ASSESSMENT OF COMMUNITY HEALTH VOLUNTEERS’ KNOWLEDGE REGARDING INFANT AND YOUNG CHILD FEEDING IN TEWOR DISTRICT, GRAND CAPE MOUNT COUNTY, LIBERIA.

by

Shiferaw Dechasa Demissie

submitted in fulfilment of the requirements

for the degree of

MASTER OF PUBLIC HEALTH

in the subject

Health Studies

at the

UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: Mrs Mashudu Manafe

June 2012
Student number: 4323-302-3

DECLARATION

I declare that ASSESSMENT OF COMMUNITY HEALTH VOLUNTEERS’ KNOWLEDGE REGARDING INFANT AND YOUNG CHILD FEEDING IN TEWOR DISTRICT, GRAND CAPE MOUNT COUNTY, LIBERIA is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.

Shiferaw Dechasa Demissie
June 02, 2012
Full names
Date
Acknowledgements

I wish to thank the following persons for their respective contributions to this dissertation:

- My wife, Melkamsira Tadesse, for her unconditional love, support and encouragement and for her understanding when I had to take time away from her and from our little daughter Yerosan Shiferaw.
- Mrs. Tigist Dechasa and Mr. Fanta Negash for following up on all the payments for my study at UNISA and making the payments on my behalf and for the encouragement they gave me.
- A special thanks to my supervisor, Manafe Mashudu, for her guidance, support and encouragement.
- My former colleague, Florence Rogers, for her willingness to supervise the data collection process.
- The Household Health Promoters of Tewor district, for their willingness to participate in the study.
- For my friend, Mekonnen K.Denbel (Phd), for proof reading and editing the dissertation for me.
- Medical Teams International, for giving me permission to conduct the study in Tewor district.
Assessment of Community Health Volunteers’ Knowledge Regarding Infant and Young Child Feeding in Tewor District, Grand Cape Mount County, Liberia.

Student Number: 4323-302-3

Student: Shiferaw Dechasa Demissie

Degree: Master of Public Health

Department: Health Studies, University Of South Africa

Supervisor: Mrs Mashudu Manafe

Abstract

The objectives of the study were to determine infant and young child feeding (IYCF) knowledge of Household Health Promoters (HHPs) and examine its relationship with demographic characteristics. Quantitative, non-experimental descriptive design was used. Seventy-one randomly selected HHPs participated in the study. A structured questionnaire was used to collect the data. The results showed that the mean IYCF knowledge score was 77.8% (N=71). The knowledge of the respondents was not uniform across the components of IYCF which ranged between 19.72% for duration of breastfeeding to 100% for colostrums feeding. None of the socio-demographic characteristic was significantly associated to the mean knowledge score. The study identified that refresher training should be provided to the HHPs on IYCF with emphasis on the aspects of IYCF with scores below the mean.

Key concepts:

Knowledge retention; Community Health Volunteers role; Community Health Volunteers Training; Refresher Training; Breastfeeding; Complimentary Feeding; Vitamin A supplementation; Child Survival; Infant and Young Child Nutrition; Infant and Young Child Feeding; Behaviour Change; Care Group;
TABLE OF CONTENTS

CHAPTER 1
ORIENTATION TO THE STUDY

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>1.2 BACKGROUND INFORMATION ABOUT THE RESEARCH PROBLEM</td>
<td>3</td>
</tr>
<tr>
<td>1.2.1 The Source of the Research Problem</td>
<td>3</td>
</tr>
<tr>
<td>1.2.2 Background to the Research Problem</td>
<td>3</td>
</tr>
<tr>
<td>1.3 RESEARCH PROBLEM</td>
<td>5</td>
</tr>
<tr>
<td>1.4 RESEARCH AIM/PURPOSE</td>
<td>5</td>
</tr>
<tr>
<td>1.5 RESEARCH OBJECTIVES</td>
<td>5</td>
</tr>
<tr>
<td>1.6 SIGNIFICANCE OF THE STUDY</td>
<td>6</td>
</tr>
<tr>
<td>1.7 DEFINITIONS OF TERMS</td>
<td>6</td>
</tr>
<tr>
<td>1.8 RESEARCH DESIGN AND METHOD</td>
<td>7</td>
</tr>
<tr>
<td>1.8.1 Research Design</td>
<td>8</td>
</tr>
<tr>
<td>1.8.2 Research Methodology</td>
<td>8</td>
</tr>
<tr>
<td>1.8.2.1 Population and Sample</td>
<td>8</td>
</tr>
<tr>
<td>1.8.2.2 Data Collection</td>
<td>9</td>
</tr>
<tr>
<td>1.9 SCOPE of the STUDY</td>
<td>9</td>
</tr>
<tr>
<td>1.10 STRUCTURE OF THE DISSERTATION</td>
<td>10</td>
</tr>
<tr>
<td>1.11 CONCLUSION</td>
<td>10</td>
</tr>
</tbody>
</table>
# CHAPTER 3

**RESEARCH DESIGN AND METHOD**

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>INTRODUCTION</td>
<td>26</td>
</tr>
<tr>
<td>3.2</td>
<td>RESEARCH DESIGN</td>
<td>26</td>
</tr>
<tr>
<td>3.2.1</td>
<td>Quantitative Research</td>
<td>27</td>
</tr>
<tr>
<td>3.2.2</td>
<td>Descriptive Design</td>
<td>27</td>
</tr>
<tr>
<td>3.3</td>
<td>RESEARCH METHOD</td>
<td>27</td>
</tr>
<tr>
<td>3.3.1</td>
<td>Sampling</td>
<td>27</td>
</tr>
<tr>
<td>3.3.1.1</td>
<td>Population</td>
<td>27</td>
</tr>
<tr>
<td>3.3.1.2</td>
<td>Sampling Frame</td>
<td>28</td>
</tr>
<tr>
<td>3.3.1.3</td>
<td>Sampling and Sample</td>
<td>28</td>
</tr>
<tr>
<td>3.3.1.4</td>
<td>Eligibility criteria</td>
<td>29</td>
</tr>
<tr>
<td>3.3.2</td>
<td>Data Collection</td>
<td>29</td>
</tr>
<tr>
<td>3.3.2.1</td>
<td>Data collection approach and method</td>
<td>29</td>
</tr>
<tr>
<td>3.3.2.2</td>
<td>Development and testing of the data collection instrument</td>
<td>30</td>
</tr>
<tr>
<td>3.3.2.3</td>
<td>Data collection process</td>
<td>30</td>
</tr>
<tr>
<td>3.3.4</td>
<td>Data Analysis</td>
<td>31</td>
</tr>
<tr>
<td>3.4</td>
<td>ETHICAL CONSIDERATIONS</td>
<td>31</td>
</tr>
<tr>
<td>3.4.1</td>
<td>Protecting the Rights of the Participants</td>
<td>31</td>
</tr>
<tr>
<td>3.4.2</td>
<td>Protecting the Rights of the Institution</td>
<td>32</td>
</tr>
<tr>
<td>3.4.3</td>
<td>Scientific Integrity of the Research</td>
<td>32</td>
</tr>
<tr>
<td>3.5</td>
<td>VALIDITY AND RELIABILITY</td>
<td>32</td>
</tr>
<tr>
<td>3.6</td>
<td>CONCLUSION</td>
<td>33</td>
</tr>
</tbody>
</table>
CHAPTER 4

ANALYSIS, PRESENTATION AND DESCRIPTION OF THE RESEARCH FINDINGS

4.1 INTRODUCTION.................................................................................................................. 34
4.2 DATA MANAGEMENT AND ANALYSIS ............................................................................. 35
4.3 RESEARCH RESULTS....................................................................................................... 35
4.3.1 Section 1: Socio-Demographic Data............................................................................. 35
4.3.1.1 Respondents’ Age..................................................................................................... 36
4.3.1.2 Respondents Level of Education............................................................................ 36
4.3.1.3 Distance of Residence Place to the Nearest Health Facility............................... 37
4.3.1.4 Whether the respondent had a child Aged 1 – 5 Years........................................ 38
4.3.1.5 Respondents’ participation in the Child Survival project as HHP......................... 39
4.3.2 Section 2: IYCF Knowledge of the HHPs................................................................. 40
4.3.2.1 Overall IYCF Knowledge Score............................................................................. 40
4.3.2.2 Optimal Breastfeeding for Infants Age 0 to 6 Months......................................... 42
4.3.2.3 Optimal Complementary Feeding for Children 6 to 24 Months......................... 44
4.3.2.4 Optimal Nutritional Care of Sick Children......................................................... 45
4.3.2.5 Vitamin A Supplementation.................................................................................. 45
4.3.2.6 Optimal Nutrition for Women............................................................................... 46
4.3.3 Section 3: Knowledge Score and Demographic Characteristics............................ 46
4.3.3.1 Level of education and knowledge of HHPs......................................................... 46
4.3.3.2 Age and knowledge of HHPs................................................................................ 48
4.3.3.3 Distance from nearest health facility and knowledge of HHPs............................. 49
4.3.3.4 Having child under the age of 2 years during participation in the Child Survival Project and knowledge of HHPs................................................................. 50
4.3.3.5 Duration of participation in the Child Survival Project as HHP and Knowledge of HHPs........................................................................................................... 51
4.4 OVERVIEW OF RESEARCH FINDINGS........................................... 52
4.5 CONCLUSION............................................................................. 52
CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION ........................................................................................................... 53
5.2 RESEARCH DESIGN AND METHOD ................................................................. 53
5.3 SUMMARY AND INTERPRETATION OF THE RESEARCH FINDINGS... 54
  5.3.1 Socio-Demographic Characteristics of the Household Health Promoters .......................................................... 54
  5.3.2 Infant and Young Child Nutrition Knowledge of the HHNs ........................................ 55
    5.3.2.1 Optimal Breastfeeding for Infants Age 0 to 6 Months ......................... 55
    5.3.2.2 Optimal Complementary Feeding for Children 6 to 24 Months ......... 55
    5.3.2.3 Vitamin A Supplementation .................................................................. 56
    5.3.2.4 Optimal Nutrition for Women ............................................................. 56
  5.3.3 Knowledge Score and Demographic Characteristics ............................................. 56
  5.4 CONCLUSIONS ....................................................................................................... 57
  5.5 RECOMMENDATIONS .......................................................................................... 58
    5.5.1 Recommendations for improvement ......................................................... 58
    5.5.2 Recommendations for Further Study ....................................................... 59
  5.6 CONTRIBUTIONS OF THE STUDY ...................................................................... 60
  5.7 LIMITATIONS OF THE STUDY ......................................................................... 60
  5.8 CONCLUDING REMARKS .................................................................................. 60
LIST OF REFERENCES 62
LIST OF TABLES

Table 4.1 Respondents’ age distribution (N=71)

Table 4.2: Distribution of HHPs knowledge scores about infant and young child feeding (N=71)

Table 4.3: Summary of infant and young child feeding results (N=71)

Table 4.4: Respondents’ knowledge of recommendations about total breastfeeding duration (N=71)

LIST OF FIGURES

Figure 4.1: Respondents’ educational levels (N=71)

Figure 4.2: Distance of residence place of HHPs to the nearest health facility (N=71)

Figure 4.3: HHPs with child aged between 1 and 5 years at the time of survey (N=71)

Figure 4.4: Participation of the HHPs in the Child Survival Project (N=71)

Figure 4.5: Knowledge of HHPs about optimal breastfeeding for infants 0 to 6 months (N=71)

Figure 4.6: Knowledge of HHPs by level of education (N=71)

Figure 4.7: Knowledge of HHPs by age (N=71)

Figure 4.8: Knowledge of HHPs by distance of residence place from the nearest health facility (N=71)

Figure 4.9: Knowledge of HHPs by whether the HHP had child under the age of 2 years during participation in the Child Survival Project and knowledge of HHPs (N=71)
Figure 4.10: Knowledge of HHPs by Duration of participation in the Child Survival Project as HHP (N=71)

**Annexure:**

Annexure A: Approval from the university
Annexure B: Letter seeking consent from Medical Teams International
Annexure C: Letter of approval from Medical Teams International
Annexure D: Consent form for research participants
Annexure E: Questionnaire
Annexure F: Certificate of Editing and Proof Reading
**ACRONYMS**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASICS</td>
<td>Basic Support for Institutionalizing Child Survival</td>
</tr>
<tr>
<td>CHV</td>
<td>Community Health Volunteer</td>
</tr>
<tr>
<td>CHW</td>
<td>Community Health Worker</td>
</tr>
<tr>
<td>CSP</td>
<td>Child Survival Project</td>
</tr>
<tr>
<td>DOTS</td>
<td>Directly Observed Therapy – Short Course</td>
</tr>
<tr>
<td>EPI</td>
<td>Expanded Program of Immunization</td>
</tr>
<tr>
<td>HHP</td>
<td>Household Health Promoter</td>
</tr>
<tr>
<td>ITN</td>
<td>Insecticide Treated Nets</td>
</tr>
<tr>
<td>IYCF</td>
<td>Infant and Young Child Feeding</td>
</tr>
<tr>
<td>MDG</td>
<td>Millennium Development Goals</td>
</tr>
<tr>
<td>MNCH</td>
<td>Maternal, Neonatal And Child Health</td>
</tr>
<tr>
<td>MOHSW</td>
<td>Ministry Of Health &amp; Social Welfare</td>
</tr>
<tr>
<td>MTI</td>
<td>Medical Teams International</td>
</tr>
<tr>
<td>NID</td>
<td>National Immunization Day</td>
</tr>
<tr>
<td>TBAs</td>
<td>Traditional Birth Attendants</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
</tr>
<tr>
<td>USAID/GH/HIDN</td>
<td>United States Agency for International Development. Bureau for Global Health Office of Health, Disease, and Nutrition</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

The prevalence of stunting, a measure of long-term or chronic malnutrition, is estimated at 41.8% in Liberia. This condition is caused by poor infant and young child feeding (IYCF) (Republic of Liberia 2010:97). IYCF practices directly affect the nutritional status of children under two years of age and, ultimately, impact child survival. Improving IYCF practices in children 0–23 months old, is therefore critical to improved nutrition, health and development of children (WHO 2008:2). Community-based support, including that provided by other mothers, lay and peer educators, can effectively enable women to feed their children properly (WHO 2003:22). Compared to the usual care, the use of community health workers in health programmes shows promising benefits, particularly in promoting feeding practices such as breastfeeding. It has also proven effective in reducing mortality and morbidity from common childhood illnesses (Lewin, Babigumira, Bosch-Capblanch, Aja, van Wyk, Glenton, Scheel, Zwarenstein, Daniels 2006:37).

The use of lay community health workers has been identified as one strategy to address the growing shortage of health workers, particularly in low-income countries. Using community members to render certain basic health services to the communities they live in, is a concept that has been around for at least 50 years (Lehmann & Sanders 2007:5). Training of community health workers followed by provision of regular refresher training courses is an accepted approach for enhancing and sustaining the knowledge of the community health workers to do their work effectively. Medical Teams International (MTI), an international relief and development organization, used Care Group Model, a network of volunteer mothers, named household health promoters (HHPs), for its Child Survival Project (CSP).
The CSP was implemented from October 2006 to September 2010 in Grand Cape Mount County of Liberia. IYCF was one of the major components of the project which the HHPs promoted in the communities on a house to house basis, in order to facilitate behaviour change. The IYCF components included promotion of optimal breastfeeding during the first six months and complementary feeding starting at six months with continued breastfeeding to two years of age and beyond. It also encouraged optimal nutritional care of sick and severely malnourished children; prevention of vitamin A deficiency for women and children; and optimal nutrition for women. According to the project design, the HHPs were expected to continue promoting IYCF in the communities even after the end of the project to promote sustained behaviour change.

The continuity of the work of the HHPs depends, to a large extent on the level of the knowledge they may have retained including other factors such as motivation and support that could affect the continuity of their work. If the HHPs do not retain the knowledge they acquired, they might stop the work or deliver inconsistent and incorrect messages which could endanger the quality of their work. As such a well planned follow up is required to ensure the knowledge retention of the HHPs.

Though HHPs and other community health volunteers have a major role to play in the health delivery system of Liberia, there have not been adequate studies conducted in relation to factors that determine their effectiveness and the sustainability of the work they do, including their knowledge retention after their initial training. This research aimed to investigate IYCF knowledge retention rate of the HHPs 18 months after the completion of the CSP. The research findings provided valuable information on the percentage of the HHPs who still retained the knowledge acquired in IYCF during the implementation of the CSP and also gave insight into whether demographic factors are associated with better knowledge retention.
1.2 BACKGROUND INFORMATION ABOUT THE RESEARCH PROBLEM

1.2.1 The Source of the Research Problem

One of the objectives of the CSP was to improve health behaviours and actions at the household level through the HHPs. Accordingly, the HHPs played a significant role in enabling the project to achieve its set objectives especially in IYCF through the provision of house to house health education and facilitating behaviour change at household level. The project succeeded in improving the IYCF behaviour and practices by the end of the project implementation period, as demonstrated by final evaluation of the project (Capps, Carruth, Nitkin, Doty, Dechasa 2010). The HHPs, however, were expected to continue the promotion of IYCF after the completion of the project to promote sustained behaviour change at household level. They were also linked to local health facilities and other community structures to motivate and support them.

The project team assumed that if the HHPs receive motivation from the communities and local health facilities, they would continue promoting IYCF. When the assumption was made, it was not known for how long the HHPs would retain the knowledge they acquired during the CSP implementation period. The researcher, who was the manager of the CSP, realized that motivation alone without provision of refresher training would not be sufficient and could endanger sustainability of the work of the HHPs. In addition, he and the health team observed that the HHPs generally continued the work with some performing more actively than the others. This motivated the researcher to assess the knowledge of the HHPs in IYCF 18 months after the completion of the project.

1.2.2 Background to the Research Problem

The IYCF practices of care givers were very poor in the county at the start-up of the CSP. According to the baseline survey conducted by the project, percentages of
newborns that were breastfed within one hour of delivery and did not receive pre-lacteal feeds was only 33.7% and percentage of infants 6 – 9 months receiving breast milk and complementary foods was only 37.5% (Capps et al, 2010:10-12). The CSP aimed at improving the IYCF components described in section 1.1 in this document among other child health services through intensive behaviour change communication and community mobilization at community level. This necessitated the involvement of the HHPs and consequently their trainings. The project placed much emphasis in and relied upon the work of the HHPs to improve the IYCF practices of the care givers. Provision of effective basic and refresher trainings as well as supervision of the HHPs were some of the key activities of the CSP team until the end of the project.

Community health workers that are required to work for a long term, like the HHPs of the CSP, need to have their knowledge checked periodically. This study aimed to do so 18 months after the end of the CSP. What is the best time to consider giving refresher training, need to be determined based on evidence to ensure high level of knowledge. A number of studies have found that, if regular refresher trainings are not available, acquired skills and knowledge are quickly lost (Ashwell & Freeman 1995:198-207). Ryan, John, and Brieger (1991: 123-133), state that, knowledge of volunteer health workers deteriorates over time, while another study that compared traditional birth attendants and volunteer village health workers, identified that overall knowledge results would deteriorate over time that may likely be a natural result of knowledge decay (Ande, Oladepo, & Brieger 2004:110-113). This indicates that there needs to be regular refresher training to maintain higher level of knowledge. Ande et al (2004:110-113) emphasize that continued education may even be more important than who is selected. Refresher courses, in addition to preventing knowledge decay; can also ensure consistencies of key IYCF messages promoted by the HHPs.

When it comes to other factors that might affect knowledge retention, there are different findings. For example, Ryan et al 1991 cite that those with more education retain more knowledge while another study shows that level of education and age do not have effect on knowledge retention. Ande et al (2004:110-113) states that although volunteer health workers were younger and better educated than the traditional birth attendants (TBAs),
the two groups had similar levels of knowledge about diarrhoea recognition, cause and prevention.

1.3 RESEARCH PROBLEM

This research aimed at investigating the IYCF knowledge, demographic profile and the relationship between demographic characteristics and IYCF knowledge of HHPs who participated in CSP in Tewor district, Grand Cape Mount County, Liberia.

1.4 RESEARCH AIM/PURPOSE

This study aimed to determine the level of knowledge of the HHPs 18 months after the end of the CSP, to determine demographic profile of participants and to examine the relationship between demographic characteristics and knowledge of HHP’s. The ultimate aim of the study was to contribute to the existing body of knowledge in community health interventions that utilize community health volunteers.

1.5 RESEARCH OBJECTIVES

The specific research objectives were to:

1. Determine IYCF knowledge of HHP’s 18 months after the child survival project ended.
2. To determine demographic profile of participants
3. Examine the relationship between knowledge of HHPs regarding IYCF and demographic characteristics.
1.6 SIGNIFICANCE OF THE STUDY

The researcher anticipates that knowledge gained from this research provides valuable information to MTI and the County Health Team of Grand Cape Mount County, regarding the IYCF knowledge of the HHPs, and helps in planning concrete actions that enhances the knowledge of the HHPs in a cost effective manner. It can also serve the Ministry of Health and Social Welfare (MoHSW) of Liberia, as well as other organizations that use community health volunteers, as a viable input for improving their effectiveness in considerations of sustainability of their work, as it relates to knowledge retention of the volunteers.

1.7 DEFINITIONS OF TERMS

The following are definitions of key concepts that were used in this research.

**Community health workers:** The umbrella term “community health worker” (CHW) embraces a variety of community health aides selected, trained and working in the communities from which they come. A widely accepted definition was proposed by a WHO Study Group (WHO 1989): Community health workers should be members of the communities where they work, should be selected by the communities, should be answerable to the communities for their activities, should be supported by the health system but not necessarily a part of its organization, and have shorter training than professional workers (Lehmann & Sanders 2007:3).

**Care group:** a group of 10 to 15 volunteer community-based health educators who regularly meet together with project staff for training, supervision and support. Care groups are distinguished by the on-going relationship within the care group as well as each volunteer’s responsibility to teach individual households outside of the meeting, thus multiplying training. Volunteers belonging to care groups provide greater peer support, develop stronger commitment to health activities and find more creative solutions to challenges by working as a group compared to individual volunteers expected to work independently (Laughlin 2004:7).
**Household Health Promoters (HHPs)** are community health workers who made up the care group that the CSP utilized.

**Infant:** Infant in this study represent child aged from 0 to 11 month old.

**Young child:** young child in this study refers to child aged from 12 months to 24 months old.

**Knowledge/information retention:** refers to taking in and storing what has been learned (BASICS 2009:3).

**Infant and young child feeding:** refers to the promotion of such interventions including promotion of optimal breastfeeding during the first six months (timely initiation within one hour; exclusive breastfeeding for six months); promotion of optimal complementary feeding starting at six months with continued breastfeeding to two years of age and beyond; promotion of optimal nutritional care of sick and severely malnourished children; prevention of vitamin A deficiency for women and children; and promotion of optimal nutrition for women (USAID/GH/HIDN 2007; WHO 2010).

**Caregiver:** An individual who has primary responsibility for the care of a child. Usually, it is the child’s mother, but could also be his or her father, grandparent, older sibling, or other member of the community (USAID/GH/HIDN 2007).

### 1.8 RESEARCH DESIGN AND METHOD

The study took a form of quantitative research. Quantitative research techniques were used to quantify the size, distribution, and association of certain variables in a study population (Varkevisser, Pathmanatha, Brownlee 2003:150). The research aimed at determining the level of knowledge of the HHPs 18 months after the end of CSP, determining demographic profile of participants and examining the relationship between demographic characteristics and knowledge of HHP’s. Therefore, quantitative research was found to be most appropriate for this study.
1.8.1 Research Design

The selected research design was non-experimental descriptive design. A descriptive study involves describing the characteristics of a particular situation, event or case (Varkevisser et al. 2003:123). Therefore, it was found to be appropriate for this study.

1.8.2 Research Methodology

1.8.2.1 Population and Sample

The population consisted of HHPs that the CSP of MTI used during the four year CSP implementation period in Tewor District of Grand Cape Mount County of Liberia. Ninety two (92) HHPs participated in the CSP in the district and all of them were included in the population. All the HHPs that participated in the CSP were women.

The researcher used probability sampling to randomly select samples for the study. Random sampling ensured that each HHP had equal probability of being included in the study to enhance the generalisability of the study to the HHPs in the district. The sample size for this research was determined using a sample size calculator (MACORR 2011) at confidence interval of 95% and confidence level of 5%. From a population of 92, a sample size of 74 was obtained. The list of HHPs in the district was obtained from MTI which served as sampling frame for calculating the sample size and for sampling. The sampling interval was found to be 1.25, so every 5th HHP on the list of HHPs was excluded. Starting HHP for exclusion was selected randomly from the first five names on the sampling frame.

1.8.2.2 Data Collection

Data were collected using a pre-tested structured questionnaire that enabled the researcher to quantify pre-categorised answers to questions (Varkevisser et al. 2003:150). The questionnaire had close ended questions that were translated into
Liberian English and translated back into Standard English. The questionnaire had two sections. The first section was related to socio-demographic questions with questions on age, level of education and whether the HHP had a child whose age was below five years. The second section had questions related to knowledge of the HHPs in the areas of IYCF.

Data enumerators that had experience in data collection previously were recruited and trained before data collection. A data collection supervisor was also selected and trained to ensure quality of data collection. The supervisor and principal investigator checked questionnaires for completeness and consistency every day during the data collection period and before data entry. The data collection took place in the respective villages of the HHPs on an individual basis.

1.9 SCOPE OF THE STUDY

The researcher selected only one district for this study out of five districts in Grand Cape Mount County, where the MTI CSP was implemented, to ensure manageability and also based on financial capability of the researcher. Tewor district was chosen based on the fact that similar or closely related project was not running in the district while this study was undertaken unlike some other districts of the County. Therefore, generalization of the findings is limited to Tewor district. The researcher properly planned to ensure random selection by obtaining list of the HHPs from MTI and by meeting participants in their households, when it was convenient for them. The researcher properly trained data enumerators in the data collection methodologies and in the use of the structured questionnaire.

1.10 STRUCTURE OF THE DISSERTATION

The structure of the study is divided in to five major chapters. Description of each chapter is provided as follows.
Chapter 1 (Orientation to the Study): provides introduction; background information about the research; research problem, aim and objectives; research design and methods; scope and significance of the study.

Chapter 2 (Literature Review): covers the literature review on Community Health Volunteers/workers (CHVs/CHWs). It discusses background to CHVs/CHWs, their roles, training aspects of CHVs and issues related to knowledge retention.

Chapter 3 (Research Design and Method): describes the research design and method used in this study. It discusses the research design, population and sample, data instruments and collection, validity and reliability, ethical considerations and limitations of the study.

Chapter 4 (Analysis, Presentation and Description of The Research Findings): presents the data analysis, results and interpretations.

Chapter 5 (Conclusions and Recommendations): concludes the study, identifies limitations of the study and makes recommendations based on the findings and identifies further research.

1.11 CONCLUSION

This chapter provided introduction; background information about the research; research problem, aim and objectives; research design and methods; scope and significance of the study. It also identified and defined key concepts that were used in the study.

Chapter 2 covers the literature review on Community Health Volunteers/workers (CHVs/CHWs).
CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter discusses the literature review on Community Health Volunteers (CHVs). It investigates the views of other related studies in different settings for the purpose of assisting the researcher to identify knowledge gaps, to stimulate further reading, to identify and define related concepts to the topic and to determine trends and developments in the field of study. It also discusses background to CHVs, their roles, training aspects of CHVs and issues related to knowledge retention.

2.2 COMMUNITY HEALTH VOLUNTEERS

2.2.1 Who Are Community Health Volunteers?

The phrase Community Health Workers (CHWs) embraces a variety of community health aides, selected, trained and working in the communities from which they come (Lehmann & Sanders 2007:3). It has a broad spectrum of meaning. Initially, lay health workers and community health workers were used interchangeably, signifying a community member who had received basic training to support health mobilization or community activities (The Earth Institute, Columbia University 2011:14). Since the role of the community health worker was re-emphasized during the Alma Ata conference in 1978, there have been several variations and definitions of this term Globally. They are called by a variety of names including Village Health Workers, Cancer Supporters and Birth Attendants (Lewin, Babigumira, Bosch-Capblanch, Aja, Van Wyk, Glenton, Scheel,
Zwarenstein, Daniels 2006:5), Health Auxiliaries, Barefoot Doctors, Health Agents, Health Promoters, Family Welfare Educators, Health Volunteers, Village Health Workers, Community Health Aides, Community Health Volunteers and Community Health Workers. With the varying demands and differing levels of health within countries, regions, districts, and villages, each community has its own version of the community health worker (UNICEF 2004:1). They are referred to as Community Health Volunteers (CHVs) in Liberia (MOHSW 2011). The phrase herein after will be referred to as Community Health Volunteers (CHVs).

Common attributes across CHVs, regardless of nomenclature, health condition, or intervention include: (1) their role as health workers who share a relationship with their community (e.g., shared language, ethnicity, geography, race, or disease condition) and (2) the absence of professional training. They are usually provided with informal job-related training, they have no formal professional or paraprofessional tertiary education (Lewin et al 2006:5). The relationship that CHVs have with the community in which they work has long identified them as a natural bridge to the health care system (Viswanathan, Kraschnewski, Nishikawa, Morgan, Thieda, Honeycutt, Lohr, Jonas, 2009:12). However, some programs require that CHVs be literate (primary school educated) so that they can record health information and use written materials. Literacy requirements often affect the age of the selected CHVs; literate CHVs tend to be younger (Bhattacharyya, Winch, LeBan, & Tien 2001:11).

CHV programmes are not cheap or easy but are nonetheless a good investment especially in poor countries, since the alternative, in real terms is no care for the poor who may be living in geographically peripheral areas with its attendant pressures on health systems. Successful CHV program involves appropriate selection, continuing education, involvement and reorientation of health service staff and curricula and improvement in supervision and support. These need political leadership and substantial and consistent financial, technical and material support (Lehmann & Sanders 2007:27). In recent years, many countries have expanded their health systems by training CHVs on a large scale. These CHVs are either paid or voluntary workers. They are part of government or national programs, and differ from CHVs trained in
small-scale, often non-government projects influenced by charismatic leaders and funded externally (UNICEF 2004:1).

2.2.2 Care Group

Care group is a form of CHV model. World Relief staff developed the Care Group model in Mozambique in 1995. Food for the Hungry adopted the model in Mozambique in 1997, and both organizations pioneered use of the model since then. A Care Group is a group of 10-15 volunteers, community-based health educators who regularly meet together with the project staff for training and supervision. They are different from typical CHVs in that each volunteer is responsible for regularly visiting 10-15 of her neighbours, sharing what she has learned and facilitating behaviour change at the household level (World Relief & Food for the Hungry 2010:1). Evidence supports the effectiveness of the care group model in a variety of ways. Care groups saturate all households in the project area with lessons on new health practices, resulting in widespread behaviour change. There are shifts in beliefs related to health, creating a solid foundation on which to sustain the health practices. The transformational effect of care groups reaches far, creating a lasting difference in communities (Laughlin 2004:19).

Care Groups create a multiplying effect to equitably reach every beneficiary household with interpersonal behaviour change communication, including promotion of health service utilization (Technical Advisory Group Meeting Summary on Care Groups 2010:1). With the support of project staff, care group volunteers in a CSP teach households, health lessons related to each major intervention, and providing on-going encouragement to households (Laughlin 2004:9). They also provide the structure for a community health information system that reports on new pregnancies, births and deaths detected during home visits (World Relief & Food for the Hungry. 2010:1). The Grand Cape Mount CSP of MTI utilized care group for the promotion of Infant and Young Child Nutrition (IYCN) and other activities. The CHVs that participated in the MTI CSP care group are named Household Health Promoters (HHPs).
2.3 ROLES OF CHVS

2.3.1 General Roles of CHVs

CHVs can make a valuable contribution to community development and, more specifically, can improve access to and coverage of communities with basic health services (Lehmann & Sanders 2007:26, BASICS 2009:11) and create the link between the community and the health system (UNICEF 2004:32). CHVs can serve as complimentary force for promoting utilization of available health services (UNICEF 2004:32), promoting preventive health messages, providing nutritional counselling or curative care, and helping community residents find other health care options through referrals (BASICS 2009:11). CHVs, by virtue of their role as a bridge to the health care system, can help to disseminate widely efficient interventions to populations that rarely on benefit from health care advances (Viswanathan et al 2009:7).

CHVs are involved in a very diverse array of activities. The Alma Ata Declaration outlined the following tasks expected of CHVs: home visits, environmental sanitation, provision of safe drinking water, first aid and treatment of simple and common ailments, health education, nutrition and surveillance, maternal and child health and family planning activities, communicable disease control, community development activities, referrals, recordkeeping, and collection of data on vital events (Ofosu-Amaah 1983:10).

In the past CHV programmes focused on prevention, health promotion and development issues. Today they are increasingly used to provide services in care and support for people infected and affected by HIV & AIDS with a limited role in prevention. (Friedman, Ramalepe, Matjuis, Bhengu, Lloyd, Mafuleka, Ndaba, & Boloyi 2007:3). CHVs are capable of addressing barriers in access to care, improving continuum of care, linking health care systems and communities, and complementing national data systems even in low-performing primary health care systems. In addition, deploying a well-designed CHV program within a weak health system is a viable health systems strengthening strategy. Their role is most notable in resource poor settings where health and social services are inadequate, poverty is endemic and HIV/AIDS is a major problem. The inadequacy of the health services in poor communities has heightened...
the need for CHVs to make Primary Health Care more accessible to communities & to promote the responsible use of overburdened health facilities in the community (Friedman et al 2007:3).

There are many proven household and community level interventions that support maternal, child and overall community health services through CHVs. A core component of a CHV program is extension of the health care system to the community level. This extension can emerge through a combination of visiting households in their catchment zone on a regular rotation, identifying and visiting vulnerable households with relevant frequency for monitoring and care, availability at the community level for families seeking acute care for a sick family member, and referrals to and from the primary health care system (The Earth Institute, Columbia University 2011:28).

CHVs provide variety of essential health and health related services. Friedman et al show that more than 60% of all agencies that were studied in South Africa are involved in health promotion, health education, home based palliative care, caring for orphans and vulnerable children or some aspect related to nutrition, food provision and preparation and food security. About half of the projects were involved in providing counselling, assisting clients to access grants, some form of psychosocial support, income generation and providing adherence support in the form of Directly Observed Therapy – Short Course (DOTS) (Friedman et al 2007:21).

While there are evidences that CHVs can be successful in their assigned roles in improving health outcomes (Lehmann et al 2007:26), especially in small, well-managed projects (UNICEF 2004:32), they do not consistently provide services likely to have substantial health impact, and the quality of services they provide is sometimes poor (Lehmann et al 2007:26). Friedman et al show that not all CHVs that perform many functions may do equally well and indicate that a general understanding of each function is important if clients are to get a well-integrated service (Friedman et al 2007:19). CHVs are best able to carry out clearly defined, concrete tasks over a short and specific time period such as national health campaigns like Vitamin A distribution and polio campaigns rather than carrying out broad-based activities such as health education. One should also take into consideration that increased burden of work and
excessive time commitment for multiple tasks could overwhelm volunteers which in turn, can negatively affect their performance and the program (UNICEF 2004:32). It is also important that CHVs maintain a delicate balance between the curative and preventive role to be effective (UNICEF 2004:32; Prasad, Muraleedharan 2007:7-8). The evidence from Nepal and Bangladesh shows that prevention is extremely hard to sell while curative care (treatment of ARI and other minor health problems) is generally more welcomed and appreciated by the community members. (UNICEF 2004:32)

CHV programmes are vulnerable unless they are driven, owned by and firmly embedded in communities themselves. Where this is not the case, they exist on the geographical and organizational periphery of the formal health system, making them fragile and unsustainable (Lehmann et al 2007:26). Lehmann et al notes that although in many programmes they are expected to spend only a small amount of time on their health-related duties, leaving time for other breadwinning activities, community demand often requires full-time performance. In addition, the question of whether CHVs should be volunteers or remunerated in some form remains controversial. There exists virtually no evidence that volunteerism can be sustained for long periods (Lehmann et al 2007:26).

2.3.2 Roles of CHVs in Liberia

CHVs have been recruited and trained by various entities in Liberia. NGOs involved in community health services over the past several years have developed a number of new cadres in areas where they have been working. Mostly the work of the CHVs is limited to health promotion roles. Various vertical programs have had community-level activities using CHVs, for example to support onchocerciasis, and malaria programs. Although this community level work has been contributing to the improvement of health conditions in the country, these efforts are not yet optimally coordinated. As Liberia transitions from humanitarian response to development, a need to rationalized approach to community health services has become very apparent (MOHSW 2011:3).
During 2010 and 2011, the Community Health Services Division of the Ministry of Health and Social Services, MOHSW of Liberia, was reorganized to increase access to basic health services at the community level. In order to provide these services, the division formulated Community Health Services Policy, Community Health Services Strategy and Training Curriculums for Community Health Volunteers. One important function is to improve access to a limited set of simple high-impact interventions for those segments of the population living more than 5 km and above or one hour walk from the closest health facility through the involvement of CHVs. The Community Health Services Strategy (MOHSW 2011:9) identifies key health interventions to be undertaken by the CHVs in Liberia. Some of the key health interventions include:

1. Linking the community and health facility in support of outreach services – Expanded Program of Immunization (EPI), Tuberculosis/DOTS, special campaigns days (vitamin A supplement distribution, National Immunization Days (NIDs), child health days, and national HIV/AIDS day, Insecticide Treated Nets (ITN) distribution);

2. Health Promotion in the areas of hygiene and sanitation, immunization, and safe drinking water.

3. Distribution and dispensing of Family Planning commodities pills, injectables, condoms; etc.

4. Maternal health services: Post-partum haemorrhage prevention through the distribution of misoprostol; distribution of iron/ folate, calcium, de-worming tablets; Intermittent Presumptive Therapy (IPT); Long Lasting Insecticide Treated Net(LLITN) distribution; post-partum iron supplementation; vitamin A administration; post-natal care including care of the newborn and essential nutrition actions;

5. Integrated Community Case Management of diarrhoea, malaria and pneumonia;

6. Essential nutrition actions and growth monitoring;

2.3.3 Roles of CHVs in Child Survival Including Infant and Young Child Nutrition (IYCN)

Nearly 8.1 million children under age of five died in 2009—or more than 22,000 children a day (You, Jones and Wardlaw 2010:1). As countries around the globe strive to meet the health related Millennium Development Goals (MDGs) to improve child health and reduce mortality, evidences have emerged indicating the effectiveness of community-based interventions as a platform to extend health care delivery and improve health outcomes.

The crucial role that CHVs can play in delivering these interventions is broadly recognized. CHVs are best positioned to deliver these services in communities (The Earth Institute, Columbia University 2011:6). Laughlin indicate that fewer children were dying in a CSP area which used CHVs within a care group model. During a three-year period, under-5 mortality decreased by 62%, (119 deaths per 1000 live births in 2000, 65 and 45 deaths per 1000 live births in 2001 and in 2002 respectively (Laughlin 2004:13). Lewin et al also demonstrate that CHVs show promising benefits, compared to usual care, in promoting immunization and breastfeeding uptake; in reducing mortality and morbidity from common childhood illnesses among other functions (Lewin et al 2006:37).

In addition, CHVs can provide effective improvements in child and neonatal health at the household and community levels without strong support from more clinically skilled providers (The Earth Institute, Columbia University 2011:20). CHVs have also proven to be effective in promoting birth spacing, linking recently delivered women with family planning services, and in transferring information to mothers about obstetric complications and the need for referral (Alam, Sarker, Shafi, Banu, Ahmed, Mridha 2012:3 ). Community case management of childhood illnesses is also a type of service that CHVs can deliver in a community, typically prompted by caretakers seeking out CHVs for care or other means of identifying sick children and conducting a special home visit when a child is ill. In an HIV-endemic area, CHVs can also play pivotal roles
in the control of HIV at the community level (The Earth Institute, Columbia University 2011:28)

2.4 TRAINING AND SUPPORT OF COMMUNITY HEALTH VOLUNTEERS

2.4.1 CHV Training

CHVs are often selected without any prior experience or professional training in community health, which necessitates that the CHVs should be given initial and continuing training (Abbatt 2005:2). CHV’s training can produce several outcomes, such as changes in attitudes, knowledge and behaviors, changing the health status of people served by them, changing attitudes of health sector staff, and improving cost effectiveness (Campos, Ferreira, Souza, Aguiar. 2004:11).

For CHVs to be able to make an effective contribution, they need to be appropriately trained and adequately and continuously supported. Large-scale CHV systems require substantial increases in support for training, management, supervision and logistics (Lehmann et al 2007:26). In addition, UNICEF reveals a strong need for the training in interpersonal communication and counselling skills, including methods of adult participatory learning (UNICEF 2004:31)

CHV training duration varies considerably between countries from rapid training to months and to multi-year certification programs (The Earth Institute, Columbia University 2011:71). In Brazil, they receive training for about 6 to 8 months at the beginning of their career (Campos et al 2004:28). The duration and form of training need to take into account the required competencies for the roles and responsibilities of the CHVs (The Earth Institute, Columbia University 2011:71; Prasad et al 2007:7-8).

Multi-year certification programs are the more traditional approaches to training CHVs (The Earth Institute, Columbia University 2011:71). In contrast, newer rapid training approaches aim to train and deploy on-the-ground, functionally effective CHVs at scale without a large initial time lag between recruitment and deployment. However, the
effectiveness of the rapid training approach still needs further evaluation (The Earth Institute, Columbia University 2011:71). The level of education that they already possess also determines the content and duration of trainings (Prasad et al 2007:7-8).

In order for training to be successful, it must respond to the needs and preferences of participants. The goal of trainings should not be limited to only expose participants to new ideas, skills, and problem-solving approaches, but also to change their knowledge, attitudes, and behaviours, where required. In order to achieve these, BASICS and POPPHI (2009:2) suggest that trainers should keep in mind the following principles of adult learning throughout the training workshop:

- When learning, participants relate new information to what they already know.
- Learning is enhanced when participants are able to practice applying new attitudes, knowledge, and skills.
- Learning by understanding renders better retention than learning by memorization.
- Repetition increases the retention of new knowledge.
- Changes are unlikely to take place unless the participant is motivated to learn.

Adequate facilitator-to-trainee ratios and the use of participatory adult learning methods including group discussion, brainstorming, small group work, demonstrations, visual aids, and role plays should be incorporated. Competence-based approaches with ample interactive sessions and role-plays have been found to be more effective in helping less formally educated CHVs reconcile lessons from the classroom with real life. Generally, this also requires that CHV skills and competencies be expanded into standardized procedures (The Earth Institute, Columbia University 2011:73).

### 2.4.2 Continuing Education and Refresher Trainings

Studies have found that acquired skills and knowledge are quickly lost if regular refresher training is not available (Ryan, John, and Brieger 1991: 123-133, The Earth
Institute, Columbia University 2011:73), Thus continuing education and in-service training should be considered as an essential prerequisite for an effective CHV program and an important factor in retaining their motivation level (UNICEF 2004:31) and needs to be integrated with regular supervisory processes and individual performance monitoring. When administered correctly, such continuing education is vital for CHVs to keep abreast of best practices and to increase relevant clinical knowledge. Continuing education also serves as a professional development opportunity that can motivate and improve job-related performance. Appropriate refresher training helps to sustain the interest and motivation of CHVs to do their assigned tasks (e.g. Bangladesh and Nepal) (UNICEF 2004:32).

2.4.3 Adult Learning Methodologies

Adult learning methodologies are essential for training CHVs. Adults learn new information and skills in a way that is different from how they learned as children. They share some important characteristics. They are active learners who respond positively to learning experiences that involve them and they like to have their opinions consulted (Schugurensky, 2003). In order for training to be effective, BASICS et al (2009:3) suggest that it must:

- Be participatory: Adults learn best when they are actively involved in the learning process. They are more likely to learn and retain new information when training creates opportunities for them to practice applying their new knowledge and skills.

- Be supportive: Adults are most likely to learn in an environment that is supportive, in which participants receive positive reinforcement, such as praise and encouragement, instead of negative feedback, such as criticism.

- Build on the participants’ experience: Effective training provides adults an opportunity to build on existing beliefs, knowledge, and skills and to share these with each other. Valuing participants’ experiences not only helps them to feel
comfortable experimenting with new knowledge and skills, but is also effective in helping them link what they have learned to real-life contexts.

- Be relevant: Adults respond best to learning opportunities that offer them the chance to learn information and skills that are relevant to their workplaces and communities. They are also likely to respond best to training that helps them build knowledge and skills that they will apply immediately. Adults often seek training opportunities when they assume new tasks and roles, but they are usually not motivated to use time and resources that they perceive as irrelevant to their work and lives.

- Use local language/dialect as required: Trainers should be familiar with, and where needed, use the local language or dialect to more effectively explain the important issues.

- Allow for self-directed learning: Adults are accustomed to taking responsibility for their own decisions and actions, including choosing what they want to learn. They learn best when they are treated as active participants in the learning process.

2.4.4 CHV Support and Supervision

CHV support and supervision is a key function in programs that involve the use of CHVs. Evidence from Bangladesh suggests that the level of institutional support in program management and supportive supervision by health workers greatly determine the sustainability of the CHV scheme. By developing strong, better educated and empowered women and village groups, sustainable improvements can be achieved and a higher quality of preventive health measures will be practiced in the community (UNICEF 2004:33). Similarly, frequent interactions of community members and CHVs are also critically important in affecting their motivation levels (UNICEF 2004:32)
2.5 KNOWLEDGE RETENTION AND COMPETENCE OF CHVs AND ACTIONS TO ENHANCE KNOWLEDGE RETENTION OF CHVs

2.5.1 Knowledge/Information Retention of CHVs

Continuous refresher trainings are important factors for information or knowledge retention. A number of studies have found that if regular refresher trainings are not available, acquired skills and knowledge are quickly lost (Ashwell & Freeman 1995:198-207). Ryan, John, and Brieger (1991: 123-133), state that knowledge of CHVs deteriorates over time while another study that compared traditional birth attendants and volunteer village health workers, identified that overall knowledge results would deteriorate over time that may likely be a natural result of knowledge decay (Ande, Oladepo, & Brieger 2004:110-113). Ande et al (2004:110-113) emphasize that continued education may even be more important than who is selected.

Refresher courses, in addition to preventing knowledge decay; will also promote consistencies of key IYCN messages promoted by the CHVs. A study conducted to evaluate the performance of CHVs that were involved in program named Manoshi that aimed at improving maternal, neonatal and child health (MNCH) situation in slums of Dhaka city shows that less than half of the CHVs (named Shastho Shebika) secured mean score and above in different knowledge areas of MNCH (Alam, Sarker, Shafi, Banu, Ahmed, Mridha 2012:1) indicating that regular refresher course is required. In terms of skills, however, 50% of the CHVs scored up to mean or above for family planning services and management of birth asphyxia (Alam, et al 2012:1).

When it comes to other factors that might affect knowledge retention, there are different findings. For example, Ryan et al 1991 cite that those with more education retain more knowledge while another study shows that level of education and age do not have effect on knowledge retention. Ande et al (2004:110-113) states that although volunteer health
workers were younger and better educated than the TBAs, the two groups had similar levels of knowledge about diarrhoea recognition, cause and prevention.

Experience from Uganda shows that factors like age, sex, education and number of offspring were irrelevant to having the ability to classify Pneumonia and provide treatment accordingly by the CHVs (Kallander, Tomson, Nsabagasani, Sabiiti, Pariyo, & Peterson, 2006, Prasad et al 2007:4-5). In terms of service provision, Friedman et al show that slightly older, less educated women seemed to provide better care. On the other hand, younger more educated workers seem to provide information better, particularly to their peers. Similarly, lesser educated nursing assistants can often be better motivators than more skilled professionals. They often have a better understanding of and ability to work with local people. Often becoming a good educator depends on developing a participatory teaching approach, which many who have been trained in formal educational settings find difficult to achieve (Friedman et al 2007:18).

2.5.2 Actions to Enhance Knowledge Retention and Improve Competence

It is observed that appropriate training strategies affect knowledge retention and quality of care, and they should be strategically developed (The Earth Institute, Columbia University 2011:73). Classroom learning should be participatory and interactive and should be followed by an opportunity for hands-on application of their skills, while being observed by other participants and trainers, and later, in a follow-up, by supervisors (BASICS et al 2009:5). Training should include not only the knowledge of the practice and skills but demonstration and practice. Coaching should be part of training process (Yannacci, Roberts, & Ganju 2006:18). Practice sessions in real setting allow CHVs to practice their new knowledge and skills in a way that is difficult to create through role plays and is a critical component of the training workshop. Participants should be involved in the use of various counselling cards to provide messages to improve health outcomes. They should observe in sequence and participate in role plays, counsel mothers and observe and evaluate other participants when they are counselling clients as it helps them to understand supervisory techniques for quality improvement (BASICS
et al 2009:5). Knowledge learnt should be put into practice as unused knowledge rapidly decays over time. The learning and the application environments should be as similar as possible. Knowledge acquisition and application should preferably occur at the same time (Yannacci et al 2006:11).

According to BASICS et al (2009:3), there are steps that trainers can take to enhance participants’ long-term retention and recall of information and these include:

- Summarize important information at the beginning and end of a session.
- Review important ideas with participants rather than only presenting ideas once.
- Show connections or links between different concepts.
- Emphasize key words and phrases to point out important information and re-emphasize main points.
- Limit periods of concentrated learning from 20 to 50 minutes or less by providing breaks.

2.6 CONCLUSION

This chapter discussed the literature review, which showed the background of CHVs; CHV roles in general health programming and in child survival programming including nutrition; research findings in relation to their roles and training aspects of CHVs.

Chapter 3 describes the research design and methodology.
CHAPTER 3

RESEARCH DESIGN AND METHOD

3.1 INTRODUCTION

This chapter describes the research design and method used in this study. It discusses the research design, population and sample, data instruments and collection, validity and reliability, ethical considerations and limitations of the study.

This study aimed to determine the level of knowledge of the HHPs 18 months after the end of the CSP, to determine demographic profile of participants and to examine the relationship between demographic characteristics and knowledge of HHP’s. The ultimate aim of the study was to contribute to the existing body of knowledge in community health interventions that utilize community health volunteers.

The objective of the study was to: (1) determine IYCN knowledge of HHPs 18 months after the end of the CSP; (2) To determine demographic profile of participants and (3) Examine the relationship between knowledge of HHPs regarding IYCN and demographic characteristics.

3.2 RESEARCH DESIGN

The researcher used quantitative research. The design of the research was non-experimental descriptive design.
3.2.1 Quantitative Research

The researcher selected a quantitative research to be able to provide statistical evidence on the research variables. Quantitative research techniques are used to quantify the size, distribution, and association of certain variables in a study population (Varkevisser, Pathmanatha, Brownlee 2003:150). Given that the purpose of the study was to describe HHPs’ rate of knowledge retention and to examine the relationship between demographic characteristics and knowledge of HHP’s, quantitative research was found to be most appropriate for this study.

3.2.2 Descriptive Design

A descriptive study involves describing the characteristics of a particular situation, event or case (Varkevisser et al 2003:123). It provides an accurate account of characteristics, about particular individuals, situations or groups (Burns & Grove 2005:24). The outcome of descriptive research includes the description of concepts, identification of relationships, and development of hypotheses that provide a basis for future quantitative research (Burns & Grove 2005:25). Hence, a descriptive study was found to be appropriate for this study as it attempted to describe IYCN knowledge and demographic profile of HHP’s as well as to examine and describe the relationship between knowledge of HHPs regarding IYCN and demographic characteristics.

3.3 RESEARCH METHOD

3.3.1 Sampling

3.3.1.1 Population

The population in this study consisted of the HHPs that the CSP of MTI used during the four year CSP implementation period in Tewor District of Grand Cape Mount County, Liberia. Ninety two (92) HHPs participated in the CSP in the district and all of them were included in the population.
3.3.1.2 Sampling Frame

The list of HHPs in the district, which served as sampling frame, was obtained from MTI.

3.3.1.3 Sampling and Sample

Sampling is the process of selecting a portion of the population to represent the entire population (Polit & Beck 2006:260). According to Polit et al, a sample is a subset of a population selected to participate in a study (Polit et al 2006:260). The researcher used probability sampling to randomly select samples for the study. In probability samples, all people within the research population have a specifiable chance of being selected. These types of sample are used if the researcher wishes to explain, predict or generalise to the whole research population (Dawson 2002:48). The respondents of this study were selected based on the HHPs name list obtained from MTI and they were accessed at their homes.

According to Polit and Beck (2006:267), sample size is the number of subjects in a sample. Involving a representative sample in a study enhances the generalisability of the research results. The sample size for this research was determined using a sample size calculator (MACORR 2011) at confidence interval of 95% and confidence level of 5%. From a population of 92, a sample size of 74 was obtained. A sampling interval of 1.25 was obtained, so every 5th HHP on the sampling frame was excluded. Starting HHP was selected randomly from the first five names on the sampling frame for exclusion.
3.3.1.4 Eligibility criteria

The following eligibility criteria were used for inclusion in the study:

- Being an HHP
- Resident in Tewor district
- Willing to be interviewed

The HHPs that did not meet the eligibility criteria were not included in the study.

3.3.2 Data Collection

3.3.2.1 Data collection approach and method

Data were collected using a pre-tested structured questionnaire that enabled the researcher to quantify pre-categorised answers to questions (Varkevisser et al 2003:150). Three data enumerators that have experience in data collection previously were recruited and trained over 3 day period before data collection. One data collection supervisor was also selected and trained to work along with the researcher and the data enumerators to ensure quality of data collection. The training helped the researcher in equipping the data collection team with the necessary skills to conduct structured interviews to collect data for the study. The data collection team also participated in pre-testing of the questionnaire to reinforce the knowledge they gained from attending the training.
3.3.2.2 Development and testing of the data collection instrument

The questionnaire was developed based on a questionnaire used to evaluate the CSP (Nitkin 2010). Infant and young child nutrition questions were selected and obtained from the questionnaire.

The questionnaire had close ended questions that were translated into Liberian English and translated back into Standard English. The items in the questionnaire were designed to address the specific objectives of the study. It consisted of 18 items divided into two sections. The first section is related to socio-demographic questions with 6 items including age, level of education, distance of residence, place from nearest health facility, and whether the HHP had a child whose age is below five years. The second section has the remaining 12 questions relating to knowledge of the HHPs in the areas of IYCF.

The researcher conducted pre-testing of the questionnaire before starting the actual data collection. It was intended to identify flaws in the tool and assess the required resources including time for actual data collection (Polit & Beck 2008:762). It was conducted among 10 HHPs that met the eligibility criteria described in section 3.3.4. The pre-testing helped the researcher to ensure that wordings in the questionnaire were correct and also determined the time it took to complete the interview.

3.3.2.3 Data collection process

After having identified the list of HHPs selected for interview from the sampling frame, the data enumerators and the supervisor formed two teams of two people and travelled to each of the HHPs residence place. Assistance in the identification of the residence places was given by the town chiefs and or other persons of the villages. After having found the HHPs, the teams conducted self-introduction and explained the purpose of the visit to each HHP. Following this, they read informed consent to the respondent and asked if they were willing to participate. The respondents that agreed and consented to
participate completed the interview. One person asked the questions and the other person recorded the responses. The interview took an average of 25 minutes. The data collection supervisor and principal investigator checked the questionnaires for completeness and consistency every day during the data collection period and before data entry to ensure completeness and consistency.

3.3.4 Data Analysis

The data were processed using EPI-Info 7 statistical software. Descriptive statistics including means and frequencies were analysed. Tables and figures were used to present the data.

3.4 ETHICAL CONSIDERATIONS

The researcher obtained ethical clearance from the Department of Health Studies Higher Degrees Committee of University of South Africa. The researcher and the research team protected the rights of the participants and institution and maintained scientific integrity as described below.

3.4.1 Protecting the Rights of the Participants

The rights of the research participants were ensured through maintaining respect and by obtaining informed consent and considering privacy. The research team utilised a consent form to obtain informed consent from each of the participants. The participants were informed of the aim of the study and the fact that their participation was in terms of answering interview questions that would be kept confidential and their participation in the study was absolutely voluntary. Each participant was informed that she would not be
penalized or would not lose benefits if she refused to participate or decided to withdraw from the study after she had agreed to participate.

The privacy of each participant was protected through ensuring anonymity and confidentiality. Anonymity was maintained through avoiding recording of the names of the participants. Confidentiality was insured by not sharing the data collected with anybody but kept in the possession of the researcher. The beneficence to the study participants was unharmed because the study did not involve any invasive procedure and it only involved interviews on questions related to IYCF. Justice in the participation of the study was ensured through random selection of the participants. Each HHP in the district had equal chance of being selected to participate in the survey.

3.4.2 Protecting the Rights of the Institution

The researcher obtained research permission from MTI before conducting the research.

3.4.3 Scientific Integrity of the Research

The researcher used the highest standards possible to ensure the scientific honesty of the study. This included controlling biases such as in the use of literatures including properly acknowledging them, in data collection and analysis, in reaching conclusions, and in making recommendations.

3.5 VALIDITY AND RELIABILITY

Validity refers to the extent to which scientific observations actually measure what they are designed to measure (Varkevisser et al 2003:131). In this study, external validity,
the degree to which the findings of the study are generalisable to the target population (Varkevisser et al 2003:131), was addressed through random sampling to obtain a representative sample of the population. Internal validity is said to be present when variation in scores on a measure of an independent variable is responsible for variation in scores on a measure of a dependent variable (Schwab 2005:54). The study design of this research was descriptive which was not interested in cause and effect relationship so internal validity was not a big issue for this study.

Reliability, which means that someone else using the same method in the same circumstances should be able to obtain the same findings (Varkevisser et al 2003:131), was enhanced through proper training of data enumerators, standardizing interview processes and using quality control strategies such as provision of enhanced supervision to the data enumerators by the researcher.

3.6 CONCLUSION

This chapter discussed the research design and method used for the study and it also described the population and sample, data collection instrument, data collection, ethical considerations, study limitations and data analysis in detail.

The following chapter discusses the data analysis and results.
CHAPTER 4

ANALYSIS, PRESENTATION AND DESCRIPTION OF THE RESEARCH FINDINGS

4.1 INTRODUCTION

This chapter deals with data analysis and discusses the study results. It highlights the data management and analysis and discusses research results. It relates the research results with the literature review where appropriate.

The research result sections of the study are divided into three main sections.

Section 1: This section presents findings on the socio-demographic data.

Section 2: This section introduces to the mean score of infant and young child feeding and presents the study findings by the components of the infant and young child feeding that they were trained on. The components are:

- Optimal Breastfeeding for Infants Age 0 to 6 Months
- Optimal Complementary Feeding for Children 6 to 24 Months
- Optimal Nutritional Care of Sick Children
- Vitamin A Supplementation
- Optimal Nutrition for Women

Section 3: This section describes the infant and young child feeding mean score in terms of the socio-demographic characteristics. P-values were also calculated to see if the associations between the socio-demographic characteristics and the mean score were significant. The socio-demographic characteristics used in this study are:
• Level of education
• Age
• Distance of residence place from nearest health facility
• Having a child whose age is below 2 years during participation in the CSP
• Duration of participation in the CSP

4.2 DATA MANAGEMENT AND ANALYSIS

The data analysis was conducted following data collection from 71 HHPs that participated in the CSP of MTI. The researcher used EPI-Info 7 software to create forms for data entry based on the questionnaire. The form contained each of the questions on the questionnaire. The data was then entered in the form by the researcher himself. The data was processed using the same statistical software, Epi-Info 7. Descriptive statistics including means and frequencies were analysed. Data were interpreted and presented in the form of tables and figures.

4.3 RESEARCH RESULTS

The sample of the study was 74. However, 71 people responded giving a response rate of 97.3%. Three HHPs were not found as they left the district. The results are presented based on the findings from the 71 respondents.

4.3.1 Section 1: Socio-Demographic Data

This section dealt with socio-demographic data of the respondents that participated in the study. It covered the respondents’ age, level of education, distance of residence place from nearest health facility, and whether the HHP had a child whose age was between one year and five years. All of the respondents are women.
4.3.1.1 Respondents’ Age

The respondents were asked their age. The following table presents the age distribution of the respondents. The age distribution was categorized by intervals of 10 as shown in table 4.1. The age of the respondents ranged from 24 to 67 years. The mean age of the respondents is 43.46 years.

<table>
<thead>
<tr>
<th>Age Category</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 – 29</td>
<td>8</td>
<td>11.27%</td>
</tr>
<tr>
<td>30 – 39</td>
<td>18</td>
<td>25.35%</td>
</tr>
<tr>
<td>40 – 49</td>
<td>24</td>
<td>33.80%</td>
</tr>
<tr>
<td>50 – 59</td>
<td>15</td>
<td>21.13%</td>
</tr>
<tr>
<td>60 – 69</td>
<td>6</td>
<td>8.45%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>71</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Out of the 71 respondents, 11.27% (N=8) are in the age range of 20 to 29 years, the youngest age category, while 8.45% (N=6) are in the age range of 60 to 69 years, the oldest age category. The age range from 30 to 59 years represent over 80% of the respondents, the age category 40 – 49 being the largest single age category representing roughly a third (33.8%, N=24) of the respondents.

4.3.1.2 Respondents Level of Education

Respondents’ educational levels ranged from no formal education to secondary education. Overwhelming majority of the respondents had no formal education (80.29%,
N=57). Out of the 71 respondents, 15.49% (N=11) had primary education and 4.23% (N=3) had secondary education. Refer to figure (4.1) for the results.

Figure 4.1: Respondents’ educational levels (N=71)

4.3.1.3 Distance of Residence Place to the Nearest Health Facility

As demonstrated in figure 4.2, out of 71 respondents, 59.15% (N=42) lived within 10 kilometres from the nearest health facility. Roughly a quarter of the respondents (25.35%, N=18) lived 11 – 21 kilometres away from the nearest health facility while the remaining 9.86% (N=7) and 5.63% (N=4) lived 21 – 30 kilometres and more than 30 kilometres away from nearest health facility respectively.
4.3.1.4 Whether the respondent had a child Aged 1 – 5 Years

The IYCF component of the CSP targeted children under the age of two. Hence it means that the HHP that had a child in the range of 1- 2 years had the opportunity to practice the IYCF on her own child in addition to promoting it among other households during the implementation of the CSP (October 2006 – September 2010). Figure (4.3) below shows that 40.85% (N=29) of participants had a child aged 1 – 5 years during the interview.
Figure 4.3: HHPs with child aged between 1 and 5 years at the time of survey (N=71)

4.3.1.5 Respondents’ participation in the Child Survival project as HHP

Participation of the respondents in the Child Survival project as HHP ranged from 2 to 4 years as demonstrated in figure 4.4.

Figure 4.4: Participation of the HHPs in the Child Survival Project (N=71)
Overwhelming majority (87.32%, N=62) of the respondents participated as HHPs starting from the beginning of the project for four years. The remaining respondents participated for three years (7.04%, N=5) and for two years (5.63%, N=4). Mean duration of participation of the respondents in the CSP as HHP was 2.8 years.

4.3.2 Section 2: IYCF Knowledge of the HHPs

4.3.2.1 Overall IYCF Knowledge Score

The HHPs were asked questions related to infant and young child feeding. Scores were calculated based on correct answers provided by the respondents. These findings were summarized in Table 4.3. Accordingly, the overall mean infant and young child feeding knowledge score was 77.82% (N=71), meaning that on average the HHPs correctly answered 9.33 questions out of the 12 questions asked. Both the median and the mode scores were 10 while the 75th percentile and the 25th percentile were 10 and 9 respectively. See the distribution of HHPs knowledge scores as in the dummy table below (table 4.2)

Table 4.2: Distribution of HHPs knowledge scores about infant and young child feeding (N=71)

<table>
<thead>
<tr>
<th>Scores</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 4 (Poor)</td>
<td>3</td>
<td>4.23%</td>
</tr>
<tr>
<td>5 – 8 (Fair)</td>
<td>13</td>
<td>18.31%</td>
</tr>
<tr>
<td>9 – 12 (Good)</td>
<td>55</td>
<td>77.46%</td>
</tr>
</tbody>
</table>
Overwhelming majority of the HHPs (77.46%) scored between 9 and 12 which is categorized as good while 18.31% and 4.23% of HHPs respectively fell in the category of fair (score of 5 – 8) and poor (score of 0 – 4).

**Table 4.3: Summary of knowledge of HHPs about infant and young child feeding (N=71)**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Optimal Breastfeeding for Infants Age 0 to 6 Months</strong></td>
<td></td>
</tr>
<tr>
<td>Early Initiation of breastfeeding</td>
<td>69</td>
</tr>
<tr>
<td>Colostrums feeding</td>
<td>71</td>
</tr>
<tr>
<td>Exclusive breastfeeding</td>
<td>65</td>
</tr>
<tr>
<td>Frequency of breastfeeding</td>
<td>57</td>
</tr>
<tr>
<td>Breastfeeding duration</td>
<td>14</td>
</tr>
<tr>
<td><strong>Optimal Complementary Feeding for Children 6 to 24 Month</strong></td>
<td></td>
</tr>
<tr>
<td>Complimentary food introduction</td>
<td>67</td>
</tr>
<tr>
<td>Frequency of complimentary feeding</td>
<td>39</td>
</tr>
<tr>
<td><strong>Optimal Nutritional Care of Sick Children</strong></td>
<td></td>
</tr>
<tr>
<td>Feeding Sick Child</td>
<td>59</td>
</tr>
<tr>
<td>Quantity of fluid when child gets sick</td>
<td>62</td>
</tr>
<tr>
<td>Vitamin A supplementation</td>
<td></td>
</tr>
<tr>
<td>Vitamin A supplementation</td>
<td>42</td>
</tr>
<tr>
<td>Optimal Nutrition for Women</td>
<td></td>
</tr>
<tr>
<td>Lactating women feeding</td>
<td>59</td>
</tr>
<tr>
<td>Pregnant women feeding</td>
<td>59</td>
</tr>
</tbody>
</table>

This research showed that the IYCF knowledge of the HHPs was generally high. The reasons could be due to the fact that this research was conducted after only 18 months of end of project meaning that the time gap between last training and the interview was short as compared to the research conducted by Ryan et al which was a study of 5 year knowledge retention. This difference could also arise from differences in approaches and frequency of training of the volunteers. For example, the HHPs were given
refresher trainings every month on selected topic of IYCF and other Child Survival topics which is thought to contribute to better memory over time.

While the overall knowledge was high, one can however observe in the table 4.3 that the knowledge of the respondents was not uniform for all of the components of IYCF. Some components were well retained by the respondents and few others were not. The knowledge score ranged between 19.72% for duration of breastfeeding to 100% for colostrums feeding.

The following sections discuss knowledge of HHPs on each of the components of IYCF. The sections also provide background to what the HHPs were trained on during their participation in the CSP in relation to specific components of infant and young child feeding.

4.3.2.2 Optimal Breastfeeding for Infants Age 0 to 6 Months

Breastfeeding provides optimal nutrition for infants and young children. Breast milk’s unique composition adjusts over time to provide an appropriate mix of calories, protein, essential fatty acids and micronutrients for a child. Breast milk is all that infants younger than 6 months old need to consume, and is an important source of essential nutrients for children 6-24 months old (USAID/GH/HIDN 2007:4).

The HHPs were trained on early initiation of breastfeeding within 1 hour of birth; colostrums feeding; exclusive breastfeeding for first six months of life; and breastfeeding on demand, day and night (i.e., 8-12 times per day) and continue frequent, on-demand breastfeeding to 24 months and beyond.
Figure 4.5: Knowledge of HHPs about optimal breastfeeding for infants 0 to 6 months (N=71)

The study results showed that out of the 71 HHPs that responded to the interview questions, 97.18% (N=69) correctly answered a question on early initiation of breastfeeding after birth (i.e. within 1 hour), 100% (N=71) correctly answered a question on colostrums feeding, 91.55% (N=65) correctly answered a question concerning exclusive breastfeeding during the first 6 month of life. A question on the frequency of breastfeeding was also correctly answered by 80.28% (N=57).

Higher proportions of the respondents had correct knowledge of optimal breastfeeding practices for the first 6 months of life while fewer respondents answered the question on total breastfeeding duration correctly as demonstrated in figure 4.6 which is 19.72% (N=14). The following table (4.4) further shows the responses to the question on breastfeeding duration.
Table 4.4: Respondents’ knowledge of recommendations about total breastfeeding duration (N=71)

<table>
<thead>
<tr>
<th>Breastfeeding duration</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 Year</td>
<td>3</td>
<td>4.23%</td>
</tr>
<tr>
<td>Between 1 and 2 years</td>
<td>52</td>
<td>73.24%</td>
</tr>
<tr>
<td>2 years or more</td>
<td>14</td>
<td>19.72%</td>
</tr>
<tr>
<td>Don’t know</td>
<td>2</td>
<td>2.82%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>71</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

The HHPs were trained to encourage caregivers to continue frequent, on-demand breastfeeding to 24 months (2 years) and beyond. Out of the 71 respondents, only 19.72% (N=14) correctly answered the question. Majority of the respondents (73.24%, N=52) responded as between 1 and 2 years. Several researches that dealt with knowledge retention of CHVs identified knowledge decay as a common finding when refresher training is not provided (Ashwell & Freeman 1995:198-207; Ryan et al 1991: 123-133; Ande et al 2004:110-113). In this research, however, the substantial discrepancy in knowledge between duration of breastfeeding and other optimal breastfeeding could be better explained by the training they received than knowledge decay, as the later affects overall knowledge they gained. The fact that the HHPs scored high on all other questions related to optimal breastfeeding suggests that they might not have understood well the duration of breastfeeding and they might have considered the 2 years as the upper limit of duration of breastfeeding. Hence, majority of the HHPs (73%, N=52) thought the correct answer for duration of breastfeeding was between 1 and 2 years.

4.3.2.3 Optimal Complementary Feeding for Children 6 to 24 Months

Starting at 6 months of age, infants need solid or semi-solid food in addition to breast milk to satisfy their nutritional requirements. They are developmentally ready to consume and properly digest solid and semi-solid foods and caregivers should begin
complementary feeding while continuing frequent, on-demand breastfeeding (USAID/GH/HIDN 2007:10). The HHPs were trained to promote introduction of complementary foods at age 6 months, preparation and storage of all complementary foods safely and hygienically, and to increase food quantity as child gets older. The study gave mixed results for the questions asked. It demonstrated that 94.37% (N=67) correctly answered a question related to when to introduce complementary foods while 54.93% (N=39) correctly identified the recommended frequency of complementary feeding.

4.3.2.4 Optimal Nutritional Care of Sick Children

Loss of body stores of micronutrients and energy, low absorption of food, poor appetite, low nutritional intake associated with childhood diseases and conditions such as pneumonia, diarrhoea, measles, HIV/AIDS, malaria, and fevers put children at risk of malnutrition (USAID/GH/HIDN 2007:18). Based on this, the HHPs were trained to promote continued feeding and increased fluids during illness. This includes increased frequency of exclusive breastfeeding for children under 6 months and increase fluid intake (including breast milk) and offer food for children 6-24 months. The HHPs were also trained to encourage increased feeding of children after illness until the children regain weight and are growing well. The study showed that 87.32% (N=62) of the HHPs correctly answered the question related to quantity of fluid a child should consume during sickness and 83.10% (N=59) of the HHPs correctly answered a question asked on the quantity of food a child should get during illness.

4.3.2.5 Vitamin A Supplementation

Vitamin A is vital to human health for a number of reasons. It is critical to the body's immune system and the integrity of epithelial tissues (provide barrier to infection), necessary for healthy growth and development and essential to the health of the eyes and the ability to see in low light (USAID/GH/HIDN 2007:21). The HHPs were trained to promote vitamin A rich foods and refer children between the age of 6 months and 5 years to health facilities for vitamin A supplementation every 6 months. The study showed that out of the 71 HHPs that participated in the study, 59.15% (N=42) HHPs
correctly answered a question asked regarding how often a child needs vitamin A supplementation. The HHPs knowledge about frequency of vitamin A supplementation was below the mean score. The explanation for this can be the fact that the project did not give emphasis to vitamin A supplementation as compared to the other components of IYCF as vitamin A supplementation was not done by the project directly but by the government health facilities.

4.3.2.6 Optimal Nutrition for Women

Adequate maternal nutritional status is a critical component of maternal and child health and survival. Anaemia in mothers increases the risk of poor pregnancy outcomes such as increased maternal mortality from haemorrhage, low birth weight (i.e., weight < 2500 gm at birth), decreased infant iron and other micronutrient stores and increased infant morbidity and mortality. Low pre-pregnancy body mass index or thinness and inadequate weight gain during pregnancy increase the risk of foetal malnutrition and low birth weight. These factors contribute to higher rates of neonatal and infant mortality as well as later deficits in child growth and development (USAID/GH/HIDN 2007:35-36).

The HHPs were trained on key messages in relation to food intake during pregnancy and lactation. The key messages included, increase in the amount of food intake during pregnancy and lactation. The study result demonstrated that out of the 71 respondents, 83.1% (N=59) correctly answered questions asked on food intake during pregnancy and lactation.

4.3.3 Section 3: Knowledge Score and Demographic Characteristics

4.3.3.1 Level of education and knowledge of HHPs

The mean infant and young child feeding knowledge score, which is 77.82 (N=71), was stratified by the level of education. The stratification was done in terms of some formal education (N=14) and no formal education (N=57). Some formal education included primary and secondary educations. The results are summarized in the following figure (figure 4.6).
Different studies present different findings regarding the relationship between level of education of CHVs and knowledge retentions as well as quality of care provided. Prasad et al findings show that education is not a determinant factor on ability to classify Pneumonia and provide treatment accordingly by the CHVs (Prasad et al 2007:4-5, Kallander, Tomson,Nsabagasani, Sabiiti, Pariyo, & Peterson, 2006, 956-963). Ande et al (2004:110-113) also states that although volunteer health workers were younger and better educated than the TBAs, the two groups had similar levels of knowledge about diarrhoea recognition, cause and prevention. However, Ryan et al cite that those with more education retain more knowledge (Ryan et al 1991: 123-133). This research is in line with the findings that demonstrated that education was not a factor for better retention of knowledge. The study result showed that some education was not a factor to score better among the HHPs. The mean score of HHPs that attended some formal education was 75% (N=17) while the mean score for HHPs that did not attend any formal education was 78.7% (N=54) which gave a p-value of 0.2529 indicating that the two groups are not significantly different in terms of the mean knowledge score.
4.3.3.2 Age and knowledge of HHPs

The mean knowledge score was stratified by age. The age was categorized in terms of HHPs whose age is below 35 and 35 – 73 years old. The results are summarized in the following figure (fig 4.7).

![Mean Score Graph](image)

**Figure 4.7: Knowledge of HHPs by age (N=71)**

The older HHPs (age 35 – 73 years old) (N=58) registered a mean score of 78.8% while the younger HHPs (age below 35) (N=13) scored 73.7%. The calculated p-value was 0.8542 meaning that the two groups are not significantly different in mean knowledge score. This finding was in agreement with the findings of Prasad et al which show that age is not a determinant factor on ability to classify Pneumonia and provide treatment accordingly by the CHVs (Prasad et al 2007:4-5).
4.3.3.3 Distance from nearest health facility and knowledge of HHPs

The comparison of knowledge retention by distance of residence place from the nearest health facility showed mixed results as shown in the following figure 4.8

![Mean Score Graph](image)

**Figure 4.8: Knowledge of HHPs by distance of residence place from the nearest health facility**

Respondents that lived within 10 kilometres of the nearest health facility on average scored 77.6% (N=42), those that lived 11 – 20 kilometres scored a mean result of 73.3% (N=18) and those that lived 21 – 30 kilometres and more than 30 kilometres scored a respective mean result of 88.1% (N=7) and 83.3% (N=4). A t test was conducted to see if the HHPs that lived within 20 kilometres scored significantly different result as compared to HHPs that lived more than 20 kilometres from the nearest health facility. The calculated p-value was 0.9971 meaning that the two groups were not significantly different in the mean knowledge score.
4.3.3.4 Having child under the age of 2 years during participation in the Child Survival Project and knowledge of HHPs

The respondents were asked whether they have child whose age is between 1 – 5 years during the data collection. This question was asked to identify the respondents that had children whose age was under the age of 2 years during the implementation period of the CSP. This was because the project targeted children under the age of two years for the IYCF component of the project. This variable was considered with the assumption that those with children under the age of 2 years during the project implementation period had the chance to practice what they learnt at their own home. The following figure (fig 4.9) compares mean knowledge of the respondents that had children whose age was below 2 years and that of the respondents that did not have children in the same age category.

Figure 4:9: Knowledge of HHPs by whether the HHP had child under the age of 2 years during participation in the CSP
Having children under the age of two was not shown as a factor for remembering better as compared to not having children of the same age. The mean score for respondents that had child under the age of 2 years was 77% (N= 42) while the mean score for those that did not have child of the same age group was 79% (N=29) which gave a p-value of 0.7144.

4.3.3.5 Duration of participation in the Child Survival Project (CSP) as HHP and Knowledge of HHPs

The participation of the respondents in the CSP ranged from two to four years with a mean duration of 2.8 years. The following figure presents the mean infant and young child knowledge score by the years of participation in the CSP.

Figure 4.10: Knowledge of HHPs by Duration of participation in the CSP as HHP

The result demonstrated that the longer the respondents participated in the CSP the more they were able to remember what they learnt after one and half years of the end of the project as shown in fig 4:10. Respondents that participated for just 2 year scored
47.9%, those that participated for 3 years scored 68.3% and those that participated for 4 years scored 80.5%. A t test was conducted to see if HHPs that participated in the CSP for 4 years scored significantly different results as compared to those that participated for just 2 or 3 years. The result showed that the two groups did not score significantly different results (p value - 0.9903).

4.4 OVERVIEW OF RESEARCH FINDINGS

The research findings were presented based on the responses of 71 HHPs. It demonstrated that over 80% of the HHPs were in the age range of 30 – 59 years; overwhelming majority (76.06%) had no education; over half of the respondents lived within 10 kilometres from the nearest health facility; below half of the HHPs (40.81%) had a child whose age was between 1 – 5 years at the time of interview; and the mean duration of participation in the CSP was 2.8 years.

The finding also showed that the mean knowledge score of IYCF was 77.82%. However, the knowledge of the respondents was not uniform for all of the components of infant and young child nutrition. Many of the components of the IYCF were well recalled by the respondents and few others were not. The knowledge score ranged between 19.72% for duration of breastfeeding to 100% for colostrums feeding. The mean score was not significantly related to the socio-demographic characteristics of the HHPs.

4.5 CONCLUSION

This chapter presented the data analysis, results and interpretations with reference to the literature review where appropriate. The results were presented in tables and figures.

Chapter 5 concludes the study, identifies limitations of the study and makes recommendations based on the findings and identifies further research.
CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter presents the findings and the limitations of the study and makes recommendations for practice and further research as related to the objectives of the study. The chapter briefly discusses the research design and method, provides summary and interpretation of the research findings, conclusions, recommendations, contributions of the study and limitations of the study.

5.2 RESEARCH DESIGN AND METHOD

The researcher used quantitative non-experimental descriptive design. The study aimed to determine the level of knowledge of HHPs that participated in a CSP in the areas of IYCF and describe their demographic characteristics and to examine the relationship between demographic characteristics and knowledge of HHPs. The objectives of the study were to: (1) Determine IYCF knowledge of HHP's 18 months after the child survival project ended. (2) To determine demographic profile of participants. (3) Examine the relationship between knowledge of HHPs regarding IYCF and demographic characteristics.

Data was collected using a pre-tested structured questionnaire that enabled the researcher to quantify pre-categorised answers to questions. The questionnaire had close ended questions that were translated into Liberian English and translated back
into Standard English. Data enumerators that have experience in data collection previously were recruited and trained before data collection. The data collection took place in the respective villages of the HHPs on an individual basis.

The data were processed using EPI-Info 2007 statistical software. Descriptive statistics including means and frequencies were analysed. The results of the study were presented in the form of graphs and tables.

5.3 SUMMARY AND INTERPRETATION OF THE RESEARCH FINDINGS

5.3.1 Socio-Demographic Characteristics of the Household Health Promoters

All the respondents were women. The age group 30 - 59 years represented over 80% (N=57) of the respondents while the age group below 30 and above 59 represented 11.27% (N=8) and 8.45% (N=6) of the respondents respectively. Respondents' educational levels ranged from no formal education to secondary education. Overwhelming majority of the respondents were illiterate who did not have any education (76.06%, N=54).

Out of the 71 respondents, over half (59.15%) lived within 10 kilometres from the nearest health facility. Of the 71 respondents, 40.85% (N=29) had child aged 1 – 5 years at the time of the interview.

The mean duration of participation of the respondents in the project was 2.8 years with majority (87.32%) of the respondents participating for four years. This shows that the project had high retention rate of volunteers during the course of project implementation.
5.3.2 Infant and Young Child Nutrition Knowledge of the HHNs

This study showed that generally, the infant and young child nutrition knowledge of the HHNs was high after 18 months of end of the CSP. The overall mean score was 77.82% (N=71). However, the knowledge of the respondents was not uniform for all of the components of infant and young child nutrition. Many of the IYCF components were well recalled by the respondents and few others were not. The knowledge score ranged between 19.72% for duration of breastfeeding to 100% for colostrums feeding. This showed the need for a measure from the MTI side to ensure that the HHNs are knowledgeable on all the IYCF components, so that the messages they promote are all accurate and consistent. There also needs to be an investigation as to why the difference is very high, for example between knowledge score of duration of breastfeeding and colostrums feeding so that an informed measure is taken.

5.3.2.1 Optimal Breastfeeding for Infants Age 0 to 6 Months

The study results showed that majority of the HHNs were still knowledgeable on optimal breastfeeding for infants’ age 0 to 6 months. The mean scores of early initiation of breastfeeding after birth (i.e. within 1 hour), colostrums feeding, and exclusive breastfeeding during the first 6 month of life were all over 90%. A question on the frequency of breastfeeding was also correctly answered by 80.28%.

5.3.2.2 Optimal Complementary Feeding for Children 6 to 24 Months

The study showed that generally the knowledge of HHNs on optimal complementary feeding for children 6 – 24 months was high. However, there was variation in the
scores. Almost all of the respondents correctly answered the question related to when to introduce complementary foods while only slightly over half of the respondents correctly identified the recommended frequency of complementary feeding. Over 80% of the respondents correctly answered questions related to quantity of fluid and food a child should consume during sickness.

5.3.2.3 Vitamin A Supplementation

The study showed that out of the 71 HHPs that participated in the study, 59.15% (N=42) HHPs correctly answered a question asked regarding how often a child needs vitamin A supplementation. This score was also relatively low which is below the mean score.

5.3.2.4 Optimal Nutrition for Women

The study result showed that out of the 71 respondents, 83.1% (N=59) correctly answered questions asked on both pregnant and lactating women feeding.

5.3.3 Knowledge Score and Demographic Characteristics

The study showed that level of education was not a factor for knowledge of the HHPs on IYCF. The mean score for those that attended some education (primary or secondary education) was 75% (N=17) while the mean score for those that did not attend any formal education was 78.7% (N=54). The p-value for the two groups was 0.2529 indicating that the two groups are not significantly different in terms of the mean knowledge score.
The study also showed that the older HHPs (age 35 – 73 years old) did not score significantly different result as compared to the younger HHPs (age below 35) (p-value - 0.8542). Distance of residence place from nearest health facility was not significantly associated to the mean score. HHPs that lived within 20 kilometres did not score significantly different result as compared to HHPs that lived more than 20 kilometres from the nearest health facility (p-value 0.9971).

Having children under the age of two during the implementation of the CSP was not shown as a factor for scoring better as compared to not having children of the same age (p-value - 0.7144). The participation of the respondents in the CSP ranged from two to four years with a mean duration of 2.8 years. The research result demonstrated that the longer the respondent participated in the CSP the more she was able to remember what she learnt after one and half years of end of CSP. Respondents that participated for just 2 years scored 47.9%, those that participated for 3 years scored 68.3% and those that participated for 4 years scored 80.5%. However, the difference in IYCF mean knowledge score between HHPs that participated for 4 years and those that participated for 2 or 3 years was not shown to be significant as the p-value was 0.9903.

5.4 CONCLUSIONS

The study met the objectives of the research. It determined the infant and young child feeding knowledge of HHPs 18 months after end of the CSP by different components of IYCF. It also examined the relationship between knowledge of HHPs regarding infant and young child feeding and demographic characteristics such as age, level of education, distance of residence place from nearest health facility, whether the HHP had child under the age of two during implementation of the project, and duration of participation in the project.

The knowledge of HHPs in IYCF after 18 months of end of the project was generally high. However, there were variations in knowledge among components of IYCF.
The HHPs scored mean score or higher in frequency of breastfeeding, exclusive breastfeeding, colostrums feeding; early initiation of breastfeeding, pregnant women feeding, complimentary food introduction, optimal nutritional care of sick children. The HHPs scored lower than the mean score in breastfeeding duration, frequency of complimentary feeding and vitamin A supplementation;

The mean score was stratified in terms of the demographic characteristics and described. None of the socio-demographic characteristic was significantly associated to the mean knowledge score.

5.5 RECOMMENDATIONS

5.5.1 Recommendations for improvement

The following recommendations are provided based on the findings of the research.

- It was found that knowledge of the HHPs were not uniform across the different components of infant and young child nutrition. Therefore, refresher training is recommended with special focus on the components that many HHPs did not accurately remember.

- Ensure that project staff that train the HHPs are well knowledgeable on each of the topics they train HHPs so that the HHPs are provided with accurate messages.

- Ensure that the HHPs have understood each of the topics covered during training sessions by conducting pre and post tests.

- It is advisable to provide regular supervision and provide coaching and mentoring to the HHPs especially on topics that are least understood or difficult to memorize by field based staffs.
• Conduct knowledge retention assessment intermittently to target topic for refreshment and to ensure correctness and consistencies of messages

• Conduct regular refresher trainings. Refresher trainings can also serve as motivation for the HHPs.

5.5.2 Recommendations for Further Study

The following areas are recommended for further study.

• Similar studies should be conducted in the country in other districts with larger sample size to obtain country level picture. This can influence CHV training programs of the MoHSW of Liberia and other actors in the country.

• Assess knowledge of the HHPs in other aspects of the CSP such as immunization, malaria, diarrhoea and pneumonia.

• Compare nutritional status of children in areas served by HHPs with children of other areas that are not served by HHPs

• Study beyond knowledge retention of the HHPs such as how well the HHPs provide information to care givers in infant and young child feeding and other topics

• A comparison of the care group model and other community volunteer model should be done in terms of knowledge retention

• Assess perception of care givers regarding the knowledge of HHPs
5.6 CONTRIBUTIONS OF THE STUDY

The researcher anticipates that the findings of this research will serve MTI, the County Health Team of Grand Cape Mount County and Tewor District Health Officer as a basis for planning trainings for HHPs in infant and young child feeding. The research identified that even if the overall knowledge of the HHPs is high, there are discrepancies in remembering the different components of infant and young child feeding. This research finding will also serve the Ministry of Health and Social Welfare of Liberia as well as other organizations that use community health volunteers as an input for improving the effectiveness of the work of community volunteers and in considerations of sustainability of their work.

5.7 LIMITATIONS OF THE STUDY

Because of resource constraint, the researcher conducted the study in just one district out of the five districts of Grand Cape Mount County, where the Child Survival was implemented. The sample size was determined based on the number of HHPs in the selected district, which was 73. A bigger sample from more districts of the county would have been more representative of the HHPs in the county.

However, despite that limitation the study provides important information that could help MTI, Grand Cape Mount Health Team, Tewor District Health Officer and other programs that utilize CHVs, especially the care group model involving HHPs.

5.8 CONCLUDING REMARKS

The study showed that the overall infant and young child nutrition knowledge of the HHPs was high. However, the knowledge scores were not uniform across the components of infant and young child feeding. This necessitates that refresher training
should be provided to the HHPs with emphasis on the aspects of infant and young child feeding with scores below the mean.
LIST OF REFERENCES


Ande, O, Oladepo, O, and Brieger, W.R. 2004. Comparison of knowledge on diarrheal disease management between two types of community-based distributors in Oyo State, Nigeria. Health Education Research,


Kennedy, L, University, G. [S.a.]. *Benefits arising from lay involvement in community-based public health initiatives: The experience from community nutrition.*


*Technical Advisory Group Meeting Summary on Care Groups. 2010*

The Earth Institute, Columbia University. 2011. One Million Community Health Workers Technical Task Force Report


United States Agency for International Development (USAID) Infant & Young Child Nutrition Project. 2010. *Formative Assessment of Infant and Young Child Feeding Practices at the Community Level in Zambia*


World Relief & Food for the Hungry. 2010. Establishing Care Group Criteria


September 11 2012

CERTIFICATION OF EDITING AND PROOF READING

This is to certify that we at Tom P. Gorgla & Associates, have diligently carried out thorough editing and proofreading of the accompanied document entitled, Assessment of Community Health Volunteers’ Knowledge Regarding Infant and Young Child Feeding in Tewor District, Grand Cape Mount County, Liberia, presented to us by Mr. Shiferaw D. Demissie, Health coordinator at the Catholic Relief Services [C.R.S.] in Monrovia, republic of Liberia and have certified it to be fully correct and authentic.

Warmest regards

Very truly yours

Tom P. Gorgla

[Signature]

Senior Partner
Annexure A: Approval from the university

UNIVERSITY OF SOUTH AFRICA
Health Studies Higher Degrees Committee
College of Human Sciences
ETHICAL CLEARANCE CERTIFICATE

HSHDC/4/2012

Date of meeting: 26 January 2012

Project Title: Assessment of community health volunteers’ knowledge regarding infant and young child feeding in Tewor district, Grand Cape Mount County, Liberia.

Researcher: Shiferaw Dechasa Demissie

Degree: Masters in Public Health

Supervisor: Ms Manafe

Qualification: Masters in Public Health

Joint Supervisor: -

DECISION OF COMMITTEE

Approved □ Conditionally Approved □

Prof E Potgieter
CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE

Dr MM Moleki
ACTING ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES
Annexure B: Letter seeking consent from Medical Teams International

GayahKezele  
Country Director  
Medical Teams International  
Monrovia, Liberia

Subject: Request for list of HHPs of the CSP and permission to conduct a study

Dear Gayah,

I am currently a Master of Public Health (MPH) student at University of South Africa (UNISA) and presently engaged in a research project entitled “Assessment of community health volunteers’ knowledge regarding infant and young child feeding in Tewor district, Grand Cape Mount County, Liberia.” The project targets the Household Health Promoters (HHPs) of the Child Survival Project (CSP) of your organization. This study aims to determine the level of knowledge retention by the HHPs after one year of end of project support to them and further investigate relationship between knowledge and socio-demographic characteristics.

The findings of this study will serve as an input for MTI and other actors for planning sustainability of community based interventions especially IYCN that depend on the functions of community health volunteers.

Ms Mashudu Manafe of the Department of Health Studies at UNISA is my supervisor for this study.

According to the research design, list of the HHPs that participated in the CSP is needed to randomly select the sample for the study. I would therefore kindly request your esteemed organization to give me the list of the HHPs in Tewod district and permit me to conduct the research in your program area.

I trust this request receives favourable consideration and I thank you in advance.

Most sincerely,

Shiferaw Dechasa

CC: Ms Mashudu Manafe
Annexure C: Letter from Medical Teams International

February 2, 2012

Shiferaw Dechasa Demissie
Catholic Relief Services
Monrovia, Liberia

Dear Shiferaw,

“ASSESSMENT OF COMMUNITY HEALTH VOLUNTEERS’ KNOWLEDGE REGARDING INFANT AND YOUNG CHILD FEEDING IN TEWOR DISTRICT, GRAND CAPE MOUNT COUNTY, LIBERIA.”

I hereby grant permission to you to conduct a study on the above mentioned title in Tewor district, Grand Cape Mount County, Liberia. You may obtain the list of the Household Health Promoters (HHPs) in Tewor district from our field office in Grand Cape Mount County if needed. Please don’t hesitate to contact me if you need any other assistance.

Regards,

[Signature]

[Name]
Country Director
Medical Teams International-Liberia
Annexure D: Research Participant consent

Dear research participant,

I would kindly like to request you to participate in a research study entitled "Assessment of community health volunteers' knowledge regarding infant and child feeding in Tewor district, Grand Cape Mount County, Liberia". The aim of the study is to assess the knowledge retention of Household Health Promoters that participated in the Child Survival Project of Medical Teams International. Your participation in this research is absolutely voluntary, and you will not be penalised or lose benefits if you refuse to participate or decide to withdraw from the study after you have agreed to participate. Your participation will involve answering questions during an interview session. Your participation is important because the researcher will be able to get the necessary information which will enable him to meet the study objectives. The study findings will lead to recommendations to Medical Teams International and the Grand Cape Mount County Health Team to improve health care services delivery that involve the use of community health volunteers like the household health promoters in the county.

We do not anticipate risks involved in your participation. The information provided will be confidential and anonymous. On request, a written summary of the research results will be availed to participants.

Consent

The nature of the study entitled "Assessment of community health volunteers’ knowledge regarding infant and child feeding in Tewor district, Grand Cape Mount County, Liberia" including the above information, has been described to me orally. I understand what my involvement in the study means and I voluntarily agree to participate.
Participant agreed to participate:   Yes   No

Date:_________________

Name of interviewer _________________     Signature of interviewer______________

Date _________________
Annexure E: Questionnaire

Questionnaire for the study of research entitled “Assessment of community health volunteers’ knowledge regarding infant and young child feeding in Tewor district, Grand Cape Mount County, Liberia”.

You are kindly requested to participate on this study by replying to the following questions. The interview takes approximately 20 minutes.

Name of Community: _________________________________

Name of Interviewer: ________________________________

Date of Interview: ________________________________

SECTION 1: SOCIAL DEMOGRAPHIC CHARACTERISTICS

<table>
<thead>
<tr>
<th>NO.</th>
<th>QUESTIONS AND FILTERS</th>
<th>CODING CATEGORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>How old are you? RECORD AGE OF RESPONDENT IN YEARS</td>
<td>_______</td>
</tr>
<tr>
<td>2</td>
<td>What is your highest educational level? No education</td>
<td>___________ 1</td>
</tr>
<tr>
<td>NO.</td>
<td>QUESTIONS AND FILTERS</td>
<td>CODING CATEGORIES</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------------------------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Non Formal education_______2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Primary education__________3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Secondary education________4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tertiary level________________5</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>How far do you live from the nearest health clinic or hospital?</td>
<td>Within 10 kilometers1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11–20 kilometers 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21–30 kilometers 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>More than 30 kilometers 4</td>
</tr>
<tr>
<td>4</td>
<td>Do you have a child whose age is between 1 year and 5 years now?</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>_________________________1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>_________________________2 –</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(If No skip to question # 6)</td>
</tr>
<tr>
<td>5</td>
<td>How old is your child whose age is between 1 year and 5 years?</td>
<td>2 years ________________1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 years ________________2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 years ________________3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 years ________________4</td>
</tr>
<tr>
<td>6</td>
<td>For how many years did you participate in the MTI Child Survival Project?</td>
<td>1 year ________________1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 years ________________2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 years ________________3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 years ________________4</td>
</tr>
</tbody>
</table>

SECTION 2: KNOWLEDGE RETENTION QUESTIONS
<table>
<thead>
<tr>
<th>NO.</th>
<th>QUESTIONS AND FILTERS</th>
<th>CODING CATEGORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>How long after birth should a child be put to the breast?</td>
<td>HOURS 1 [<em><strong>[</strong></em>]</td>
</tr>
<tr>
<td></td>
<td>IF LESS THAN 1 HOUR, RECORD ‘00’ HOURS. IF LESS THAN 24 HOURS, RECORD HOURS. OTHERWISE, RECORD DAYS.</td>
<td>DAYS 2 [_____]</td>
</tr>
<tr>
<td></td>
<td>Child should not be given breast milk ___________3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Don’t know ___________8</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>During the first three days after delivery, should a child be given the liquid that comes from the breasts?</td>
<td>Yes _______________1</td>
</tr>
<tr>
<td></td>
<td>No ____________________2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Don’t know ______________8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Under normal conditions, what should a child between birth and 6 months be given?</td>
<td>Correct ________________1</td>
</tr>
<tr>
<td></td>
<td>CIRCLE “CORRECT” IF RESPONSE IS “BREAST MILK ONLY”. CIRCLE “INCORECT” IF RESPONSE INCLUDES WATER AND ANY FOOD ITEMS IN ADDITION TO OR INSTEAD OF BREAST MILK.</td>
<td>Incorrect ______________2</td>
</tr>
<tr>
<td></td>
<td>Don’t know ______________8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For how long is a child expected to breastfeed in normal conditions?</td>
<td>Less than 1 Year ________1</td>
</tr>
<tr>
<td></td>
<td>Between 1 year and 2</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Correct</td>
<td>Incorrect</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>---------</td>
<td>-----------</td>
</tr>
<tr>
<td>10 How often should a child breastfeed in one day (day and night)?</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>CORRECT IF THE RESPONSE IS: AS OFTEN AS THE INFANT WANTS TO EAT OR 8–12 TIMES PER 24 HOURS, OR EVERY 2–3 HOURS</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>11 At what age does a child expected to start complimentary food?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>CORRECT IF THE RESPONSE IS: AT 6 MONTHS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 When a child gets sick what do you advice a caregiver to do in terms of quantity of food the child should be give?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same quantity</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Increased quantity</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Reduce quantity</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Don't know</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Question</td>
<td>Options</td>
</tr>
<tr>
<td>---</td>
<td>-------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>14</td>
<td>When a child gets sick what do you advice a caregiver to do in terms of quantity of fluid the child should be give?</td>
<td>Provide: Same quantity ________1 Increased quantity _____2 Reduce quantity _____3 Don't know __________4</td>
</tr>
<tr>
<td>15</td>
<td>How often should a child older than 6 months be taken to a clinic for Vitamin A supplementation?</td>
<td>Correct ________________1 Incorrect _______________2 Don't know ___________8</td>
</tr>
<tr>
<td></td>
<td>CORRECT IF THE RESPONSE IS: EVERY 6 MONTHS</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>What do you advice a pregnant woman in terms of the quantity of food she should consume?</td>
<td>Same quantity ________1 Increased quantity _____2 Reduce quantity _____3 Don't know __________4</td>
</tr>
<tr>
<td>17</td>
<td>What do you advice a lactating woman in terms of the quantity of food she should consume?</td>
<td>Same quantity ________1 Increased quantity _____2 Reduce quantity _____3 Don't know __________4</td>
</tr>
<tr>
<td>18</td>
<td>How many times should a child eat solid, semi-solid, or soft foods other than liquids in a given day during the day or at night?</td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IF the ANSWERS IS SEVEN OR MORE TIMES, RECORD “7”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NUMBER OF TIMES</td>
<td></td>
</tr>
<tr>
<td></td>
<td>____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DON'T KNOW  8</td>
<td></td>
</tr>
</tbody>
</table>

Thank the participant for her time and participation.
Annexure F: Certificate of Editing and Proof Reading (attached in PDF)