREE: EVALUATION METHODS

3.1 Evaluation approach

The approach of the evaluation was formative. Formative evaluation may be conducted before the implementation of the program or during the implementation to assess whether the program is working (McKenzie, 2005). Weiss (1998) states that formative evaluation is meant to feedback the program developers or decision makers, for improving the program, and to provide a picture of the implementation of the program at early stage. Formative evaluation also provides the ways for the improvement of the program. According to Gorgen (2009) formative evaluation as ideal for assessment of strengths and weaknesses of program design, materials or campaigns strategies before full resources have been committed. Further, McNulty (2013) states the importance of the formative evaluation as overall approach for program design and for designing activities that brings adoption for positive desired behavior. Formative evaluation needs active participation of stakeholders. Therefore, primary stakeholders were involved from planning to implementation of the evaluation; this made evaluation study to be utilization focused. The purpose of the evaluation was to ascertain implementation level and identify gaps of programme implementation so as results are used by stakeholders for programme service improvement.

3.2 Evaluation design

The design used a cross-sectional. As Rothman and Greenlan,(1998) indicate that the use of cross-sectional design as the best of collecting the information of more descriptive in nature that need to be collected at one point in time. This was ideal design for this evaluation since it was descriptive in nature focusing on collection information from inputs, activities and outputs of the program. But also this information was needed to be collected once from the program. The design used mixed methods (qualitative and quantitative) as means of data collection. Creswell and Plano (2007) suggest that the evaluation study which intends to maintain validity and reliability of the information

collected, focusing on diverse information to feedback the stakeholder and to offset weakness by enhancing the strengths of the evaluation. This study took formative evaluation as an approach aimed to feedback the programme stakeholders on the programs implementation. But also the evaluation focused to process to look on inputs and activities that required diverse information and of descriptive in nature which mixed methods was ideal. Process evaluation uses different methodological approaches to assess service delivery, ranging from reviews of service records and regular reporting systems, key informant interviews, exit interviews of service users and direct or indirect observation of the client/provider interaction. But also, assesses program coverage and barriers to service use. Moreover, different qualitative and quantitative evaluation designs combined together in data collection complement to one another give comprehensive information (Johnson, Onwuegbzi & Turner, 2007). As for this evaluation various methodological approach were used to collect the process information of the programme.

3.3 Evaluation period

The evaluation period was between March and May 2015

3.4 Study area

The study was conducted at Bukoba regional referral hospital located in Bukoba municipality, one of the districts in Kagera region. The hospital mainly serves patients from Bukoba municipality, Bukoba rural and Misenyi districts, with very limited number of patients from other districts of the region due to geographical location and transportation factors. These three districts are located in extreme northwestern part of Tanzania with a total population of 621,125 out of 2,468,023 people of Kagera region. (TBS, 2012). These districts have 84 health units and 71 CTC. The main health problems of the region include malaria, HIV/ AIDS, acute respiratory infections, eye diseases and diarrhoea. Wahaya is the main tribe in the region

About 90 % of the population in the region are farmers with women contributing 70 percent who works in farmers. They are small farmers with plots on average 2.7 acres practicing mixed farming whereby banana plots are intercropped with coffee trees. There are two rain seasons the short heavy rains from mid-March to May and November to January with light rain (RMO, 2007&2009; Stougaard, 2009).

3.5 Study population

Study population is the group of people from which the sample is drawn. Apart from the persons study population may consist of villages, institutions, records and etc (Varkevisser, 1993). This evaluation included three types of study populations; health facilities that involved all hospital in Kagera region, persons that included all Care and Treatment Clinic staff and all PLWHA attending for CTC services, and all records of PLWHA at CTC.

For the purpose of making the evaluation more focused then evaluation target one hospital with CTC that was Bukoba region referral hospital. This was chosen simply because had many people living with HIV/AIDS but also is only region referral hospital which offers more specialized services. Then study targeted only staff who work at CTC and contacting with PLWHA. This was targeted ensuring right people are included in the evaluation. Also evaluation targeted PLWHA who had age 6 months and above and who had been registered not later than three months. And lastly evaluation targeted on records of PLWHA kept in CTC record room not less than three months so as to avoid bulk of records but including the records which cannot feed true information to the evaluation.

3.6 Units of analysis

The unit of analysis is the major entity that is being analysed in a study. It is the “what” or “who” that is being studied. For example; individuals, groups, artefacts (books, photos, newspapers), geographical units (town, census tract, states), social interactions

(dynamic relations, divorces, arrests) (Msabila& Nalaila, 2013). As Rossi et al.,(2004; Weiss,1988) argues that units of analysis is not necessary persons but include variety of targets from human being to non-human being. Further, explain that evaluation may involve a variety of units of analysis depending on which outcome measures are taken in. This evaluation had three units of analysis involved in data collection; such units include individuals (Health care providers and clients) and health facility providing care and treatment clinic and records. During sampling there were primary, secondary, tertiary, fourth as well as fifth sampling units which were care and treatment clinic at Bukoba region referral hospital, CTC managers, CTC staff, PLWHA and records of PLWHA.

3.7 Focus and dimension of the evaluation

3.7.1 Focus of evaluation

The focus of the evaluation was on process, it focused on inputs, activities and outputs. Rossi et al., (2004) states that process evaluation is important in assessing the overall activity and level of implementation of the program. As CDC evaluation guide directs, process evaluation is important to assess whether the program is implemented as intended (planned). Process evaluation examines whether the intended activities are taking place, whether adequate inputs have been allocated and who is covered by the program (CDC, 2005). As Weiss (1998) gives view on the importance of process evaluation as a way of preparing for having better final results of the program. Similarly to Rossi et al (2004) claims that outcome evaluation without knowing what was going on during the program implementation is meaningless. Patton (2008) goes further, explaining that process evaluate “implementation evaluation” a synonyms that unpacks, figure out, describes, elucidates, illuminates, takes parts, looks into, explicates, clarifies, explains and otherwise demystifies the evaluation. While (Finnegan et al.,1989; Mc Grant et al., 1994 in Moore al., 2013) argue that the key aims of the most early process evaluation was to monitor whether intervention were

implemented as planned so as to determine the extent to which outcomes evaluation representation a valid assessment of intervention theory. Therefore, process evaluation focused on the resources, process and outputs of the programme for the sake of service improvements.

3.7.2 Evaluation Dimensions

Dimension is a specific and defined aspect of a concept selected for measurement in which its concepts are identified by the process of conceptualization. Dimension/component helps to understand a vague concept better. Many authors list out literatures that prioritize dimensions of process evaluation; Baronowski and Stables (2000) pointed out 11 priorities areas for investigation; recruitment, maintenance, context, resource, implementation, reach, barriers, exposure then followed by Steckler and Linnan (2002) who identified six priority areas ; context, fidelity, dose delivery, dose received, reach and recruitment. Further, Panchansky and Thomas (1987) provided assess as dimension with sub dimension of availability, accessibility, accommodation, affordability and acceptability. While Donabedian (2003) gave compliance as technical components as dimensions of the evaluation. Currently, Moore, et al., (2013) under MRC recommend three components as key priorities; implementation (implementation process, fidelity, dose, reach and adaptation of the program) mechanism of impact and contextual factors. This process evaluation focused in three components and five subcomponents to assess nutrition assessment, counseling and support services as MRC approach.

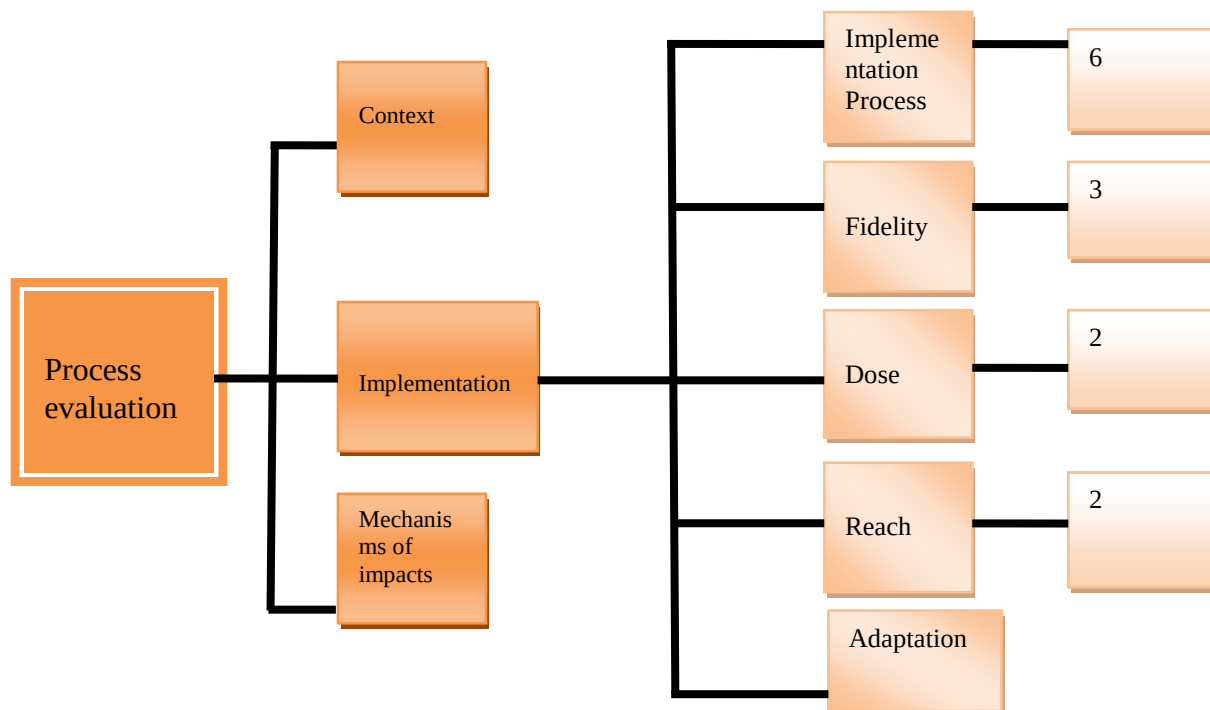
3.7.2.1 Implementation: The process through which interventions was delivered, and what was delivered in practices. This involved sub components that include; implementation process which assessed the structures, resources and mechanisms through which nutrition care and support services are actually achieved, fidelity assessed the consistency implementation of nutrition care and support services according to the provided implementation protocol, dose this assessed on how much nutrition care and

support services are delivered to PLWHA, reach this assessed on what extent PLWHA are contacted with nutrition care and support services and adaptation this assessed alteration of the programme model to fit to the context

3.7.2.2 Mechanisms of impacts: The intermediate mechanisms through which nutrition care and support services produce intended or unintended effects. This was looked on the responses of PLWHA with services by measuring their satisfaction to the services. Also looked mediators of the process of nutrition care and support services that shaped the outcomes.

3.7.2.3 Contextual factors: This involved assessing the external factors of the intervention which influenced its implementation. Such as stakeholders participation in the programme, staff workload, staff turnover and socio-characteristic of the participants to the revealed program outcomes. The dimensions are composed of indicators as demonstrated in spiders diagram refer Figure 6

Figure 3.1: Spider diagram of evaluation dimensions and indicators



Source: Process Evaluation study 2015

Table 3.1: Composite indicators with denominator

Dimension	Composite indicator	Denominator
Implementation process	Proportion of human resources available to deliver nutrition services	# human resources required
	Proportion of equipment available to deliver nutrition service	# equipment required
	Proportion of materials available to deliver nutrition services	# materials required
	Proportion of infrastructure available to deliver nutrition services	# infrastructure required
	Proportion of nutrition commodities present	# commodities required
	Proportion of correct nutrition stock management and record keeping observed	# stock management observed
Fidelity	Percentage of correct nutrition assessment procedure observed	# assessment procedure
	Percentage of correct nutrition counseling and education procedure observed	#counseling and education procedure
	Percentage of correct nutrition care plan observed	# nutrition care plan
Dose	Percentage of dosage of nutrition assessment	# reach assessment
	Percentage of dosage of nutrition counseling and education	# reach counseling and education
Reach	Percentage reached of PLWHA with Nutrition assessment services	# nutrition responses
	Percentage reached of PLWHA with nutrition counseling services	# responses counseling services
Adaptations	Status of alteration made to nutrition care and support services in order to achieve better contextual fit through qualitative questions.	Status of alteration
Context	Status contextual factors that enable or limit nutrition care and support services through qualitative questions	Status contextual factors
	Status of socio-economic PLWHA	
Mechanism of impact	Proportions of satisfaction with nutrition services.	# responses on satisfaction

Note: These are composite indicators thus are final reached after adding up the other indicators (refer evaluation information matrix. Annex 1)

3.7.3 Matrix of evaluation

There are many ways to conduct an evaluation; however one has to make a choice as to which method to follow. The evaluation matrix is a great tool for evaluating and prioritizing among choices. It describes the tool and tells you how to use it. Evaluation matrix allows quick sort through process evaluation (Steven,2006). The evaluation matrix which is developed for evaluating the nutrition care and support services for PLWHA at Bukoba region referral Hospital CTC tries to make a quick sort through the dimensions of the program to be evaluated, core indicators of the services provided and their way of measurement to make analysis and judgment. The evaluation matrix with measurement parameters are meant to evaluate the implementation of process against the set standards after thorough description of implementation performance as demonstrated in Appendix 1.

3.7.4 Determination of final programme implementation level

Determination of the final implementation level of the program needs accurate measurements of assessed implementation components. Various pioneers on process evaluation have suggested various ways to reach final implementation level. As Baranowski and Stables, (2000; Glasgow,Vogt and Boles,2009 in Stekler and Linnan,2002) have suggested the final implementation level as results product of assessed components (reach, fidelity and dose) and must then add weighting factors to determine a final implementation score. Moreover, Stekler and Linnan (2000) provide two alternative ways of reaching the final level of the implementation of the program. Firstly, gave average approach which involves the implementation dimensions/components evaluated are added up and find their average. Secondly, gave the multiplicative approach which involves multiplicative procedure thus percentage scores of the implementation components assessed are multiplied. This process evaluation adopts the average approach by involving the dose, fidelity, reach and implementation process components assessed.

3.7.4.1 Implementation: This was reached by finding averages of the assessed factors of human resources, materials, equipment, infrastructures, commodities and stock management and recordkeeping indicators.

3.7.4.2 Reach: This was reached through averaging the indicators that assessed contacts of participants with nutrition assessments, counselling and education, and nutrition care plan services.

3.7.4.3 Dose: It was reached by averaging all indicators that assessed completeness of nutrition assessment, nutrition counselling and education services to participants.

3.7.4.4 Fidelity: This reached by averaging the indicators that assessed the compliances on nutrition assessments, counselling and nutrition care plan services with participants.

3.7.4.5 Final implementation level: This reached by averaging the factors of implementation process, fidelity, dose and reach as demonstrated in Table 3.2.

Table 3.2: Calculation of final implementation level

<i>Sn</i>	<i>Dimension</i>	<i>Score</i>
1	Implementation process	A%
2	Reach	A%
3	Dose	A%
4	Fidelity	A%
Final implementation Level = $\frac{A\%+A\%+A\%+A\%}{4}$ = E%		

Score: Stekler and Linnan, 2002

Where:

A% is weight score of assessed dimension

E% is overall weight score of final implementation level

Note: Each indicator and dimension weight 100% score as maximum.

3.7.5 Judgments criteria

Judgment criteria of the achieved implementation can be reached by various ways these include literature review, consulting for those who have evaluated the same study and have set criteria of judgment or consulting institution that set measures (Stekler and Linnan; Weiss, 1998). Moreover, Rossi et al., and Patton have suggested meeting with programme stakeholders to reach to the consensus of the final judgment to better conclusion of the final implementation prior embark on evaluation (Rossi et al., 2004; Patton, 2008). Judgment criteria of the evaluation were developed and presented to hospital stakeholders for discussion and agreement. The agreed parameter of judgments as referred to in Table 3.3. During evaluation a score of 80% and above of the indicator, components or overall programme implementation was judged as high implementation of the programme, then any scores of 60% -79% of the programme services was judged as medium implementation level and 40% - 59% scores of the programme activities or components judged as fair implementation while any score below 40% judged as poor implementation level.

Table 3.3: Stakeholder Programme judgment criteria

<i>Percentage achieved</i>	<i>Program Implementation level</i>
80% and above	High implementation level
60% to 79%	medium Implementation level
40% to 60%	Fairly implementation level
< 40%	Poor implementation level

Source: Evaluator and stakeholders 2015

3.8 Sample size and sampling techniques

3.8.1 Sampling technique

Two kind of sampling techniques were applied. These techniques included probability and non-probability sampling. According to Mc Kenzie, (2005) probability sampling technique as the representatives of the sample in the evaluation achieved through

random selection, assures each unit in the evaluation population has an equal chance and known probability of being selected, this gave equal chances to all PLWHA attending to CTC to be selected. While non-probability sampling techniques, described as samples from which all individuals in program evaluation do not have an equal chance and known probability of being selected to participate in evaluation, this allowed only selection according to special duties in the nutrition care and support services.

3.8.1.1 Non- probability techniques

Non probability sampling techniques are techniques applied by picking particular people for particular reasons (Weiss, 1998). In this evaluation two technique were applied for selecting sample; purposive used to one region hospital CTC, PLWHA records and 2 CTC manager for interview while convenient used to select 2 CTC staff interview, this means for convenient included those staff who were present during the evaluation. It was ideal methods since the focus here was to obtain a particular information from specific areas that needed for nutrition care and support services at CTC rather than the whole information of distribution of malnutrition in PLWHA community.

3.8.1.2 Probability sampling techniques

Probability sampling technique applied simple random and stratified sampling techniques to select the exit interview participants. According to Tones & Tilford (1994) stratified sampling involves a grouping sample into individuals groups according to sex, age, race etc as it was used in grouping PLWHA into males and female in which their proportion were 40% and 60% respectively. Moreover, simple random sampling technique was used to select sample unit from one strata.

3.8.2 Sample size determination

Sample size determination

The sample size was calculated by using Stata software version 13.0 copyright 1985-2013 stata corp.

This sample size was estimated based on one sample comparison of proportion to hypothesized value.

$H_0 = 0$, and $H_1 \neq 0$ (null hypothesis and alternative hypothesis respectively)

Thus :

$H_0: P = 0.75$ where P is proportion of malnourished PLWHA among PLWHA population, that set 0.75 as it was found by Stougaard (2009) in study on nutrition assessment among PLWHA in rural Tanzania Kagera inclusive.

Assumption as

Alpha = 0.05 or 5% allowed error

Power = 0.95 or 95% confidence interval

Alternative = 0.60 assumed reduction (0.75-0.60)

Estimated required sample size was; 122 PLWHA and there was no drop out during evaluation.

3.9 Inclusion and exclusion criteria

The inclusion involves all criteria that evaluation sample unit should have to become representative while exclusion involves all criteria of the evaluation samples that disqualify their representativeness (Hageus., Morel., Causton., and Way.,2008) beside, this evaluation study, inclusion of the exit interview participants was from 6 months age and beyond , a registered PLWHA at CTC not later than three months and attending for medical consultancy at least three months consecutively. While the exclusion criteria included PLWHA aged below 6months, a newly registered PLWHA at

CTC below three months, with poor attendance for CTC consultation. For service provider selection considered CTC staff and managers who had worked for PLWHA at CTC not less than three months. On the other hand, records reviewed were those PLWHA registered for CTC services between 2013 and 2014.

3.10 Type and Source of Data

The evaluation based on mixed methods (quantitative and qualitative data), moreover, to a very large extent quantitative data are revealed. The evaluation drew its data from two main sources: primary and secondary sources. The primary sources were original sources of information that used questionnaires, interviews and observations for purpose of getting primary data. Secondary sources included published such as books, periodicals, and internet sources and unpublished reports from various institutions such as NACP, TFNC, Kagera region medical office, Bukoba region referral hospital and records that include CTC records for providing secondary data

3.11 Data Collection methods

Mixed methods (quantitative and qualitative) of data collection were used in evaluation study to achieve greater reliability and validity, and allowing the comparison of the information gathered (MOHSW, 2011). This evaluation used questionnaire to collect quantitative data from PLWHA and interview guide and observation checklists as qualitative method to collect data from CTC service providers and information of resources, structures and systems.

3.11.1 Questionnaire

The structured questionnaire was prepared based on nutrition care and support guidelines developed by TFNC. This tool consisted closed questions that dictated the participants to choose from predetermined questions. The questions focused on collecting information of indicators which answered evaluation dimensions such as reach, fidelity, and dose, mechanisms of impacts, context and adaptation. Initially the

tool was in English version and later translated to participants' language (Kiswahili) before actual field implementation for easy communication.

3.11.2 Interview guide

This tool was developed with open ended questions to collect information from two staff (nurse and clinician) and two CTC managers who still providing the services to clients at CTC. The tool consisted questions that allowed the interviewer to probe. These questions focused on evaluation dimensions and other details as it were noted from exit interviews and records which needed further explanations from service providers.

3.11.3 Observation check lists

This tool was adopted from TFNC which used to assess nutrition assessment, counseling and support at facility level. The checklist was modified to fit Bukoba region referral hospital CTC but also to fit the evaluation dimensions. Observation checklists consisted two parts; one for direct observation in form of structured checklists. This used to collect information of fidelity dimension and, second was non - direct observation checklists in form of unstructured checklists which used to collect information of structures, resources, mechanisms of process and records.

3.11.4 Data collection field work

3.11.4.1 Exit interview questionnaire

Two assistant evaluators and the principal evaluator administered 122 questionnaires to 122 PLHWA. The individual study units were achieved from two strata of female and male obtained from clients' attendance registers by simple random sampling technique. Sampled individual clients were approached in person to request for participation in the evaluation. Those who agreed to participate the evaluator waited them to finish their medical consultations from services providers to participate into evaluation. The same

process applied until 47 males and 75 female reached as whole sample size and an end of an exit interview.

3.11.4.2 Interview

The interviews were conducted after completion of exit interview questionnaire session. The principal evaluator with tape recorder collected information from 2 CTC managers and 2 CTC staff. The subject unit reached by purposive and convenient sampling techniques and the sample size reached through saturation point reached. This saturation point reached after interviewing two CTC managers and two staff making a total of four sample size. As Weiss (1998) state saturation point in qualitative study is the time when the evaluator gets no more new information from participants during interviewing of the same phenomena. Therefore, the decision of sample size reached by the principal evaluator after no more new information was obtained from both either CTC managers or CTC staff with the same questions asked.

3.11.4.3 Observation checklists

The checklists had two main parts of direct observation and non-direct observation. The direct observation administered by principal evaluator through direct observation to CTC service providers. This involved 10 observations in which service providers were observed while conducting nutrition assessment counseling and support services at CTC.

The second part involved the checklist to collect the information from the CTC record room and verifying the human resources, equipment, materials, commodities, infrastructures, and stock management and bookkeeping records. For CTC records, 122 records that included CTC2 cards, registers and forms of NACS were reviewed noting consistence and discrepancy in following the guidelines. This conducted by assistant evaluators and principal evaluators. Moreover, the review went further by taking note from electronic CTC database in reviewing the nutrition data stored in.

For information that involved resources, structures and mechanisms of the process were collected from variety of inventories at CTC. This considered inventories that had information of resources and structures that could directly or indirectly support nutrition services provided at the CTC. The verification considered the human resources, materials and equipment, commodities for nutrition supplements, infrastructures and stocks managements and bookkeeping records.

3.12 Validity issues

Validity can be defined as the degree to which an instrument measures what is intended to measures (Msabila & Nalaila 2008).The validity issues in this evaluation involved with training evaluation assistants, pre-testing tools and methodologies and daily quality checks

3.12.1 Training of evaluation Assistants

Before commencing data collection, two evaluation assistants were trained for two days on all topics covered in fieldwork. The training session considered technical and ethics of evaluation field work. It also involved methods and approaches for proper and adequate interviewing skills, filling in questionnaire, and checking and re-correction malpractice of field work. Further, training emphasized the maintenance of practical interviewing without influencing the respondents views.

3.12.2 Pre-testing of tools and methodology

The pre-testing of tools and methodologies was done at Ndolage hospital CTC, a faith based institution in Kagera region. The pre-testing was conducted by the Principal evaluator and evaluation assistants. In the course, fifteen PLWHA were interviewed, 20 PLWHA cards were reviewed, and three direct observations were observed. This pre-testing led to adjustment of tools and methodology to fit the context. The adjustment included changing the conceptual framework from a blended conceptual framework of Thomas and Penchansky and Donabedian to MRC- Framework. The former framework

focused on availability, compliance and accommodation but lacked contextual parts, mechanisms of impacts and adaptation which are included in MRC-Framework. The changes of Framework and other adjustments in tools were ideal due to the fact that continued using the former framework the evaluation could actually have missed the reality.

3.12.3 Daily Quality Checks

To ensure quality of data collection, each questionnaire and checklist was checked for completeness and accuracy by the evaluation team every end of the day.

3.13 Data management and analysis

The evaluation applied mixed methods which involved qualitative and quantitative data management that required different treatment on analysis.

3.13.1 Quantitative data analysis

3.13.1.1 Data entry

The questionnaires collected from field were checked for consistency and range checks. Variables in the questionnaires were coded, a data dictionary was developed, data coding was validated using the dictionary and data check code developed to ease data entry and identify error during data entry. Confusion and mix up of processed and unprocessed questionnaire was avoided by signing questionnaire after processing each one (Zelee Hill, & Carl Kendall, 2004). Data was then entered into Microsoft excel spreadsheet following codes of variables.

3.13.1.2 Data cleaning

Data cleaning was done in Microsoft excel before imported to stata software. Simple exploratory analysis was done before starting data analysis for detecting missing data and taking corrective actions before actual analysis. Any corrective action that was

undertaken was recorded in data entry audit trail, (Douglas. 1991). To prevent loss of some or all of the data files they were backed up regularly.

3.13.1.3 Data Analysis

The software, stasta ver. 13.0 Copyright 1985-2013 Stata Corp LP Statistics/Data Analysis Stata Corp 4905 Lakeway Drive College Station, Texas 77845 USA, used to analyze data from exit interview questionnaires . Descriptive statistical data analysis was mainly applied in which generation of frequency, minimum and maximum values and calculating mean of the indicators were run using the software. While observation checklists were analysed by using excel. Answers of the indicators were just proportions which measures dimensions so weighting factors were used to reach composite indicator values by adding up lower level indicators to reach the final values of the composite indicators.

3.13.2 Qualitative data analysis

Data analysis followed three strategies of qualitative data analysis which consists of preparation and organizing the data in to transcript, then reducing the data into themes through a process of coding and condensing the codes and finally representing data as discussion (cresswell, 2007). These three strategies of data analysis were detailed in four steps of data analysis process. These four steps with an assistance of Atlass. ti software involved; data managements, reading and memoing, describing, classifying and interpreting, and representing and visualizing. The analysis based on content analysis, such analysis allows for similarities and differences between respondents to be analyzed rather than highlighting individual specific issues and circumstances. It was important method to this evaluation since it subject an interpretation of the content of text data through the systematic classification process of coding and identifying themes as emerges from data (Gorgens, 2009; Zhang & Wildemuth, 1998). Answers as responses from posed questions interpreted and presented thematically after systematic classification from data.

3.14 Ethical Issues

The proposal was submitted to Mzumbe university SOPAM ethical committee to get permission; and an official letter was written to the Bukoba regional referral hospital management informing the evaluation going to be conducted. The Bukoba region referral Hospital had already given the permission for M&E attachment and evaluation activities since in semester one. Moreover, before starting data collection the proposal was presented to the hospital staff conference in which staff were able to understand to what is going to be done within the hospital. During actual data collection subjects were consented prior to interview and evaluation objectives were explained too.

CHAPTER FOUR

4.1 PRESENTATION OF THE EVALUATION FINDINGS

4.1.1 Overview

This chapter presents results carried out on process evaluation of nutrition assessment, counselling and support services among people living with HIV/AIDS at CTC in Bukoba Region Referral Hospital-Kagera. Results are presented in narratives, tables and figures (pie, bar charts). A total of 122 sampled people living with HIV/AIDS with a sex difference of 47 males and 75 females with minimum and maximum ages of 29 and 56 years respectively. While 4 informants were selected purposely for interview; 2 were CTC managers and 2 CTC staff, three were females and one male. Data presented were collected through semi structured questionnaire, observation checklist, documentary review and interview guide. The socio-demographic characteristics of respondents are narrated in first part of the chapter.

4.1.2 Socio-demographic Characteristics of the Respondents

Social demographic and economic characteristics of study participants are shown in Table 5: The results show participants 'ages in years as; 55 (45%) are 35- 44 while 45- 54 are 42(34%), and 25-34 are 21(17%) while 55-64 are 4(3%). Their mean age distribution is 42 and sd 7.07. The marital status shows 80(66%) are married compared to 20(15%) who are widow and 10 (8.19%) who are divorced/separated. The education levels of the study participants' include 85 (67%) who are primary education while 5(4%) are tertiary graduates. Also, (110)90% of the study population are literate and 12 (10%) are illiterate. The study population presents 77 (64%) who are peasants and 30 (25%) are pet businessmen while 14(12%) are working in the office.

Table 4.1: Socio-economic characteristics of the respondents

	n=122	%
Age		
25-34	21	17.0
35-44	55	45.0
45-54	42	34.42
55-64	4	3.28
Sex		
Male	47	38.52
Female	75	61.68
Marital status		
Single	14	11.47
Married	80	65.57
Divorced	10	8.19
Widow	18	14.75
Literacy		
Can read	110	90.16
Cannot read	12	9.84
Education		
Informal	22	18.0
Primary education	85	69.67
Secondary education	10	8.20
Tertiary	5	4.10
Occupation		
Farmer(peasants)	78	63.93
Business	30	24.79
Office work	14	11.77

Source: Process evaluation data analysis 2015

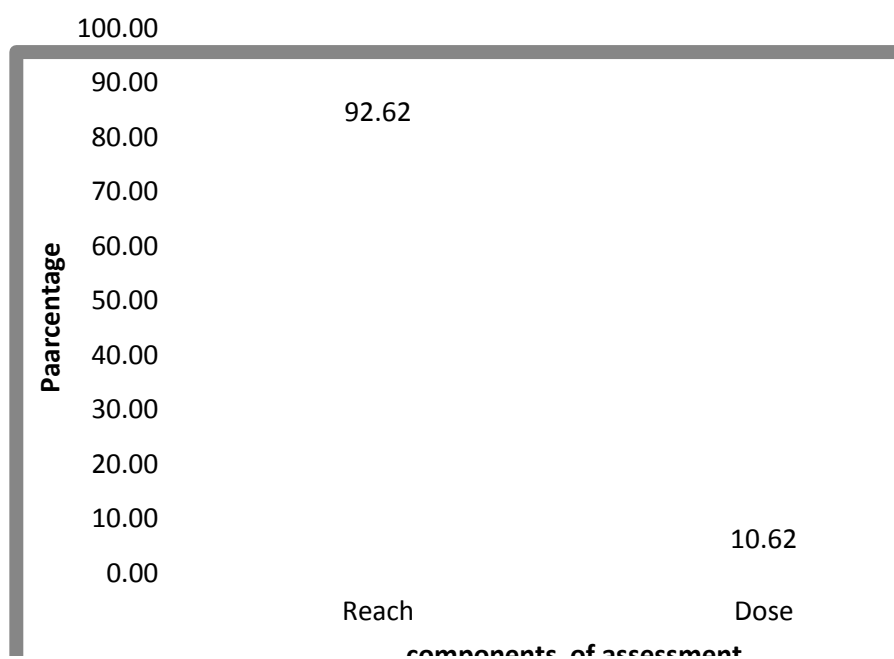
4.2 Objective1: The extent to the nutrition care and support services reached the PLWHA

4.2.1 Reach and dose of nutrition care and support services

Reach is the proportion of intended target audience that participates in an intervention. It is “coverage” or the proportion that the program has contacted the participants/audiences with services. While dose of the intervention is how much the programme has delivered to the participants, it represents the completeness of the interventions offered to

audiences. To assess both reach and dose of the program services, process evaluation used questionnaires to collect information from PLWHA and reviewing the documents of the PLWHA. Reach considered measurements (weight, height/weight and BMI documentation) taken at any time while dose considered measurements (weight and height and documenting BMI) taken at start of CTC services. The results show; that 92.62% are reached with nutrition assessment compared to 10.62% dose services to participants as figure 9: shows

Figure 4.1: Percentage of services Reach and dose of nutrition assessment.



Source: Process evaluation data analysis, 2015

From figure 4.1 results indicate that there is a big difference (82%) between reach and dose that might be due to staff taking weight alone from PLWHA at start of the services and leaving other parameters such as height and calculating and documenting BMI.

4.2.2 Nutrition counselling and education for PLWHA.

Nutrition counselling and education is among essential services PLWHA must get for comprehensive CTC services. The process evaluation used questionnaire to collect information from PLWHA regarding nine topics recommended for nutrition counselling and education and reviewing documents for education and support topics covered during period 2013-2014. In determination of dose from mentioned topics, all topics mentioned ten times (5.7%) and above were considered, refer Table 6 and 7. Results show; 66.67% reach as nutrition counselling and education to PLWHA as same proportion of dose services (66.67%). Also results show, balanced diet and causes and consequences of malnutrition are frequently discussed during nutrition counselling and education 108(61.71%) and 31(17.7%) respectively compared to importance of anthropometric measurements, increased energy need by infection and dietary management of common diseases which have never discussed as reflected in Table 4.2

Table 4.2: Percentage and frequency of the discussion topics during nutrition counselling and education

s/n	Topic for nutrition counselling and education	Freq	%
1	Causes and consequences of malnutrition	31	17.7
2	Importance of anthropometric measurement	0	0
3	Increased energy need caused by infection	0	0
4	Critical nutrition action	4	2.28
5	Dietary management of common disease	0	0
6	Drug food interaction	16	9.14
7	Food and water safety and hygiene	10	5.71
8	Balanced diet	108	61.71
9	Backyard gardens and raising small animal	6	3.42
Total		175	100

Source: Process evaluation data analysis, 2015

From the results; Reach and dose have same proportion. This might be due to how staffs deliver counselling and education, they provide nutrition counselling as nutrition education. Also results show that some nutrition counselling and education topics are not discussed compared to some which are discussed frequently, that might be due to technical know-how because simple topic seem to be discussed frequently and left complicated ones. Further from document review, results also show that 98% of education and support topics covered during period of 2013-2014 were non-nutrition discussion compared to 2% nutrition and nutrition related topics covered in the same period as detailed in Table 4.3

Table 4.3: Percentage and number of education and support topics covered during period 2013-2014

Discussion type	no	%
Non nutrition discussion	5579	98
Nutrition and nutrition related discussion	85	2

Source: CTC BRRH document review 2013-2014 by April 2015

4.2.3 Overall reach and dose of nutrition assessment and counselling.

The overall average reach and dose are obtained by dividing total of interventions. Overall service dose obtained from average of nutrition counselling and education and nutrition assessment ($66.67+10.6/2$) of the assessed factors while overall reach obtained from average of nutrition assessment and nutrition counselling and education ($92.6+66.67/2$) of the assessed factors as detailed in Table 4.4.

Table 4.4: Percentage of actual and overall of Reach and Dose services of nutrition assessment and counselling

Components	Dose	Reach
Nutrition counselling/edu	66.67%	66.67
Nutrition assessment	10.6	92.6
Overall average	38.64	79.64

Source: Process evaluation data analysis

From the data overall average of reach is higher twice of the dose because the reach is measuring the contact which is different from services dose which measuring the completeness of the services/intervention. In fact, reach found higher throughout assessed components of the programmes this is due to the fact that nutrition care and support services are integrated in care and treatment services, so clients who come for CTC services directly contacted with nutrition care and support services

Table 4.5: Number and Percentage of malnutrition distribution in PLWHA in 2013-2014 at CTC BRRH by April, 2015

Age group	PLWHA distribution	Malnutrition distribution	Overall % of Malnutrition
	no	no	%
>5	80	14	17.5
5.-14	160	20	8.8
15-24	257	12	5.4
25-34	911	52	1.5
35-44	1516	91	0.9
45-54	893	42	1.6
55+	378	18	3.7
Total	4195	249	5.9

Source: CTC patients' records 2013-2014 review by April 2015

From Table4.5; results indicate that children under five years have high malnutrition prevalence 17.5% compared to adults aged 45-54 years who show 1.6% prevalence.

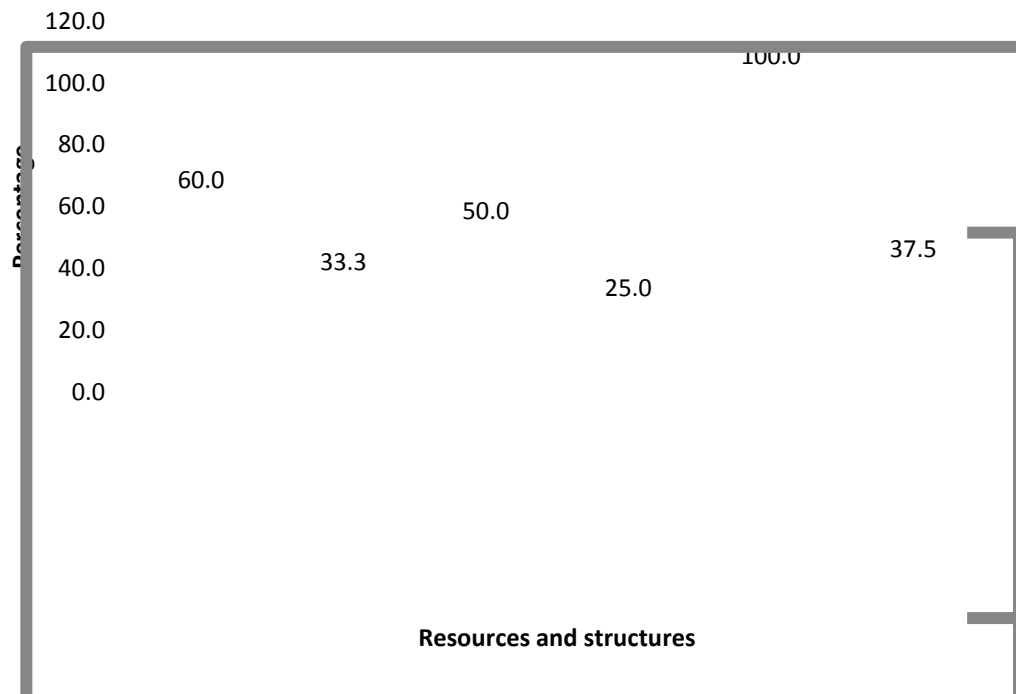
High prevalence of malnutrition in children might be due to high risk of children to infection which aggravates malnutrition. It is seen that overall percentage of distribution of malnutrition is 5.9% as documented in the patients records of 2013-2014

4.3 Objective 2: The capability of the care and treatment clinic to execute the nutrition care support services.

4.3.1 Implementation process

Implementation process is very important component in process evaluation; it assesses structures, resources and mechanisms of delivery achieved by the program. The process evaluation assessed the component through observation checklist by reviewing human resources, equipment, commodities, materials, infrastructures and stock management and recordkeeping. Following results, infrastructures showed 100% availability while commodities were 25%. Human resource was 60% while equipment was 33.3% of required. Also, materials were 50% of required while stock management and recordkeeping were 37.5% as reflected in figure 4.2;

Figure 4.2: Percentage of resources and structures of nutrition care and support services



Source: Process evaluation data analysis 2015

From Figure 4.1 Infrastructure resource shows good availability compared to other resources and structures, the likely reason is that nutrition care and support services are integrated in care and treatment services which they share infrastructures. Also commodities, equipment and materials show inadequacy, the likely reason is that during evaluation there was shortage of the same supplies at CTC which actually noted by the evaluation. And, poor stock management and recordkeeping noted in evaluation can be associated with the shortage of staff at CTC to perform fully CTC activities including nutrition care and support services.

4.4 Objective 3: The acceptance of nutrition care and support services among PLWHA

4.4.1 Satisfaction of nutrition assessment counselling and support.

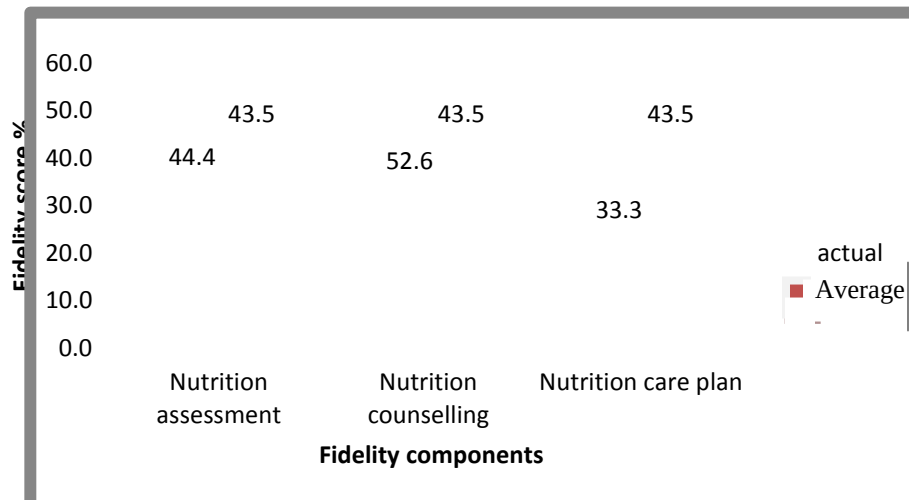
The evaluation findings show satisfaction of clients to the service is 63(57%) compared to 48(43%) who were not satisfied with services. This finding indicate that satisfaction is fairly and this might be due to inadequate implementation of the programme which included inadequate priority put to nutrition education and nutrition counselling that could create more awareness on nutrition issues to clients.

4.5 Objective 4: The services' adherence to guidelines, procedures and protocols

4.5.1 Fidelity of implementation of the nutrition care and support services

Fidelity component refers to as “adherence”, “integrity” and “purity”, measures the extent to which the intervention was delivered as planned, and it focuses on the program procedures, protocol and guideline. It represents the quality and integrity of the intervention as conceived by the planning team. The process evaluation used structured observation to assess the fidelity of nutrition care and support services of PLWHA at CTC through direct observation on how nutrition assessment, nutrition counselling and education and nutrition care plans are implemented. From results obtained, nutrition counselling score 52.5% of skills required in counselling compared to nutrition assessment (anthropometric measurement-weights, heights and BMI) that score 44.4% while nutrition care plan score 33.3% in adhering the procedures. Also results show; nutrition care plan is 33.3% compared to overall average score 43.5% of the three components assessed for fidelity. See figure 4.3

Figure 4.3: Percentage comparing the actual and average fidelity of nutrition care and support services.



Source: Process evaluation data analysis, 2015

From Figure 4.3: results indicate that there is a big difference 19.3% between nutrition counselling and nutrition care plan of quality adherence, that might be due to the inadequate staff to offer services and limited nutrition commodities and materials supplies at CTC.

4.6 Qualitative analysis

This section presents qualitative data analysis. The data analysed and presented in this sections are those collected from CTC managers, CTC staff and some of those collected from documentary review.

4.6.1 The extent to Nutrition care and support services reached to PLWHA

4.6.1.1 Theme 1: Coverage and completeness

Almost every PLWHA who attends the clinic is weighed to determine the weight. While it was difficult to take all measurement at the time of start of services. This was noted frequently from informants.

4.6.1.2 Theme 2: Adequacy of resources and structures

It was noted that CTC has limited numbers of staff, equipment and materials to undertake the services. Commodities like fortified food products such as plumpy nuts are limited to cater for needs, PLWHA were just provided with fortified food according to the available stock not as guidelines recommend. Commodities like F75 and F100 had never been supplied to the unit.

4.6.1.3 Theme 3: Contextual factors hindering or enabling services

Context of the program in process evaluation was to assess the internal and external factors that might had caused any effect of the programmes' performance results. The component was assessed through document reviews and interviews from staff and managers who are directly involved with CTC services and have contact to nutrition care and support services. Results show that stakeholders of nutrition care and support services for people living HIV/AIDS give less priority to the services. Only ICAP show some initiatives to promote nutrition care and support services.

No nutrition monitoring and evaluation noted like supervision visits from stakeholders in the period of 2013-2014. During interviewing one of the managers noted saying;

“Mimi sasa hapa mwaka wa saba sijawahi kuona mtu anatoka eti RMO office, TFNC au NACP anakuja kufuatilia masuala ya nutrition! Labda kwa kuwa afisa lishe amekuja, watakuja kufuatilia shughuli zake (reported by informant #1)”

Meaning that; it was now seven years at the unit, she have never seen a superior person from RMO office, TFNC or NACP coming for monitoring nutrition activities.

During interviews informants complained of inadequate staff in terms of quantity and quality to work for CTC activities including nutrition services, provision of services is done by retired persons, peer educators and lay counsellors. One of the staff was quoted saying that;

“Hapa tunalemewa tuko wachache na hata wengi wetu tumechoka tumeisha staff tumerudi kusaidia, nakazi nyingi wanafanya peer educators and lay counsellors unategemea watu waangaike na nutrition kwa umakini? (said by informant:#4)”

This means that they are exhausted and they are very few, most of them have retired have come back to assist the work

4.7 The acceptance of nutrition care and support services among PLWHA

4.7.1 Theme 4: *Participant’s responses to, interactions and mediators*

The mechanisms of impacts in process evaluation assess the participant’s responses to and interaction with interventions looks on the mediators and unanticipated pathways and consequences. The process evaluation used interviews, questionnaires, and observations to collect the information.

Results show that there are fairly responses to, and interaction to interventions among clients, the satisfaction of the program is 57%. Medical behaviours also found to affect nutrition assessment, because medical staff use clinical signs and symptoms to assess nutrition status and judge whether are malnourished or not instead of using recommended methods of nutrition assessment by the programme.

4.8 The services' adherence to guidelines, procedures and protocols

4.8.1 Theme 5: Quality and adherences of procedures

Through interview there were lot of indications that could lead to limited good fidelity of the program. Interviewees reported of limited staff and other resources like materials and equipment, but also usage of unqualified nutrition staff like peer educators, lay counsellor. Others include limited trainings, guidelines of nutrition and un-user friendly CTC tools. These could lead to reduced adherences of the nutrition care and support service procedures from staff that are responsible for providing services to PLWHA at care and treatment clinic

4.8.2 Theme 6: Adaptation of the nutrition care and support services

Adaptation of the program is alteration of the intervention to fit to the environment. The results show that reach is higher compared to dose this might be due to programme alteration. Staff use weight trend and clinical nutrition assessment to determine nutrition status. While programme model recommend body mass index/MUAC as nutrition assessment index measures. So rigid model which need to weigh weight, measure height and calculate BMI/MUAC is not followed so use alternative to estimate malnutrition. This was revealed when interviewing with informants.

Kwakweli muda hatuna huwezi kupima uzito, urefu and kutafuta BMI wakati tuna njia mbala ya kuweza anglau kukupa mwelekeo wa kama mtu ana utapia mlo au hapana. Kama vile kupima uzito peke yake na kufuatilia kuona kama unashuka au la, lakini pia kufanya clinic examination bado nayenyewe inakuonesha utapia mlo, sisi ni wazoefu wa muda mrefu. Ila ikibidi wakati mwingine tunafuata hiyo njia ndefu inayopendekezwa kama kweli hita la lazima linajionesha kama utapia mlo kali (reported informant #3).

Meaning that they are too busy to consider all measurement parameters such as taking weights, heights and calculating for BMI, while there are alternative ways which at least can show if there are signs of malnutrition, such as following trends of weights and using clinical signs examination. Added that they are experienced, they can detect

malnutrition through alternative ways. They can only follow those recommended methods for nutrition assessment when there are indications such as gross malnutrition.

4.9 Determination of final implementation level

This process evaluation adopted Linnan and Stekler, 2002 in determination of final implementation level. From their alternative ways for determination of level of implementation two ways are provided; multiplicative and average approaches. The average approach is used thus implementation process (42.8%), fidelity (43.5%), dose (38.64%), and reach (79.64%) components are added up and then divided for final implementation level (51.1%) determination as detailed in Table 4.6

Table 4.6: Percentage of components weighted scores and final implementation level of nutrition care and support services

Components	Weighting factor scores	Final implementation level score
Implementation process	42.8%	51.1%
Fidelity	43.5%	
Dose	38.64%	
Reach	79.64%	

Source: Process evaluation data analysis, 2015

From Table 4.6 data mean that; Adequacy of human resources, equipment, materials, infrastructures and nutrition commodities of nutrition assessment, counselling and support services for PLWHA are fairly available at care and treatment clinic. This mean programme implementation process.

While service providers are fairly adhering programme procedures, guidelines, protocols and plan during providing nutrition assessments, counselling and support services to PLWHA. This means fidelity of the programme.

Besides, Completeness of services provided to participants by service providers is poor. This means dose of the programme services.

Also, nutrition assessment, counselling and support services that contacting to PLWHA at care and treatment clinic are at medium level. This means reach of the programme services.

Therefore, inadequacy implementation of implementation process, fidelity, dose and reach contribute to the nutrition assessment, counselling and support services of people living with HIV/AIDS at care and treatment clinic to score a fairly implementation level.

CHAPTER FIVE: DISCUSSION OF FINDINGS

The chapter discusses the overall findings in relation to the process valuation components. The discussion also considers the evaluation findings consistency to findings of other evaluations which already available in related evaluation. The overall aim of the process evaluation was to ascertain the level of implementation of nutrition care and support services of PLWHA at CTC Bukoba region referral hospital-Kagera.

5.1 Socio-demographic Characteristics of the study population

Socio-demographic characteristics play a big role on programme implementation. Socio-demographic characteristics of the program audiences can assist direct or indirect implementation achievement. Evaluation findings revealed that big number of participants more than three quarter were literate and matured aged between 35-54 years. Both literacy and mature ages of participants they are likely to contribute to high reach of the program implementation. According to Stekler and linnan (2002) reach is characteristic of the audience and when audiences have good interaction to or responses to the intervention then the reach is likely higher. Participants who are literate are likely to follow advice and instructions given for their health.

5.2 Objective 1: The extent to Nutrition care and support services reached by PLWHA

5.2.1 Reach of implementation

Reach is perceived as programme coverage or proportion of the intended target audience that participates in the intervention. It is the characteristic of the audience. It measures to what extent the programme has covered the intended audience. The process evaluation found overall average 79.64% of intended audience had been reached with intervention services. That overall average involved evaluating nutrition assessment and nutrition counselling and education.

Reach in nutrition assessment focused on any anthropometric (weight, weight and height, BMI) measurement which has been taken at any time of services to PLWHA. These involved taking weight alone, taking weight and measuring height at any time and recording the BMI. So any of these performed to the PLWHA was counted as reached by the program. Findings showed 90% of the intended audiences has been reached with the nutrition assessment services. This achievement was associated with integration of the nutrition services to CTC services because PLWHA coming for CTC services automatically exposed to nutrition services. Also the incompleteness on the nutrition assessment by taking only weight which reach accounts as a success was considered as one of the factor of noted reach results. Further, socio-demographic characteristics of audiences who were majorly literacy and matured have enhanced program to reach them, they keep their consultation appointment given by service providers. The findings were almost the same as other findings of nutrition care and support services evaluations conducted in Uganda and Malawi which noted high coverage nutrition assessment (Haulaya et al,2015& Nekatebeb et al,2013).

Further, reach assessed nutrition counselling and education to participants. The process evaluation involved assessing nine topics recommended by TFNC for nutrition counselling and education in which 66.67% found has been reached with services at least with four topics. The finding are bit higher compared by the findings of Nekatebeb et al found in Uganda (Nekatebeb et al, 2013). The variations noted might due to the methodological approach of evaluation. The majority of topics that were frequently reached to the participants were balanced diet, causes and consequences of the malnutrition while topics like importance of anthropometric measurements and increased energy needs by infection were never reached to the audiences. These topics which were not discussed by service providers were associated with the limited knowledge capacity of the service providers such as lay counsellors and peer educators who are mainly invested in nutrition counselling to PLWHA at CTC.

5.2.2 Dose of programme implementation

Dose of programme implementation considers how much have been delivered to the participants. It focuses on the completeness of the intervention provided to participants. Dose of the programme implementation is another less studied components in process evaluation (Stekler and Linnan, 2002; Dusenbury et al, 2003; Kim et al 2015). It was also, difficult to this evaluation to obtain literatures of dose implementation studies focused on nutrition assessment care and support services for PLWHA. Moreover, this evaluation 38% dose of programme implementation as overall average of the weighted assessed factors. Dose focused on nutrition assessment and nutrition counselling and education.

In nutrition assessment dose considered the completeness of the any PLWHA who was assessed at the start of CTC services to be assessed nutritionally by taking weight, measuring height and BMI to be recorded on the card/files. Findings showed 10% completeness on nutrition assessment. This was due to the fact that it was hardly found the PLWHA at start of CTC services to have weight, height and BMI/MUAC taken and recorded in file/cards. Clients are measured mostly taken only weight and keep on controlling trends. This method of nutrition assessment which not even recommended by guidelines are risky for PLWHA because it was difficult to detect mild malnourished but also diagnose malnutrition at the start of the service. This rush assessment was associated with limited staff on nutrition at care and treatment clinic but also the workload of staff with PLWHA at CTC as it was frequently reported by staff during interviewing that were always overwhelmingly with big number of PLWHA at CTC as demonstrated in quotation of one of the interview; *Tuko busy, kazi ni nyingi kupima vipimo vyote hivyo uzito, urefu na kwenda mpaka BMI au MUAC, lazima kuwepo na indication kama vile mteja anaonesha signs za malnutrition (reported #1)*. Meaning they were so busy have a lot of works, to measure weight, height and BMI/MUAC is impossible unless there must be indication such as gross malnutrition seen from the clients. The incompleteness of the programme implementation leads inadequate programme implementation.

Nutrition counselling and education focused of recommended topics for education and counselling, in which 66.67% found to complete at least 5% (10 discussions) of the discussions. The findings supports the evaluation findings found by Lamstertain et al in Haiti when counselling was incomplete provided to PLWHA (Lamstertain et al, 2013). Some topics which need basic sciences for clear understanding are not discussed by staff to clients, this was also associated with knowledge of lay counsellors and peer educators who assist nutrition care and support services at CTC. Contrary, many evaluation have noted the use non nutrition staff such as peer educators, lay counsellors, hospital clerk, ward attendant have high success coverage (Haulaya et al, 2015, FANTA,2013). However, challenging questions remain fidelity and dose of the NACS implementation since various evaluations on NACS are less studied.

5.3 Objective 2: The capability of care and treatment clinic to execute the nutrition care and support services.

5.3.1 Implementation process of the nutrition care and support services

The implementation process of the program involves structures, resources and mechanisms through which delivery is achieved. This is a very important component to better the programme implementation. However, the evaluation found inadequate availability of the program structure, resources and mechanisms. The availability was 43% of component factors assessed. There were inadequate human resources to provide the services, limited equipment, inadequate materials, very few commodities and inadequate stock management and recordkeeping. The un-availability of these potential components contributes to inadequate program implementation. The findings are supported by two evaluations findings conducted in Malawi and Uganda on nutrition assessment care and support at care and treatment clinics in which limited resources and structures hinder the good program implementation (Haulaya et al,2015& Nekatebeb ., 2013)

5.3.2 Human resources

Workforce is a very vital health building block to excel the health services. The evaluation found sixty percent of the required human resource to provide nutrition care and support services at the CTC. Staff is inadequate in terms of number and quality. There are very few nurses (one at CTC and another at RCH) who are trained on nutrition care and support for people living with HIV/AIDS. Only one was able to prescribe properly the fortified blended food, give proper nutrition counselling and provide services according to nutrition care plan. It was noted that there was no proper in job training on nutrition care and support services. *Nasikia watu walienda kufundishwa masuala ya lishe nasijui kama waliporudi walienda huko ukumbini kuwafundisha wengine, hata hivyo watu wengi huwa hawaendi ukumbini kwa ajili ya mafunzo said informant #3* Meaning that had information that there are some staff who went for training on nutrition care and support and was not sure if they trained others after that special training. Staff who was interviewed complained of being busy and using knowledge of general nursing to provide nutrition care and support with an assistance of peer educators and lay counsellors. The un-availability of enough workforces in terms of quality and quantity, lack of job training and supportive supervision directly impacted the good performance of programme implementation. The observed findings are similar to findings noted by Namibian Ministry of Health and Social Welfare evaluation in which nutrition assessment care and support services were inadequately performed due to inadequate staff at health and community health units (NMOHS, 2013). Further, similarly to findings of nutrition activities in care, support and treatment of HIV/AIDS Situation Analysis for South East Asia Region countries in which programme performance was inadequately because the limited human resources complicated the services www.who.int accessed on 10/2/2015.

5.3.3 Materials and equipment

Materials and equipment to excel the nutrition assessment care and support services are key for the effective implementation of the programme. Materials and equipment for nutrition care and support services were 33% and 50% respectively at CTC. The limited materials and equipment hinder the proper process implementation. The scarce materials and equipment led the staff at care and treatment clinic used broken height board which has been reduced some millimetre/centimetre from its original scales. They had no demonstration utensils, no children height/length board and with limited children tape measures. There were also very limited guidelines and protocols, educational materials and job aids to staff. The scarcity of these materials and equipment at care and treatment clinic affected the performance quality. The scarcity of materials and equipment were revealed through quotation of one of the informants: *Hapa kuna uhaba wa vifaa ya kufanyia kazi height board imevunjika tumeifunga na tape measure za watoto zimechanika said informants#2*: Meaning that there is scarce materials for nutrition process, the height board is broken and children tape measures are torn. These findings were not far from other findings from evaluation in Malawi by Haulaya et al., evaluators reported that materials and equipment were limiting factor to effective implementation (Haulaya et al, 2014). Contrary, the evaluation conducted in Uganda on the nutrition care and support with other limited resources, materials and equipment were found at acceptable status to assist the effective implementation (Nekatebeb et al, 2014).

5.3.4 Commodities for nutrition supplement

Commodities for nutrition supplement such as ready to use fortified food (RUTF), F 75, F 100, Plumpy nuts and micronutrients (Iron and folic acid supplements) are very potential for improving nutrition status of PLWHA. Plumpy nuts (500kcal) are the common nutrition commodity used in management of SAM and MAM for PLWHA. However, the evaluation showed poor availability of those nutrition commodities. It was 25% of the required supplies for PLWHA at CTC. Thus, staff were not following

proper nutrition care plan for management of PLWHA with SAM and MAM due to the shortage of supplies. These findings were contrary to other findings of the evaluations conducted on nutrition assessment care and support services in Nigeria, Namibia and Malawi in which stock out of fortified blended food was not much commonly regardless of the delay of supplies from zonal stores reported (NMOHSW,2013; IYCN-USAID,2013 and Haulaya et al, 2014). But similarly evaluation findings in Uganda and Kenya in which nutrition commodities stock out was a big problem at care and treatment clinics and reproductive and child health clinics (Nekatebeb et al, 2014;FANTA,2013). These similarities and differences found might be due to the priority put to the nutrition care and support services for PLWHA or methodological setting of the evaluations.

5.3.5 Stock management and recordkeeping

Process evaluations also noted stock management and recordkeeping being performed inadequately. It was 37.3% performed compared to required. This included limited reporting of nutrition and food information to stakeholders such as ICAP, TFNC and NACP. Reports either were not provided on time or totally not reported. Records were disorganized some were recorded in the CTC 2 cards and stored in the database, and very few records of height were entered in the database. Database has no automatized reporting built in formula of BMI/MUAC calculation. Whereas some information were recorded in NACS registers and forms with no interoperability between NACS and NACP tools. The information also of nutrition in CTC2 cards were confusing, staff noted in nutrition status column as okay, MAM or SAM without showing BMI classification as required by NACS or NACP. There were no obvious regular ordering the commodities, supervision of the stocks, managing the ledger books. This inadequate performing of stock management and recordkeeping has really contributed to fairly programme implementation. These findings correlate with the findings found by evaluation in Namibia in which information management was big problem in nutrition care and support service (NMOHSW, 2013).

Although, inequality performing observed by evaluation was associated with the reduced number of staff at CTC who can attend the stock management such as regular ordering of supplies, regular supervision of the stocks and information management of the nutrition and food for PLWHA. This poorly stock management and recordkeeping systems has contributed in endangering the whole process of nutrition care and support service provided at CTC.

5.3.6 Monitoring and evaluation

Monitoring and evaluation of the nutrition care and support services is very vital to better the performance. The evaluation noted that no nutrition monitoring visits conducted from superior staff to CTC, no supervision observed in the period of two years past that specifically done for nutrition services. This finding was different from Namibian evaluation of nutrition care and support services which showed management and other stakeholders were conducting monitoring visits to the health care to backstop nutrition services (NMOHSW, 2014). But similarly evaluation by FANTA in Ghana that reported inadequate supervision conducted to health care to monitor the nutrition care and support services (FANTA, 2013). Lack of supervision and mentorship to staff working for nutrition care and support contributed in ineffective implementation of nutrition services at CTC.

5.3.7 Contextual factors of the implementation

The context of the program implementation involves with external factors that could influence the programme implementation. The evaluation findings show potential factors that direct or indirect affected the programme effectiveness. Nutrition counselling care and support services are not given first priority by stakeholders. Stakeholders are not conducting specific monitoring and evaluation visits to CTC to backstop the nutrition interventions. As Moore, (2014) states that stakeholders' interaction in the programme implementation is a potential context factor to better programme implementation. The evaluation further shows; there was no potential

materials and guidelines provided to CTC to enhance the implementation process, CTC unit have very limited number of staff to provide the CTC services including nutrition services. These findings are similar to many evaluations conducted in sub-Saharan African countries on nutrition assessment, counselling and support in which limited number of staff at care and clinic are limiting to good implementation of the nutrition care and support services (Care Ethiopia, 2014; USAID ASSIST project, 2013; FANTA 2013). The incapacity of the institution are highly likely to contribute to the fairly program implementation of today. Further, staff turnover at the CTC is another contextual factor; staff turnover at CTC is in two ways; routine transfer by hospital management from one unit to another and retirement. Some staff found at CTC during evaluation were newly transferred in from other hospital units and were still acquainting services provided to CTC.

5.4 Objective 3: The acceptance of nutrition care and support services among PLWHA

5.4.1 Mechanism of impacts of the process evaluation outcomes

The mechanisms of impacts in process evaluation, it assesses the participants' responses to and interaction with interventions looks on the mediators and unanticipated pathways and consequences. The results show 57% satisfaction of the programme participants. This fairly achievement of satisfaction is connected to inadequate provision of nutrition education and counselling to clients which could widen their understanding on nutrition care and support services. From findings nutrition education is less thought compared to non-nutrition discussion. For instance in two years consecutively nutrition was discussed 2% compared to 98% of non-nutrition discussion. Moreover, the evaluation show many other mechanisms of the results; medical staff are affected by medical behaviours in which clinician continued applying medicine professional by diagnosing malnutrition through medical history taking and physical examination, and reaching to final diagnosis in base of signs and symptoms. Moreover, this is one of the methods that used

in nutrition assessment but according to TFNC and NACP guidelines recommendation, anthropometric measurement and BMI/MUAC are index measure of nutrition status determination. The use of clinical signs and symptoms have impacted to present results of nutrition implementation level. Also this emphasizes of medical behaviour is associated to low malnutrition detection rate which is 5.9% of combined SAM and MAM.

The detection rate is assumed to be very low compared to other findings such as Stougaards' nutrition assessment in Kagera region the case study of Ndolage hospital in which 28% PLWHA who were nourished at CTC (Stoogaard, 2009). Also the mechanism of results is noted in integration of nutrition services to CTC , this has mediated and shaped the good programme reach achieved. A client who comes for CTC services is automatically attending for nutrition services. Although the question remains do clients attend for nutrition then automatically exposed for CTC service or vice verse is true? But the answer is remain open that patients come for CTC then exposed to nutrition assessment as many evaluations conducted in various countries reports high reach achieved up to 100% due to nutrition service integration at CTC (NMOHSW,2013; Haulaya,2015; USAID ASSIT project, 2014)

5.5 The services' adherence to guidelines, procedures and protocols

5.5.1 Fidelity of implementation

Fidelity as adherence, purity of the programme assesses the quality of programmes and compliance to guidelines and protocols. As Stekler and Linnan, (2002) state that fidelity is the function of the intervention providers. It is a very important component of programme to achieve quality implementation. From literature review, it is noted that fidelity of the programme implementation is one of the forgotten components, it is less studied. As it is noted from different literatures. Dusenbury et al, (2003) state that in social sciences the literature on fidelity of implementation has been limited, and cited several literatures; Pressman and Wildavsky that reviewed 162 studies that evaluating

the effectiveness of the programme on behavioural prevention in schools between 1980 and 1994 but found 24% studies considering fidelity of the implementation (Dane and Schneider, 1998 in Dusenburg et al,2003), Peterson et al, from 1968 to 1980 reported that 20% of 539 studies behavioural analysis assessed fidelity of programme implementation (Peterson et al, 1982 in Dusenburg et al,2003), Moncher and printz reported that 18.1% of clinical treatment studies assessed program fidelity of implementation (Moncher and Printz,1991 in Dusenburg et al, 2003).

For this evaluation also it was difficult to get literatures on nutrition care and support services that focused on fidelity of the programme implementation. Though, this evaluation findings show fidelity of programme implementation to be low. The evaluation noted overall 43% of programme fidelity of assessed factors. The assessed factors included nutrition assessment protocols, nutrition care plan procedure and nutrition counselling skills.

Nutrition assessment involved direct observation of staff following the protocols of anthropometric measurement thus taking weight of clients while has no extra weight materials including shoes, measuring height on standing up right facing the staff and calculated and recorded BMI on the card. The findings show nutrition assessment implementation fidelity 44% of adherence required. This was due to the fact that some clients are being weighed while have extra weight, procedure of taking height sometimes were not followed, clients could stand anyhow that showed that service providers and clients were not paying attention to assessments. BMI of many clients are not noted on the cards, very few patients which their BMI was calculated and filled in NACS cards. However, these deficiencies are associated with tools used to fill in BMI provided by NACP, but also many stop points where nutrition assessment was conducted. For instance weight and height measurement are done only one point and BMI was calculated and recorded in another point but yet still who can ascertain nutrition status was another point. Besides, the CTC2 cards provided by NACP have no prior

determined place to fill in BMI. So this non-adherence of the programme guidelines indefinitely affected implementation fidelity of the service.

Nutrition counselling involved direct observation on the skills and technics required for the counsellors to apply during counselling as provided by TFNC. The findings show 52.2%. This was in fact, some service providers were not following techniques and skills that a counsellor should have. Sometimes it is difficult to identify if the discussion on nutrition between client and service provider is what of the two!; nutrition counselling or nutrition education. It was just giving advice and instruction and not informed choice decision that should be bared in mind to reach the conclusion. Moreover, this was connected to knowledge capacity of service providers on nutrition. For instance nutrition counselling for PLWHA who are nearly starting ART mostly was provided by lay counsellors who actually nutrition knowledge capacity was low compared to nurse counsellors who were trained on nutrition assessment counselling and support services. Therefore, this ineffectiveness in nutrition counselling contributed to unsuccessful nutrition services provision to PLWHA.

In nutrition care plan, the evaluation found 33% of the required procedure and protocols to be followed. The emphasis was on use of nutrition care plans during counselling and prescribing ready to use fortified food, number of sachets of plumpynuts given, follow up plans given and referring of clients from one plan to another (i.e plan C, B and C). Really, was is less followed, clients were given ready to use fortified food according to the available stock, counselling plans were not followed even desk manual to follow in counselling plan was not available as it was noted even in quotation with interview of one of the informants. *Kwakweli sijawahi kuona hiyo manual eti kuonesha plan A,B,C katika kutoa unasihi katika lishe labda wengine huko ila ninachojua hakuna (reported in kiswahili by informant #3)*. Meaning that has never seen a working manual that guiding nutrition care and plan showing plan A,B, C. to be followed in nutrition counselling, may be others might have it but was sure that there was no such thing. Nonetheless, these inequalities were associated with inadequate materials and commodities

availability which could assist the staff to follow programme guidelines properly. Although, these deficiencies that led to low fidelity implementation affect quality results achieved by the programme. As Bellg et al,(2004) noted that low fidelity of the programme affects the implementation level and eventually outcome results of the programme. Kim et al, (2015) claims that effectiveness of the implemented programme to bear quality results the emphasize should be put to fidelity of the programme.

5.5.2 Adaptation of programme implementation services

Adaptation, also referred to as “reinvention” is the unintentional or deliberate modification of the original program model. Modifications may take the form of eliminating, abbreviating, reorganization, or supplementing program structure or content. In evaluation findings indicate various adaptation of the nutrition care and support services that ranging from abbreviating to eliminating of the intervention activities. The indication of alteration includes taking only weight trend of PLWHA as index measure of nutrition assessment. The program model required, and the adhered protocols as within job aids and manuals in the nutrition assessment counselling and support and nutrition care and support services guidelines. These require PLWHA at first start of the services at CTC must weight, height and calculated BMI/MUAC indicated on the card and nutrition status stated. Then subsequent weight measuring as per nutrition care plan. That rigid model was altered as it was noted in findings that weight trend was mainly used in nutrition assessment. The noted alterations save time for staff in conducting nutrition assessment but very risky to PLWHA health. These findings are similarly to the evaluation by Lamstertain et al, in Haiti found nutrition assessment protocol were great altered from original plan (Lamstertain et al,2013). Measuring weight alone and considering it as index measure for nutrition status classification leads to error classifying, it does not provide proper malnutrition cut off point as classification as provided by World Health Organization as severe, moderate, mild or Nutrition status classification: malnourished, normal, overweight and obese (WHO,2005).

Further, it was found that clinicians use clinical signs and symptoms in assessing nutrition status of the PLWHA. That alterations could negatively affect the health of the PLWHA since does not provide clear cut off point of the malnutrition for nutrition care plan services. The finding was supported by Nekatebeb et al in evaluation of Uganda in which medical staff at hospital used to classify the PLWHA using clinical nutrition assessment (Nekatebeb et al, 2013). However, it differed with findings noted by Haulaya et al., 2015 in which non - medical staff were using anthropometric measurement for assessing nutrition status (Haulaya, et al,2015). Furthermore, the usage of peer educators and lay counsellors at CTC for nutrition care and support services as an substitute of nutrition staff is another alteration of the programme services. Nutrition assessment, counselling and education are mostly provided by those non nutrition or medical staff and which negatively affected the program quality implementation.

5.5.3 Process evaluation outcomes

The process evaluation noted a fairly implementation of nutrition assessment, counselling and support services. The overall programme implementation level is 51% as weighting factors of fidelity, dose, reach and implementation process with supplementation information from context and mechanisms of impacts. However, this implementation level is low compared to importance of the nutrition care and support services for people living with the HIV/AIDS. As Hsu. W-C. Jean et al, (2005) indicate that nutrition assessment care and support is vital services to care and treatment services for people living with HIV/AIDS. The services have potential to support the treatment given, promotion of adherent to management provided and eventually improve health.

Also Tang et al, (2015) in a system review of the literatures on NACS studies revealed some potential impacts of NACS to people living with HIV/AIDS such as increase of CD4 and promotes the adherences. Further the evaluation found the satisfaction of the participants to be fair satisfying. It found at 57%. The findings differ from other evaluation conducted in the different areas. In Ghana found the satisfaction of the NACS

services was three quarters while in Malawi was two third and Namibia three quarters (FANTA, 2012;Haulaya et al,2013& NMOHSW,2014) These difference might be due to the implementation approaches and characteristic of the project participants. Furthermore, the process note the status of nutrition prevalence (SAM and MAM) among PLWHA is 5.9%. This value is very low compared to other malnutrition prevalence in other evaluations. In Namibia 6.2% severe malnourished and 25% moderate malnourished and much lower of Stougaard case study Ndolage hospital Kagera region in Tanzania which found 28% of PLWHA at care and treatment clinic who were nourished. These findings can assure that much malnutrition PLWHA still in the population and not assessed and categorized for their proper nutrition counselling plan.

5.6 Evaluation dissemination plan

The findings of process evaluation of nutrition care and support services of the people living with HIV and AIDS at CTC are to be disseminated to different stakeholders of the CTC refer Annex 1. Moreover, at the end of data collection summary of preliminary findings were presented to hospital conferences. Then after submission the report to Mzumbe university for my masters of science in health monitoring and evaluation degree awards the dissemination will include the Bukoba regional referral hospital management, CTC managers and staff, ICAP, TNFC and MOHSW. The means of the communication and formats will base the type and need of the stakeholder's information that include hard copy reports, power point presentation at face to face presentation.

CHAPTER SIX: SUMMARY, CONCLUSION AND RECOMMENDATIONS

The aim of this chapter is to sum up the evaluation findings and to outlines the implications of the evaluation findings. It further conclude based on the findings and put forth recommendations and suggestion for further evaluation.

6.1 Summary of Findings

The aim of the Process evaluation was to ascertain the level implementation of nutrition assessment counselling and support services among PLWHA at care and treatment clinics at Bukoba region referral hospital. The evaluation studied evaluation dimensions ensures the set of process evaluation objectives and questions are met. The evaluation findings show overall 51% programme implementation level. This level mark the programme as fairly implemented according to the stakeholders' judgement criteria. The majority of the participants were women, literate and aged between 35-54 years.

Nutrition assessment counselling and support services delivering found to be challenged. The structures, resources and mechanisms in which process are excelled were weak. These implementation process structure and structures included Human resources, equipment, materials, commodities and stock management and recordkeeping. The evaluation found great inadequacy of these structures and resources to assist better implementation of the nutrition assessment counselling and support services. The inadequacy of these process resources negatively affected the better implementation.

It was evident that there was limited number of staff at care and treatment clinic as a consequence, nutrition services are provided by peer educators, and lay counsellors which actually affected the implementation quality of the programme.

The equipment for conducting nutrition services was not enough that caused staff to use broken height board and not providing the nutrition demonstration to PLWHA during counselling that implicated to program intervention incompleteness.

Materials for implementing nutrition care and support services also were limiting for better implementation, staff had no guidelines, no enough job aids, lacked nutrition education materials. That inadequacy negatively affected the proper delivering the services to the clients and eventually impacting to low implementation level of the programme.

And, commodities for nutrition care and support services such as ready to use food are so inadequate to enhance the PLWHA supplies purpose. Staff are practicing irrational prescribing of ready to use fortified food because of the limited stock of commodities which affected the nutrition care plan and eventually led to low level of implementation of nutrition care and support services at CTC.

Further, stock management and record keeping are less practised by staff, stock out and stock in are irregularly monitored, are no signs of timely ordering commodities which go concomitantly with nutrition and food records collation analyses and report to stakeholders. These are associated to the common stock out revealed by the evaluation. Nutrition data are disorganized, other are found in CTC 2 cards and stored in the NACP database while other found in NACS registers and forms.

Furthermore, adherence, purity, quality and compliance so called program implementation fidelity is low for good quality programme implementation. Service provided are not abided to program model as set and guided by various authorised documents. Nutrition assessment and counselling are provided out of the provided standards and job aids which negatively impact the good level of nutrition services implementation.

Besides, reach of the programme implementation that is programme coverage and a characteristic of the participants was high. That has positively contributed to the revealed implementation level. It is associated with literacy and matures of the audience but also integration of nutrition care and support services at care and treatment clinic.

In addition, the dose of the programme implementation was low. The low dose of programme implementation indicates that programme activities were incomplete implemented. Service providers are not ensuring that all tasks involved in nutrition assessment, counselling and support was implemented and completed. This negatively affects the implementation level since the dose was the factor of the programme implementation status.

Additionally, process evaluation findings revealed alteration or reinvention of the programme from the original plan to fit the context. This adaptation include, measuring weight and use weight trend as nutrition assessment index. Use of clinical nutrition assessment instead of recommended anthropometric measurement for nutrition assessment counselling and support of determining nutrition status through body mass index or Mid Upper Arm Circumferences

Moreover, evaluation findings note some context issues that are associated with implementation level achieved of nutrition assessment counselling and support services; include less priority given to nutrition issues from stakeholders, small numbers of staff to serve the big number of PLWHA at care and treatment clinics. Others include lack of mentorships and supervisory visits from high authority specifically to nutrition services monitoring, accreditation of the lay counsellors and peer educators as health staff to work for nutrition care and support services.

Likewise, evaluation found the mechanisms of the impacts of process evaluation outcomes.

The process evaluation outcomes include low level of the implementation of the nutrition care and support services, fairly client's satisfaction and very low number of malnutrition cases identified. These results were associated with mechanisms of impact use of the lay counsellors and peer educators shaped results. Integration of the nutrition care support services to care and treatment clinic exposed the clients to nutrition services. Medical behaviours of diagnosing patient based on signs and symptoms continued to be cardinal signs in nutrition assessment.

Major conclusions

On view of the findings of the evaluation the following can be concluded:-

The level of the nutrition assessment, counseling, and support services at care and treatment clinic at Bukoba regional referral hospital are sub – optimal. The evaluation found factors that led to low level of implementation of nutrition services include; weak implementation process, imbalance of programme implementation components such as; dose, fidelity, reach and adaptation. And, inadequate priority put to nutrition assessment counseling and support services by stakeholders.

The care and treatment clinic where nutrition assessment counseling and support services are integrated was weak due to the fact that human resources are inadequate in quantity and quality to implement optimal service, there few equipment and materials to support the services. Nutrition commodities and stock management and recordkeeping are inadequacy for supporting nutrition services. This inadequacy of resources and structures are evident to direct impact the implementation of the nutrition service.

Additionally, it was clear that evaluation implementation components such as reach, implementation process, dose, fidelity and adaptation are not imparting to deliver strong implementation of the programme. As consequences of it, low level of programme implementation is observed now.

Further, context issues are factors for low implementation such as lack of monitoring visits from stakeholders, low priority put to nutrition service from authorities, increased number of PLWHA which un-related to available staff at the clinic. These are direct or indirect associated to the low implementation level of nutrition care and support services.

6.2 Recommendations

The recommendations made under this section are made level wise that start from care and treatment clinic, Hospital management team, Regional management team to Ministry of health.

6.2.1 Care and treatment clinic

- Staffs at CTC who are responsible for PLWHA should continue paying more attention on nutrition assessment, counselling and support services.
- The nutrition assessment counselling and support guidelines should be abided during assessing PLWHA.
- Every clients at the first visit at CTC should be nutritionally assessed (Weight, Height and BMI/MUAC calculated) and recorded.
- Nutrition education should be given the same weight as other discussion topics conducted at CTC.
- Staff who are trained on nutrition care and support services should continue coaching and mentoring the other staff at CTC who are not trained.
- The use of peer educators and lay counsellors for nutrition assessment, counselling and education should be done with care.
- Nutrition and food data management should be harmonized and made clear to staff

- Stock management and record keeping should be done regularly and ordering should be done on time.
- Staff should consult the hospital nutritionist when clients who are grossly malnourished or obese

6.2.2 Hospital management team

- The team of hospital management should pay attention to nutrition issues including supervisory visits that aim to improve nutrition services at CTC
- The hospital should allocate fund to nutrition care and support service for essential equipment and materials to support the services
- Staff rotation from one unit to another should consider the issues of the nutrition knowledge to avoid paralysing the nutrition services at CTC
- Hospital nutritionist should continue providing technical support to Care and treatment clinic including monitoring the process of NACS
- The management should use nutrition data collected, collated analysed and reported to various stakeholder from the clinic for decision making.

6.2.3 Regional management team

- Regional health management team should consider nutrition issues at CTC as a very important services; this should include supervisory visits which are specifically for nutrition services.
- Regional nutritionist should consider the CTC services as very important services and pay attention including technical support.

6.2.4 Ministry of Health and Social Welfare, TFNC and NACP

- The Ministry through TFNC should prepare and produce nutrition care and support guidelines for staff who are working at CTC
- TFNC and NACP should meet and harmonize the nutrition data collection tools (NACP tools and TFNC) for example CTC2 cards should be provided with place to record BMI/MUAC, and NACP database should include built in report formulas which can generate nutrition reports.
- TFNC and NACP should prepare a management and supervision training for Regional and hospital management teams so as can continue to supervise nutrition activities
- TFNC and NACP should conduct supervision visits that focus to improve the nutrition services
- TFNC and NACP should organize and coordinate the nutrition stakeholder meetings to discuss nutrition issues at CTC
- The Ministry of Health and Social Welfare should budget for ready to use fortified food for PLWHA.

6.2.5 Other stakeholders including ICAP and MDH

- Stakeholders (i.e ICAP, MDH,) when conducting monitoring and evaluation visits at CTC nutrition activities should be considered too.
- Stakeholder's budgets (ICAP.MDH) for CTC materials and equipment should give similar weight to nutrition material and equipment.

6.3 Limitations of this evaluation

Based on the setting and the purpose of the evaluation there are limitations as follows:-

Limited resources for conducting process evaluation these include; limited time and technical assistance in field during data collection, limited space at CTC for confidentiality.

6.4 Areas for further evaluation

The outcome and impact evaluations are recommended to ascertain the attainment of programme goal.

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APPENDICES

Appendix 1: Process Evaluation information matrix showing indicators, dimensions, source of data, methods and instruments of the evaluation

Process activity	Indicator	Dimensions	Source of data	Methods	Tools/instrument
Human resource capacity	# Staff capacity to take anthropometric measurements of HIV-positive clients	Implementation process	CTC staff inventory CTC manager	Observation In-depth Interview	Checklists Interview guide
Human resource capacity	# Staff capacity to provide nutrition counseling for HIV-positive clients	Implementation process	CTC staff inventory CTC managers	Observation In-depth Interview	Checklists Interview guide
Human resource capacity	& Staff capacity to prescribe specialized food products for HIV-positive clients	Implementation process	CTC staff inventory CTC managers	Observation In-depth Interview	Checklists Interview guide
Equipment and materials	# functioning scale for adults that measure weight in kilograms to the nearest 100 g.	Implementation process	CTC asset inventory CTC managers	Observation In-depth Interview	Checklists Interview guide
Equipment and materials	# functioning scale for children that measure weight in kilograms to the nearest 100 g.	Implementation process	CTC asset inventory CTC managers	Observation In-depth Interview	Checklists Interview guide
Equipment and materials	# of height boards that measures in cm to the nearest cm	Implementation process	CTC asset inventory CTC managers	Observation In-depth Interview	Checklists Interview guide
Equipment and materials	# mid-upper arm circumference (MUAC) tapes that measure to the nearest mm for pregnant and post-partum	Implementation process	CTC asset inventory CTC managers	Observation In-depth Interview	Checklists Interview guide

	women and adults whose height cannot be measured.				
Equipment and materials	# MUAC tapes for children.	Implementation process	CTC asset inventory CTC managers	Observation In-depth Interview	Checklists Interview guide
Equipment and materials	# copies of algorithms for managing malnutrition in 1) HIV-infected children and 2) HIV-affected adults	Implementation process	CTC asset inventory CTC managers	Observation In-depth Interview	Checklists Interview guide

Process activity	Indicator	Dimensions	Source of data	Methods	Tools/instrument
Equipment and materials	# charts with body mass index (BMI) cut-offs and weight for height (WFH) z-score cut-offs using the 2006 WHO child growth standards.	Implementation process	CTC asset inventory CTC managers	Observation In-depth Interview	Checklists Interview guide
Equipment and materials	# set of nutrition and HIV counseling cards	Implementation process	CTC asset inventory CTC managers	Observation In-depth Interview	Checklists Interview guide
Equipment and materials	# utensils (e.g., bowls, serving spoons, and pan, cooker) to demonstrate the use and preparation of specialized food products for PLHIV	Implementation process	CTC asset inventory CTC managers	Observation In-depth Interview	Checklists Interview guide
Equipment and materials	Availability of data entry forms and a compilation system that includes nutrition data.	Implementation process	CTC data form CTC managers	Observation Document review In-depth Interview	Checklists Interview guide

Equipment and materials	Availability of ready-to-use therapeutic food (RUTF), fortified blended food (FBF), and micronutrient supplements for HIV-positive clients to last for 3 months.	Implementation process	CTC store inventory CTC managers.	Observation In-depth Interview	Checklists Interview guide
Equipment and materials	Availability of tools for counseling clients on the Critical Nutrition Practices.	Implementation process	CTC documents CTC managers	Observation In-depth Interview	Checklists Interview guide

Process activity	Indicator	Dimensions	Source of data	Methods	Tools/instrument
Commodities infrastructure	Availability of store has adequate security to prevent theft.	Implementation process	Spot check	Observation	Check list
Commodities infrastructure	Availability of cool store and dry at all times.	Implementation process	Spot check	Observation	Check list
Commodities infrastructure	Availability of adequate drainage and no stagnant water in the store.	Implementation process	Spot check	Observation	Check list
Commodities infrastructure	Unavailability of leaking roofs or walls.	Implementation process	Spot check	Observation	Check list
Commodities infrastructure	Availability of adequate lighting and to see commodities clearly.	Implementation process	Spot check	Observation	Check list
Commodities infrastructure	Availability of store of adequately ventilated store	Implementation process	Spot check	Observation	Check list

Commodities infrastructure	Availability of pallets or shelves for specialized foods to placed on	Implementation process	Spot check	Observation	Check list
Commodities infrastructure	Availability of arrangement in store to allow for first in first out practice (FIFO)	Implementation process	Spot check	Observation	Check list
Commodities infrastructure	Availability of system to document any spillage	Implementation process	Spot check	Observation	Check list
Commodities infrastructure	Availability of system for controlling pests (e.g., weevils, rodents, birds, bats, snakes).	Implementation process	Spot check	Observation	Check list

Process activity	Indicator	Dimensions	Source of data	Methods	Tools/instrument
Commodities infrastructure	Availability of system for cleaning the store daily or every other day.	Implementation process	Spot check	Observation	Check list
Commodities infrastructure	Availability of system to document the shelf life of remaining supplies	Implementation process	Spot check	Observation	Check list
Commodities infrastructure	Availability of Daily Consumption Report filled out daily and up to date	Implementation process	Spot check	Observation	Check list
Commodities infrastructure	Availability of a person responsible for the store who ensures that the store is	Implementation process	Spot check	Observation	Check list

	locked after distributions to avoid theft or fraud				
Commodities infrastructure	Availability of Supervisors regularly to inspect the store for quality, safety, and hygiene	Implementation process	Spot check	Observation	Check list
Commodities infrastructure	Availability of systems of person in charge of the site pharmacy to use “first to expire, first out” (FIFO) procedures and stock management for food and other commodities.	Implementation process	Spot check	Observation	Check list

Process activity	Indicator	Dimensions	Source of data	Methods	Tools/instrument
Commodities infrastructure	Availability of systems of person in charge of the site pharmacy to orders FBP supplies 3 months in advance to avoid stock outs.	Implementation process	Spot check	Observation	Check list
Nutrition assessment	# PLHIV who are assessed with appropriate assessment tool and their measurement are recorded.	Reach, dose and fidelity	Clients cards	Document review	Check list
Nutrition assessment	# BMI and WFH calculated and MUAC taken, as appropriate as required by guideline for different PLWHA groups	Reach, dose and fidelity	Clients cards	Document review	Check list
Nutrition assessment	# clients assessed on each visit for critical symptoms	Reach, dose and fidelity	Clients cards	Document review	Check list
Nutrition assessment	# severely malnourished PLHIV given an appetite test before being put on home management of severe malnutrition.	Reach, dose and fidelity	Severely malnourished cards	Document review	Check list
Nutrition counseling/education	# PLHIV who receive nutrition care based on a nutrition care plan developed for his/her nutritional status and health condition	Reach, dose and fidelity	PLWHA	Exit interview	Questionnaire

Nutrition counseling/education	# of PLWHA informed by Health care providers that specialized food products are not suitable for infants < 6 months	Reach, dose and fidelity	PLWHA- -Pregnant women and breast feeding PLWHA	Exit interview	Questionnaire
Nutrition counseling/education	# PLHIV who qualifies for specialized food products are prescribed enough therapeutic and/or supplementary food following national guidelines to last until the next return date.	Reach, dose and fidelity	Cards of PLWHA on FBP Service providers	Document review Surveys Observation In-depth interview.	Check list Questionnaire Interview guide
Information management	# of summary reports submitted by in charge or nutrition focal person of clients receiving FBP to the food lead partner and/or development partner according to the agreed schedule, format, and indicators	Reach, dose and fidelity	Reports document CTC manager	Document review In-depth interview	Checklist Interview guide
Information management	# of compiled nutrition and food data and sent to the MOHSW according to the agreed schedule.	Reach, dose and fidelity	Reports document	Document review In-depth interview	Interview guide
Information management	# of correct recorded/forms of clients receiving FBP by service providers	Reach, dose and fidelity	Store documents	Document review	Checklist
Client satisfaction	Proportion of clients who are satisfied	Mechanisms	PLWHA	Exit interview	Questionnaire

	with nutrition assessment services				
Client satisfaction	Proportion of clients who are satisfied with nutrition counseling/education services	mechanisms	PLWHA	Exit interview	Questionnaire
Client satisfaction	Proportion of clients who perceives that equipment and materials for nutrition care and supports are enough	mechanisms	PLWHA	Exit interview	Questionnaire
Client satisfaction	Proportion of clients who perceives that nutrition care services providers are enough	mechanisms	PLWHA	Exit interview	Questionnaire

Appendix 2: Observation check list for facility based nutrition care and support services to be completed by evaluator write, follow instruction of each parameter given.

		<u>Yes</u> Appropriate	<u>No</u> Appropriate	<u>#</u> Appropriate	Instruction of use
Human resources capacity					
1.	Staff capacity to take anthropometric measurements of HIV-positive clients (one health care provider minimum)				Staff inventory review
2.	Staff capacity to provide nutrition counselling for HIV-positive clients (one health care provider minimum).				Staff inventory review
3.	Staff capacity to prescribe specialised food products for HIV-positive clients (one health care provider minimum).				Staff inventory review
4.	Staff trained in nutrition care and support for people living with HIV (PLHIV) in a training course approved by the national AIDS control program and TFNC (two health care providers minimum)				Staff inventory review
Equipment and Material					
5.	The site has at least one functioning scale for adults and one functioning scale for children that measure weight in kilograms to the nearest 100 g.				Equipment material register/spot check
6.	The site has at least one height and one length board that measures in cm to the nearest cm.				Equipment material register/spot check

7	The site has mid-upper arm circumference (MUAC) tapes that measure to the nearest mm for pregnant and post-partum women and adults whose height cannot be measured.				Equipment register/spot check	material
8	The site has three- or four-color MUAC tapes for children.				Equipment register/spot check	material
9	The site has utensils (e.g., bowls, serving spoons, pan, cooker) to demonstrate the use and preparation of specialised food products for PLHIV.				Equipment register/spot check	material
10	The site has copies of algorithms for managing malnutrition in 1) HIV-infected children and 2) HIV-infected adults.				Equipment register/spot check	material
11	The site has at least one set of nutrition and HIV counselling cards, if these exist				Equipment register/spot check	material
12	The site has data entry forms and a compilation system that includes nutrition data.				Equipment register/spot check	material
13	The site has charts with body mass index (BMI) cut-offs and weight for height (WFH) z-score cut-offs using the 2006 WHO child growth standards.				Equipment register/spot check	material
Nutrition assessment and classification						
14	Every adult PLHIV or HIV-infected child coming to the site for the first time is weighed to the nearest 100 g and measured to the nearest cm and BMI for adults and WFH for children are calculated. For pregnant or lactating women (up to 6 months postpartum) or clients whose weight or height cannot be measured, MUAC should be taken.				PLWHA (adults/children/pregnant women)	cards reviews
15	BMI and WFH are calculated and MUAC taken, as appropriate, then recorded on client record sheet every month for children < 5 and symptomatic adults and at least every 3 months for asymptomatic adults.				PLWHA (adults/children/pregnant women)	cards reviews

16	Every client is assessed on each visit for critical symptoms (e.g., severe dehydration, severe anaemia, diarrhoea, vomiting, oral sores or thrush, anorexia, tuberculosis, or other opportunistic infections) that may affect nutritional status.				PLWHA cards reviews (adults/children/pregnant women)
Nutrition care plan					
17	Every PLHIV receives nutrition care based on a nutrition care plan developed for his/her nutritional status and health condition.				Check PLWHA cards for counselling part
19	Every PLHIV, or caregiver who qualifies for specialised food products is told why he/she is eligible, the purpose of the food, how to prepare and eat the food, and at what weight he/she is expected to exit the program.				Spot check
20	Eligibility (entry and exit) criteria for therapeutic and supplementary foods are posted where service providers and clients can see them clearly.				Check PLWHA cards for counselling part
21	Every PLHIV, caregiver who qualifies for FBP is weighed on each visit, and the weight is recorded on the client record form.				Check PLWHA cards with FBP
22	Every severely malnourished PLHIV is given an appetite test before being put on home management of severe malnutrition.				Spot check
23	Every PLHIV who qualifies for specialised food products is prescribed enough therapeutic and/or supplementary food following national guidelines to last until the next return date.				Check PLWHA cards with FBP
Commodities and infrastructure					
26	The site has enough ready-to-use therapeutic food (RUTF), fortified blended food (FBF), and micronutrient supplements for HIV-positive clients to last for 3 months.				Check stock register

27	The site has tools for counselling clients on the Critical Nutrition Practices.				Spot check
28	The store has adequate security to prevent theft.				Spot check
29	The store is cool and dry at all times.				Spot check
30	There is adequate drainage and no stagnant water in the store.				Spot check
32	There are no leaking roofs or walls.				Spot check
33	Lighting is adequate to see commodities clearly.				Spot check
34	The store is adequately ventilated				Spot check
35	All specialised foods are placed on pallets or shelves.				Spot check
36	The store is arranged to allow for first in first out practice (FIF O)				Spot check
37	There is a system to document any spillage				Spot check
38	There is a system for controlling pests (e.g., weevils, rodents, birds, bats, snakes).				Spot check
39	There is system for cleaning the store daily or every other day.				Spot check
40	The shelf life of remaining supplies is documented				Spot check
41	The Daily Consumption Report is filled out daily and up to date				Spot check
42	The person responsible for the store ensures that the store is locked after distributions to avoid theft or fraud.				Spot check
43	Supervisors regularly inspect the store for quality, safety, and hygiene				Spot check

Stock management and record keeping					
44	All staff responsible for FBP stores trained in product knowledge, handling, display, hygiene, and sanitation.				Spot check
45	The site in charge or nutrition focal person submits a summary of clients receiving FBP to the food lead partner and/or development partner according to the agreed d schedule, format, and indicators				Spot check
46	The site in charge or nutrition focal person submits estimated specialised food product and other supply needs to the food lead partner according to the agreed schedule				Spot check
47	The person in charge of the site store correctly maintains FBP stock records				Spot check
48	Health care providers fill in the FBP Client Care and Support Form for each client who receives nutritional care and support.				Spot check
49	The site data clerk compiles all agreed nutrition and food data to send to the MOHSW according to the agreed schedule,.				Spot check
50	The person in charge of the site pharmacy uses “first to expire, first out” (FIFO) procedures and stock management for food and other commodities.				Spot check
51	The person in charge of the site pharmacy orders FBP supplies 3 months in advance to avoid stock outs.				Spot check

Appendix 3: Direct observation checklists

Nutrition assessment required skills and procedures				
Skills and techniques	Parameter on direct observations	Yes	X	remark
Weights	Does the service provide adjust scale at start?			
	Does client take off extra weights			
	Does the client stand properly on scale			
Heights	Does the service provider note weight			
	Does client take off extra heights			
	Does the client stand properly on the height board			
	Does service provider note height			
BMI/MUAC	Does service provider indicate BMI/MUAC			
	Does the service provider refer the client to proper place			

Counselling required skill & Techniques				
Skills and techniques		Yes	X	Remark
Establish a relationship	Greet the client (shake hands if appropriate)?			
	Offer the client a seat?			
	Introduce herself/himself to the client?			
	Lean forward when talking?			
	Make eye contact when talking to the client?			
	Show interest in the client?			
	Maintain professional conduct?			
Question	Ask questions relevant to the topic of discussion?			
	Ask open-ended questions?			
	Use closed-ended questions to get basic information such as demographic data?			
	Avoid closed-ended (Y/N) questions?			
	Use a questioning style that reflects interest, concern and care rather than interrogation?			

Listen well	Look at the client?			
	Listen carefully and actively?			
	Use body language to indicate attention to the speaker?			
	Make eye contact to indicate interest and care?			
	Treat the client with respect and acceptance?			
	Use encouraging words such as “Yes” and “Okay”?			
	Occasionally sum up the client’s statements?			
	Notice the client’s verbal and non-verbal cues?			
	Wait after asking questions to allow the client to formulate responses or questions?			

Empathise	Recognize and praise what the client is doing correctly?			
	Reflect the client's statements to show she/he was understood?			
	Accept what the client thinks and feels?			
Provide information	Clearly communicate important nutrition information based on the client's knowledge, cultural values and beliefs?			
	Use simple language?			
	Give a little relevant information at a time?			
	Make one or two suggestions without giving commands?			
Clarify	Check what the client said to ensure correct understanding?			
	Use phrases such as, "Did I understand you correctly when you said ..."?			

	Avoid words that sound judgemental?			
Find solutions	Suggest acceptable, affordable and feasible options?			
	Help the client find practical and realistic solutions?			
	Convince the client to implement solutions?			
	Help the client verbalize what other people may say about the suggested solutions?			
Summarise	Summarise the information the client has shared?			
	Check whether the client understood the important concerns or information?			
	Praise and reaffirm things the client is doing right?			
Follow up	Discuss appropriate follow-up with the client?			
	Encourage the client to adhere to the follow-up plan?			
Nutrition care plan.		Yes	x	remark
	Every PLHIV receives nutrition care based on a nutrition care plan developed for his/her nutritional status and health condition.			
	Every PLHIV, or caregiver who qualifies for specialised food products is told why he/she is eligible, the purpose of the food, how to prepare and eat the food, and at what weight he/she is expected to exit the program.			
	Eligibility (entry and exit) criteria for therapeutic and supplementary foods are posted where service providers and clients can see them clearly.			

	Every PLHIV, caregiver who qualifies for FBP is weighed on each visit, and the weight is recorded on the client record form			
	Every severely malnourished PLHIV is given an appetite test before being put on home management of severe malnutrition.			
	Every PLHIV who qualifies for specialised food products is prescribed enough therapeutic and/or supplementary food following national guidelines to last until the next return date.			

Appendix 4: Interview guide

A: Introduction

Name of evaluator _____

I am Tinkamwesigile a student studying Master of Science in Health Monitoring and Evaluation at Mzumbe University, Tanzania. I am gathering information from PLWHA at Bukoba regional referral hospital CTC about implementation process of the nutrition care and support services for PLWHA.

I would like to ask you some questions, which will take about 15- 30 minutes of your time. You may choose not to participate in this evaluation study if you prefer to, and this will not change your status in the CTC community. During our session I will be taking notes of our discussion on papers I have. The information you give will not be given to anyone else except for my study purpose and planning interventions for nutrition care and support services improvement. Your names are not even written here on this paper except signature if possible in some places as your discussion permission.

Do I have your permission to continue with asking questions?

If it is okay for you let you sign here (put signature) as sign of permission to continue _____

Date of interview _____

B. Demographic data

1. ID No
2. Address village/street...../wards.....
District.....
3. Sex

	Code
☐ male	1
☐ female	2

4. Age _____
5. Language of the respondent

☐ Kiswahili	1
☐ kiingereza	2
☐ kihaya	3
☐ kiganda kyaka	4

6. Position

☐ Staff on duty	1
☐ head of CTC nutrition unit	2
☐ Head CTC	3

7. Profession

☐ Nurse (enroll/ registered Nurse)	1
☐ Clinician(MD,AMO,CO, CA)	2
☐ Others specify	3

C: key guiding questions

1. (a) Can you explain by type and qualifications of staff who are providing services on nutrition care and support services to PLWHA (probe on capacity to measure anthropometrics, prescribe FBP, counseling /education, types of nutrition courses they attended-NACP/TFNC, their capability, their number)

2. (a) Can you tell about the types of nutrition care and support services you offer to PLWHA (probe Nutrition assessment, counseling/education, FBP, referral services)
(a) Can further explain the equipment and materials that are used for the nutrition care and support assessment (algorithmic charts, Height/lengths boards, tapes, scales)
3. How do you manage the FBP stores(probe recording, ordering, shelf life)
4. How do you monitor nutrition care and support for PLWHA services at CTC(probe monitoring of patients assessment according to guidelines, information, recording, FBP reports, quarterly and annually reports,
5. Can you tell who and when the nutrition care and support services supervision was done by your superior (probe on RMO, MOHSW,TNFC,NACP, ICAP)

Thanks for your cooperation.

Appendix 5: Exit interview questionnaires

A: Introduction

Name of evaluator _____

I am Tinkamwesigile a student studying Master of Science in Health Monitoring and Evaluation at Mzumbe University, Tanzania. I am gathering information from PLWHA at Bukoba regional referral hospital CTC about implementation process of the nutrition care and support services for PLWHA.

I would like to ask some questions, which will take about 15- 30 minutes of your time. You may choose not to participate in this evaluation study if you prefer to, and this will not change your status in the CTC community. During our session I will be taking notice of our discussion by filling or making a tick in papers I have. The information you give will not be given to anyone else except for my study purpose and planning interventions for nutrition care and support services improvement. Your names are not even written here on this paper except signature if possible in some place during our discussion.

If it is okay for you let you sign here (put signature) as sign of permission to continue _____

Date of interview _____

B: QUALITY CHECK

Date of check _____

Name of quality assurance _____

Signature _____

Remarks _____

C. Demographic data

1. ID No
2. Address village/street...../wards.....
District.....

3. Sex

	Code
☐ male	1
☐ female	2

4. Age _____

5. Reading capability

☐ yes	1
☐ no	2

6. Language of the respondent

☐ Kiswahili	1
☐ kiingereza	2
☐ kihaya	3
☐ kiganda kyaka	4

7. Education level of the participant

☐ informal education	1
☐ primary school education	2
☐ secondary school education	3
☐ certificate	4
☐ diploma	5
☐ University	6
☐ others specifies	7

8. Occupation of the respondent

☐ farmer	1
---------------------------------	---

☐ pet business	2
☐ government employee	3
☐ Non government employee	4
☐ livestock	5
☐ fishermen	6
☐ others specify	7

9.Marital status

☐ married	1
☐ single	2
☐ divorced	3
☐ widow	4
☐ widowed	5
☐ cohobiting	

D: Program services questions

9. Do you attend the CTC every months

☐ Yes	1
☐ No	2

10. When was your last height /MUAC measured

☐ On starting the service	1
☐ every months I attend	2
☐ 2-3 months past	3
☐ to day	4
☐ never	

11. Did your service provider take your weight today

☐ yes	1
☐ no	2

Did your service provider tell you your weight of today

☐ yes	1
☐ no	2

12. Were you satisfied with your service provide on how you were weighed to day

☐ very satisfied	1
☐ satisfid	2
☐ dissatisfied	3
☐ very dissatisfied	4

13. When was last session you and your service provider discussed about nutrition

☐ To day	1
☐ two months past	2
☐ three and above months past	3
☐ during start of the services	4

14. What topic was discussed on?

☐ causes and consequences of malnutrition	1
☐ Importance of anthropometric measurements	2
☐ increased energy need caused by HIV infection	3
☐ critical nutrition action	4
☐ dietary management of common nutritional condition	5
☐ ARV Medicines and food interation	6
☐ Food and water safety and hygiene	7
☐ Eating a balanced diet	8

☐ Backyard gardens and raising small animal	9

15. What was time taken with that discussion

☐ Below 15 minutes	1
☐ 15 minutes	2
☐ above 15 minutes	3

16. Were you satisfied with time taken to discuss with your service provider on nutrition?

☐ satisfied	1
☐ not satisfied	2

17. Do you think that service provider who provides nutrition care and support services are enough?

18. have you given with FBP since you start services

☐ yes	1
☐ no	2

19. how frequency did they give you of those FBP

☐ once	1
☐ several time	2

20. What is your opinion on nutrition care and support services provided at CTC ?

.....

21. Did service provider calculate and document BMI? (check card)

☐ Yes	1
☐ No	2

Thank you for your good cooperation.

Appendix 6: Dissemination plan

<i>S/n</i>	<i>Stakeholder</i>	<i>Role in the programme</i>	<i>Means of communication</i>	<i>Communication formats</i>	<i>Time frame</i>	<i>responsible</i>
1	RHMT	Supervision	Face to face	Power point presentation	Before &after submission.	Evaluator
2	HMT	Supervision	Face to face	Hard copy and power point presentation	Before &after submission	Evaluator
3	CTC provider	implementation	Face to face	Hard copy and power point presentation	Before submission and after	Evaluator
4.	PMTC provider	Implementation	Face to face	Power point presentation	Before &after submission	Evaluator
5	HBC provider	Implementation	Face to face	Power point presentation	Before &after submission	Evaluator
6	VCT provider	Implementation	Face to face	Power point presentation	Before &after submission	Evaluator
7	STI provider	implementation	Face to face	Power point presentation	Before &after submission	Evaluator
8	TB provider	implementation	Face to face	Power point presentation	Before& after submission	Evaluator
9	ICAP provider	Supervision/donor	Face to face	Power point presentation	Before &after submission	Evaluator
10	TFNC/NACP	Supervision/guideline developers	Email/phone	Soft copy report	After submission	Evaluator
11	Community	Beneficiaries	Face to face	Power point presentation	After submission	Evaluator
12	Mzumbe U.	Academic award	Face to face	Power point presentation and report	After submission	Evaluator

