

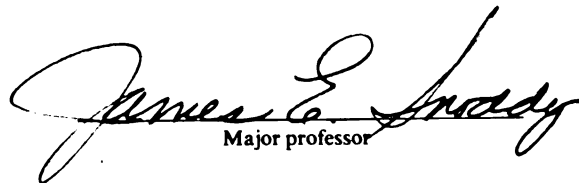


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Assessment of the Teaching Effectiveness of Community
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Prevention and Treatment in Ethiopia

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**ASSESSMENT OF THE TEACHING EFFECTIVENESS OF COMMUNITY
HEALTH AGENTS WITH REGARD TO DIARRHEAL DISEASE
PREVENTION AND TREATMENT IN ETHIOPIA**

By

Fantaye Mekbeb

AN ABSTRACT OF A DISSERTATION

**Submitted to
Michigan State University
in partial fulfillment of the requirement
for the degree of**

DOCTOR OF PHILOSOPHY

Department of Educational Administration

1993

ABSTRACT

ASSESSMENT OF THE TEACHING EFFECTIVENESS OF COMMUNITY HEALTH AGENTS WITH REGARD TO DIARRHEAL DISEASE PREVENTION AND TREATMENT IN ETHIOPIA

By

Fantaye Mekbeb

The purpose of this study was to examine the teaching effectiveness of community health agents with regard to diarrheal disease prevention and treatment in the Kaffa (currently called Illubabor) region of Ethiopia.

The study sought to provide information about the attitudes of community health agents toward instruction, their knowledge of subject matter, and skills and methods of instruction used by them during their teaching. The teaching effectiveness was assessed on the basis of perceptions and expressed knowledge of mothers of children under 5 years old in the Kaffa (Illubabor) region.

In order to collect data for the study, a survey method was used. A data collection instrument was designed, developed and tested. A total of 912 respondents participated in the study. The data for the study were collected in the five districts of the Kaffa region.

The major findings of this study were as follows:

The respondents perceived the effectiveness of community health agents' teaching at different levels. The respondents perceived the attitude and knowledge of community health agents at a medium level, and skills and methods used by community health agents at a lower level. No significant difference were found in respondents' level of attitude of community health agents' toward instruction in term of respondents' age, level of literacy, and religious affiliation.

Respondents' level of perception of community health agents knowledge of subject matter varied significantly in terms of respondents' age and family income. The older respondents' level of perception of the community health agents' knowledge of subject matter were higher than younger respondents. And higher income groups of respondents' level of perception of community health agents' knowledge of subject matter were higher than those respondents with lower income. No significant difference were found in respondents' perception of community health agents knowledge of subject matter in terms of respondents' level of literacy and religious affiliation.

Respondents' level of perceptions of community health agents skills and teaching methods during instruction varied significantly in terms of respondents' age and family income. The older respondents' level of perceptions of community health agents skills and teaching methods were higher than that of younger respondents.

Higher income groups of respondents' level of perceptions of community health agents skills and teaching methods during instruction were higher than lower income groups of respondents. No significant difference were found in terms of respondents' level of literacy and religious affiliation.

The survey results further revealed that the majority of the respondents scored above average on the knowledge test related to diarrheal disease prevention and treatment. The study, however, did not find any significant difference in respondents' levels of knowledge about diarrheal disease prevention and treatment in terms of age, income, level of literacy and religious affiliation.

DEDICATION

This study is dedicated in memory of my father Aleka-Mekbeb Wolde Kiros who passed away while I was in graduate study abroad. He modeled for me the importance of hard work toward a far reaching goal, always striving for excellence and always finishing what you start.

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CHAPTER I

INTRODUCTION

This chapter introduces this research study, provides a brief background of the problem, describes the setting and highlights the value of the study. In addition, it presents the research questions, points out the limitations and assumptions of the study, and finally indicates the contents of following chapters.

The perceived and measured teaching effectiveness of Community Health Agents with regard to diarrhea disease prevention and treatment among children under five years of age in Ethiopia is examined in this study.

Background of the Study

Of several communicable diseases, diarrhea is one which has caused the greatest number of deaths among Ethiopian children under five years of age. Diarrhea diseases are a major cause of sickness and death among children in most developing countries. A recent estimate (World Health Organization, 1980) indicates that in developing countries diarrhea diseases were responsible for nearly five million deaths per year in children under five years of age. On average, every 100 children in this age group experience 220 diarrhea episodes, and 1.4 deaths from diarrhea result each year (Primary Health Care Review, 1985).

Diarrhea diseases are serious problems for children in Ethiopia. A study done to investigate the health status in 122 countries, indicated that Ethiopia had the highest infant mortality and a repeated investigation after twenty years showed further increase in infant mortality in Ethiopia (Merton,1968).

The proportion of childhood mortality associated with diarrhea in different regions of Ethiopia ranges from 22.6 to 62.0 percent, with a median of 45 percent (Primary Health Care Review, 1985).

Dissatisfied with the slow rate of implementation of annual health plans , the Ethiopian government decided to develop a Comprehensive Ten-Year Health Sector Perspective Plan for the period 1984/5 to 1993/4. The main objectives of the health sector plan are to foster full and active community involvement in health activities; to ensure multisectoral collaboration and co-ordination in all health actions and extend health service to where the broad masses live, to get all major communicable diseases under control, services to special population groups such as mothers and children. According to the ten year health sector plan, at the end of the plan period, the main goals to be achieved include reduction of the infant (ages 0-5) mortality rate from the present rate of 155/1000 to a rate of 95/1000 and reduction of the child (ages 0-5) mortality rate from the present level of 247/1000 to 150/1000.(Comprehensive Health Service Directory 1983/1984).

According to the "Guidelines and Strategies for the Control of Diarrhea Disease in Ethiopia (1983), to reduce mortality and morbidity caused by diarrhea diseases, the following strategies were emphasized:

1. Improved care management with emphasis on the early use of oral rehydration therapy, and appropriate feeding during illness and convalescence.
2. Improved maternal and child health care with particular emphasis on breast feeding, weaning practices, personal and domestic hygiene, and maternal nutrition.
3. Improved use and maintenance of drinking water and sanitation facilities with improved hygiene.
4. Detection and control of epidemics.
5. Health education, by using: The mass media, educational material such as posters, pamphlets, slides, etc.
6. Training of health personnel at all levels by arranging an in-service training.

Diarrhea is often the result of an invasion of an infectious agent which enters the body through food. It often coincides with the loss of anti-infection protection provided in mother's milk. In developing countries diarrhea is most common during the period when the child is weaned.

"The physical and biochemical changes brought on by diarrhea are similar to an acute state of malnutrition. The normal values of water, electrolytes, nitrogen, amino-acidity and vitamins are reduced. The quantity of food consumed is often reduced because of anorexia and vomiting, a loss of 5-10 percent of body weight or even more, changes in cell metabolism and loss of food because of lowered absorption."

(Bencic, Z. 1975). A number of causes are considered to be responsible for the present conditions regarding diarrhea in developing countries, including the lack of knowledge in the community about the disease, absence of proper sanitation and ineffective methods of disposing of human fecal waste, lack of potable water, and lack of knowledge of basic health, nutrition and child-rearing practices (Ahmed & Kloons, 1988).

The pattern of disease is similar in most other developing countries in that it is shaped primarily by low income, inadequate diet, limited access to clean water and a generally low standard of cleanliness for the rural population. (The Ethiopian Journal of Health Development, 1984).

The majority of the diseases in Ethiopia are communicable and could be prevented by improved environmental sanitation. However it should be noted that in the past, emphasis was placed on complex technology, specialization and such capital-intensive services as curative medicine and hospitalization. The conventional model has been hospital based, doctor centered and disease oriented. But this model has not been of great benefit to the great number of people. A very small percentage of village people in most poor countries have access to modern health care. Eighty to eighty five percent of the people live in rural areas, while 85 percent of the physicians and hospitals are located in the cities. Considering the seriousness of the problem, the past and the current health policies in Ethiopia has been geared.. "to ensuring a full and meaningful life for the broad

masses and, all necessary efforts will be undertaken to provide adequate health services. (Ahemed & Kloons, 1988). Based on this policy statement, the Ministry of Health has formulated its policies with emphases on disease-prevention and control, giving priority to rural health-services, promotion of self-reliance and community involvement in health program activities. This has been further strengthened by the governments adoption of primary health care (PHC) as the strategy for achieving the goal of " Health For All" By The Year 2000. (Primary Health Care Review, 1985). The WHO African Regional Charter for Health Development was signed in 1980, which emphasized improved public health programs for the prevention and treatment of communicable diseases, with special emphasis on primary health care practices. The primary health care program is expected to promote personal and community self-reliance. As a result, the community health workers (CHW) program was set up. This program includes the community health agents (CHA) and the traditional birth attendant (TBA).

Acting as a liaison between the health care system and the community, the community health agents are considered one of the most important links in the chain of health care. The community health workers perform multiple tasks, ranging from prevention to cure to information collection. In addition, these workers are sometimes asked to perform some medically related tasks. The primary goal of community health agent is to improve health in his or her community by

helping the people to change health practices through teaching and demonstrations. Although these community health workers are lay people without medical background, they are expected to perform technical and complex tasks. The extent to which this activity is performed as opposed to promotive and preventive functions varies from country to country. In Ethiopia and also in some other developing countries, the tasks of CHW are mainly preventive and promotional giving strong emphasis on health education, nutrition education, surveillance of diseases, environmental sanitation, provision of potable water, protection of the sources of water supply, and mobilisation of the community for community development activities. As a result, the training of community health workers poses a great challenge. These workers must be trained to meet specific needs and perform specific tasks. The preparations to perform such tasks could be evaluated if their learning were based on clearly stated behavioral objectives (Taylor, Carlson, & Golden, 1979).

Based on the above considerations, a competency-based training program was designed and developed for the training of community health workers in Ethiopia. The curriculum includes the following topics:

1. Maternal & child health
2. Control of diarrhea diseases
3. Environmental sanitation
4. Nutrition and balanced diet
5. Health education
6. Precautions in handling essential drugs
7. Malaria control
8. Immunisation (Primary Health Care Review, 1985).

It is estimated that during 1983 and 1984 about 5,000 to 6,000 community health workers were trained, and many more have been trained since then. (Primary Health Care Review, 1985). But no systematic evaluation of the effectiveness of their teaching with regard to diarrhea diseases has been conducted. Therefore, this study will attempt to assess the effectiveness of community health agents' teaching on the basis of the perceptions and expressed knowledge of diarrhea diseases of mothers of children under five years old who have been trained by community health agents. While, there are other related problems that need to be studied, this study is a first step that could lead to further investigations in the area of CAW's teaching programs.

Purpose of the Study

The purpose of this study was to assess the effectiveness of Community Health Agents' teaching with regard to diarrheal disease prevention and treatment in Ethiopia. The teaching effectiveness of community health agents was assessed on the basis of the perceptions of, and expressed knowledge about, diarrheal disease prevention and treatment by mothers of children under five years.

Significance of the Study

One way to evaluate any training program or aspects of a program is to have post-experience feedback from those who have undergone the training. The mothers of children under

five years old in the Kaffa region, who have been trained by the community health agents about the prevention and treatment of diarrheal diseases, are in an excellent position to indicate the degree of effectiveness of the community health agents' teaching based on their perceptions as well their expressed knowledge about the contents of the training.

This study is the first systematic attempt to assess the effectiveness of community health agents' teaching related to the prevention and treatment of diarrhea in Ethiopia. The research was undertaken with the expectation that the result of this study and the recommendations drawn from it concerning the community health agents' training of mothers on the prevention and treatment of diarrheal disease, if brought to the attention of concerned officials, could result in more meaningful community health agents' training programs. Such an attainment would not only benefit the community health agents' and the Ministry of Health but also the community at large with more effective and significant outcomes of the services rendered. The findings of this study will help identify strengths and weaknesses of the program in relation to the community health agents' teaching attitudes, methods and teaching skills, and knowledge of subject matter. The identification of the weaknesses will help the related authorities to take necessary steps to investigate the problem further and to improve the community health agents' training program.

Concept of Primary Health Care (PHC)

The years 1973-1977 witnessed a considerable amount of reassessing by the World Health Organization (WHO) about what is meant by and what is involved in health development. The growing concern for unacceptable low health status of the majority of the world's population, especially the rural population, led the Thirtieth World Health Assembly in May 1977 to decide that the main social target of governments and WHO in the coming decades should be the attainment by the year 2000 of a level of health by all citizens of the world that will permit them to lead socially and economically productive lives. The real challenge was how to devise appropriate ways and means of attaining that target. Finally, the approach proposed was that of primary health care (PHC).

The International Conference on Primary Health Care was held at Alma-Ata U.S.S.R. in September 1978, and was conducted by the World Health Organization and the United Nations Children's Fund (UNICEF). At this conference the global concept of health for all by the year 2000 was proclaimed. The means of achieving this goal was decided to be primary health care (PHC) which included the following objectives: Education concerning prevailing health problems and the methods of preventing and controlling them; promotion of food supply and proper nutrition, adequate supply of safe water and basic sanitation; maternal and child health care, including family planning; prevention and control of locally endemic diseases; and provision of essential drugs (Warren, 1988).

The Alma Ata Conference described PHC as" essential health care based on practical, scientifically sound, socially acceptable methods; technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of development, in a spirit of self reliance and self determination. (Guidelines And Strategies, 1983), "

Therefore, it was thought that:

PHC should be shaped around the life patterns of the population it should serve.

The local population should be actively involved in the formulation of health care activities so that health care can be in line with local needs and priorities.

Health care offered should place a maximum reliance on available community resources, especially those which have remained untapped and should remain with the cost limitations that are often present.

PHC should be an integrated approach of preventive, curative and promotive services for both the community and the individual.

All health interventions should be undertaken at the most peripheral practicable level of the health services by the worker most simply trained for the activity.

Other health services net-work in a given country should be designed in support of the needs of the peripheral level, especially as it pertains to the technical, supply, supervisory and referral support.

PHC services should be fully integrated with services provided by other sectors involved in community development, these collaborated efforts (agriculture, education, public works, housing, communications etc.) strengthens and provide support to the program. (Guidelines And Strategies,1983).

The attainment of primary health care will be possible by the involvement and participation of all related national and community development sectors including agriculture, animal husbandry, the food industry, education, housing, public works in general and communication and the health sectors in particular are essential in a coordinated way.

The primary health care (PHC) approach has been declared in Ethiopia as the only approach to achieve the objective: "Health For All" by the year 2000. PHC has been defined in the context of all aspects and all levels of health development and health services, and not simply the peripheral level. Within this context, the backbone of health development is the community health services program. The community health agent (CHA) and the traditional birth attendant (TBA) are community health workers and are the most important manpower resources in this program. CHA is recruited from and by the community and trained by the Ministry of Health (in cooperation with other development agencies) in basic community health and medical care. Upon completion of training, he/she serves under the complete control of and with remuneration from the community. He/she receives technical guidance, support and periodic retraining from the nearest health service unit, and serves as a liaison between such units and the community. The community health agent who is trained to work in the community in close relationship with the health care system is a link between them.

The national health service system infrastructure is based on a five tier system linked by a referral and supervision arrangement:

Community Health Services:

The health services offered by the CHAs and TBAs in the rural communities.

Health stations:

A small health facility often staffed by only one worker with limited training, which provides a limited geographic area with outpatient preventive and curative services.

Health Centers:

A type of health facility which may be staffed by health care workers with varying degrees of medical training such as midwives, nurses, and physicians.

A health center serves a larger geographic area than a health station and provides inpatient care as well as outpatient preventive and curative services.

Rural Hospitals:

Most of the rural hospitals are located in the administrative regions. It is a type of health facility which is staffed by highly skilled health care workers who use complex techniques and equipment in the treatment of disease; a hospital provides outpatient and inpatient curative services to a larger geographic area than a health center.

Central and Special Hospitals:

Most of the central and special hospitals are located in the capital cities. The facilities similar to the rural hospitals and are mainly used for training purposes.

Setting of the Study

The study was done in Ethiopia. Located in East Africa, Ethiopia has an area of 1.25 million square kilometers. The country shares common borders with the Republic of the Sudan in the North and West, the Republic of Djibouti and Somalia in the East and Kenya in the South.

The 1984 population was 42,184,900 (Population & Housing Census 1984) with an urban to rural population ratio of 1:8. About 70 languages and 200 dialects are spoken in the country.

Agriculture is the main stay of the country's economy. In the entire country there are 2000 health stations, 142 health centers and 86 hospitals with 11,296 beds. (Control of Diarrhoeal Disease (CDD) Program, Plan of Action 1987-1991). The major health problems are communicable and nutritional deficiency diseases. Diarrhea plays a major role in contributing to the high mortality in children in Ethiopia. This is evidenced by the findings of several diarrheal diseases morbidity and mortality surveys conducted in different administrative regions during the period 1984-1986 (Control of Diarrheal diseases Program, Plan of Action, 1986). (Table 1.1 on next page).

In order to assess the effectiveness of community health agents' teaching on diarrheal disease prevention and treatment this study was conducted in the Kaffa region (now called Illubabor region) of Ethiopia. The reasons why the

Table 1.1

Summary of Diarrhea Disease Morbidity and Mortality
 Surveys of Children under 5 years of age,
 May 1984 - April 1986, Ethiopia.

Administrative Regions	Children Under 5 years Surveyed	Diarrheal Death Percentage
Arssi (1984)	3014	43
Addis Ababa (1984)	3015	48
Eritrea	3020	42
Gonder	3011	45
Addis Ababa (1985)	3011	44
Harar	3009	33
Kaffa *	3000	62
Shoa	3011	46
Sidamo	3015	47
Arssi (1986)	3013	47

Source: Control of Diarrheal Diseases Program
 Plan of Action 1987-1991. Ethiopia, 1986.

* Kaffa study area, May - April 1986.

study was conducted in the Kaffa region includes: the Kaffa region has one of the highest incidence rates of diarrheal diseases in Ethiopia, a well developed primary health care program is being carried out in the Kaffa region, the region is known to the researcher and the cultural values, beliefs, attitudes, and language of the people are familiar to the researcher.

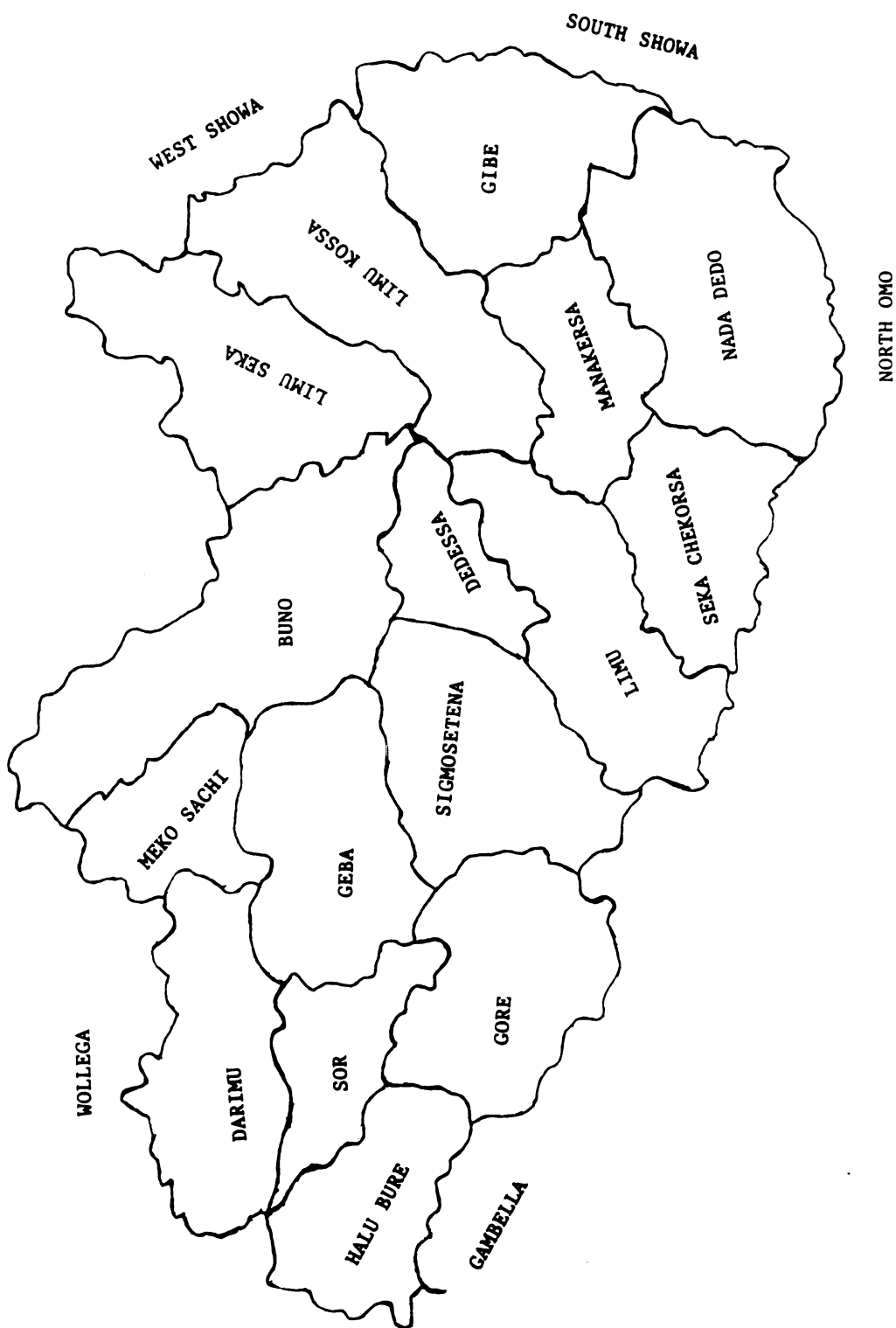
The Kaffa region had six (now 16 districts) districts and 43 sub-districts (now 394 subdistricts). It should be noted that the present government which came to power in 1991 subdivided the districts and the sub-districts as pointed out above. The total population of the Kaffa region is approximately 2,940,891. Five districts in the Kaffa region were selected for the study. These districts existed now and before. They are Mana Kersa, Limu, Nada Dedo, Seka Chekorsa and Gibie. (see maps on following pages)

Figure 1.1

Map of Ethiopia Showing Study Region



Figure 1.2
Map of Kaffa (Illubabor) Region Showing the Study sub-districts



Research Questions

On the basis of the purpose of this study, the following research questions were developed:

1. What are the levels of the respondents' perceptions of community health agents' teaching effectiveness?
2. Does the perceived teaching effectiveness of community health agents vary with the respondents' age, level of literacy, family income, and religious affiliation?
3. What is the level of expressed knowledge about diarrheal disease prevention and treatment by respondents?
4. Does the level of knowledge of respondents about diarrheal disease prevention and treatment vary with their age, literacy level, family income, and religious affiliation?

Limitations of the Study

This study was limited by the following:

1. The study is confined to the Kaffa region of Ethiopia. There are 16 administrative regions in Ethiopia and Kaffa is one of them. As a result, generalizations beyond this setting should be interpreted with care.
2. The study takes into consideration only CHAs' attitudes, knowledge, methods and skills of instructions as components of teaching effectiveness.
3. Some of the findings of this study are based on perceptual data which are always fluid and subject to change.

Assumptions of the Study

This study was based on the following assumptions:

1. The responses provided by the respondents, mothers of under 5-year old children who were educated and trained by community health agents, to the items on the data collection instrument were individual, honest and frank.
2. The respondent mothers understood each interview questions.

3. The male interviewers of this study were accepted by the respondents and their respective families.

Definitions and Descriptions of Terms

1. Community Health Agent:
(CHA) - A person from the community who is trained to function in the community in close relationship with the health care system.
2. Community Health Worker:
(CHW) - Both the community health agent (CHA) and the traditional birth attendant (TBA) are called community health workers.
3. Kaffa Region: - The Kaffa region is one of 16 administrative regions of Ethiopia. It had six districts which were further divided into 43 sub-districts. Now there are 16 districts and 394 sub-districts.
4. Mothers: - This term refers to women with children under five years old who have been educated and trained by community health agents about the prevention and treatment of diarrhea.
5. Primary Health Care: - An approach to achieve the WHO's objective of Health For All By The Year 2000. CHAs' and TBAs' are the most important human resources in the primary health care program.
6. Teaching Effectiveness: - The term teaching effectiveness refers to the degree of success of CHAs' teaching as perceived by the respondents. Teaching effectiveness will be assessed in terms of CHAs' attitude toward instruction, their knowledge of subject matter, and the teaching methods and skills used during the training program.

Organisation of the Study

Chapter I introduced the research problem, and stated the purpose, significance, limitations, assumptions and research questions of this study. In addition, it provided definitions of important terms used in this study; and described the setting where the data were collected.

Chapter II provides a review of related literature. Chapter III presents the research design and describes the methods and techniques used in the study.

Chapter IV offers the analysis of the data and findings of the study, while Chapter V provides summary, conclusions, and recommendations.

Summary

This study assessed the teaching effectiveness of the community health agents in relation to diarrheal disease prevention and treatment in Ethiopia. The degree of their teaching effectiveness was assessed on the bases of perceptions and expressed knowledge of mothers of children under five-year old in the Kaffa region.

Diarrheal diseases are serious problems for children in Ethiopia. To solve this problem, the government of Ethiopia adopted the primary health care approach to achieve the goal of "Health For All" By The Year 2000. As a result, the community health workers program was established. This program included both community health agents and traditional birth attendants. The community health agents are responsible to educate and train the mothers of children under 5 years of

age about the prevention and treatment of diarrheal disease.

The study was done in the Kaffa region of Ethiopia. Since no systematic study has been done in Ethiopia to assess the teaching effectiveness of community health agents with regard to diarrheal disease prevention and treatment, the findings of the present study will be significant for further improvement of the program.

CHAPTER II

REVIEW OF SELECTED LITERATURE

The purpose of this chapter was to review selected literature with the following objectives:

To identify and review studies completed in the area of primary health care focusing on community health worker's selection, remuneration, training, and their effectiveness in educating and training the target population; and to review studies having a bearing on the problem under investigation, but not directly related to the topic of this study.

It is worth noting that the literature search done in the area of primary health care focusing on community health workers indicated a lack of empirical and systematic studies. The bulk of the literature identified were in the forms of reviews, articles, reports or position papers.

The literature is reviewed under the following sub-headings:

- 1. A Profile of Community Health Workers**
- 2. Selection of Community Health Workers**
- 3. Remuneration of Community Health Workers**
- 4. Training of Community Health Workers**
- 5. Effectiveness of Community Health Workers**

A Profile of Community Health Workers

Community Health Workers are the front line health workers in the primary health care program. (for a description of primary health care please see chapter I, page 8). Meche et al. (1984) identified the duties performed by community health workers in their study done in three regions involving

53 health agents in Ethiopia. Community health workers:

- 1. Stimulate members of the community to participate actively in improving the health of their families and communities and coordinate this participation.**
- 2. Provide health education relevant to local health problems.**
- 3. Implement different methods of controlling communicable diseases.**
- 4. Provide maternal and child health services.**
- 5. Provide curative services for minor illness and injuries and refer those people who require more complex examination and treatment.**
- 6. Collect health information and statistics and perform administrative work as required.**

Based on the job descriptions a training program of three to four months duration was designed for community health workers in Ethiopia. The training program of community health agents is carried out in rural hospitals and health centers.

Meche et al. (1984) pointed out that as a result of a policy decision by the government of Ethiopia and in line with the 1978 Alma Ata declaration of primary health care, the training of community health agents started in Ethiopia in 1978.

Meche et al. (1984) stressed that the extent to which the community accepts responsibility for the cost of training and for arranging continued remuneration, and the effectiveness of the training and supervision provided by the health services are both crucial to the success of community based health care.

Selected by and based in the community to be served, the community health workers provide continuous primary health care services in areas where no health service facilities are available. The commonness of ethnicity, language and culture between the community health workers and the community people is a positive factor in increasing not only the accessibility but also acceptability of services by the people.

Berman et al. (1987) pointed out that outreach services were often neglected in favor of clinic based curative care. Clinic users were primarily drawn from the population living within 3-5 kilo meters of the facility and were mainly from the middle and higher income groups. The poor or those who lived far away from the health facility received few or no services. Berman also indicated that the community health workers seemed more effective in reaching the underserved population than clinic-based facilities. Having a trained worker in the villages eliminated the distance, time, and travel costs. Community Health Workers were also available at convenient hours, early morning or evening, so that they did not interfere with the income earning activities of the rural people. They were known to the villagers and were taught to bridge the social and cultural gap that discouraged people from using the clinics.

Walt et al. (1989) pointed out that in the 1970s and 1980s many developing countries tried to extend coverage of health services to previously under-served rural areas. One of the cheapest, easiest and most visible ways to do so was by

training local people rapidly to offer some preventive and curative care to populations distant from formal health services. Since offering salaries to large number of community health workers was beyond the budget of most Ministries of Health in the various countries, it was assumed that volunteers could be found who would be:

1. Selected by the communities through special meetings or local instructions.
 2. Supported by the communities in cash or in kind.
 3. Willing to give up a small part of each week to curative or preventive health activities.
- Walt et al. (1989)

Selection of Community Health Workers

The community health workers are chosen by the community on the basis of their ability to read and write, and their knowledge of simple math such as addition, subtraction and multiplication. They serve the community on voluntary basis, spare time for daily community activity and express commitment to stay in the community for at least two years. They are mature and not less than 18 years of age. The person should not have smoking or drinking habits. Married persons with children are preferred because the chances of their staying in the community are greater.

In general, most programs require that community health workers be literate so they can read the training manuals, keep simple activity reports, understand written directions and order supplies. CHW are required to have only enough years of schooling to enable them to read, write and count.

However some programs have not had a pool of literate candidates available and thus they selected and trained workers who could not read or write.

Ofusu-Amaah (1983) points out that selection criteria for the community health worker vary from country to country. In general the criteria focus mainly on the ability of the trainee to organize and practice what he or she is taught, previous experience of activities within the community, acceptability to the community, maturity, and a sense of responsibility and dedication.

The main criteria for selection as indicated in the literature are: age, gender, literacy and residence in the community.

According to Ofusu-Amaah (1983), experiences in Botswana, Ghana, Iran, Jamaica, the Philippines and the Sudan have shown that more mature middle-aged men or women, who are good opinion leaders perform more satisfactorily than young community health workers. An evaluation of the Kava project in Iran confirmed that the level of confidence of villagers in the village health workers increased with the increase in age of community health worker. Generally, young community health workers have been found to have less credibility in the community and are felt to have less commitment. Since the young community health workers have a better chance of obtaining other jobs, particularly in the cities, their drop-out rate is reported to be higher.

Bryant (1978) reported a study carried out in the Philippines which revealed that the lower the educational level of a candidate, the older his age and the greater his previous health experience, the more deeply rooted in his community, the more likely he would be a successful community health worker.

Ofusu-Amaah (1983) described the basis for the selection and recruitment of community health worker in some different countries as follows: in Costa Rica, personality and previous involvement in community activities and active contribution to voluntary or community organisation are valued highly. In China, barefoot doctors are fellow peasants who might be farmers working with the farming population or factory workers, and are chosen on the basis of their proven willingness to serve their fellow peasants. In the Chimaltenango project in Guatemala and also in China, intelligence and eagerness to learn are considered important criteria. Experiences concerning the age of the community health workers showed that in Botswana, Ghana, Iran, Jamaica, the Philippines and the Sudan the more mature, middle-aged men or women who are good opinion leaders perform more satisfactorily than young community health workers. In general, young community health workers have been found to have less acceptance in the community, and since they have a better chance to move out to other jobs, particularly in the urban areas, their drop-out rate is reported to be higher.

With regard to the gender of the community health worker, Ofusu-Amaah (1983) pointed out that in Costa Rica, only men were selected as rural health workers since extensive traveling is involved in difficult areas. In Afghanistan male community health workers are not allowed to visit women with problems of pregnancy and child birth. In Botswana and Solomon Islands, it is recommended that recruitment of married women as community health workers be done.

Education of the candidates is viewed as an important criterion for selection, although it differs from country to country. The Commonwealth Caribbean, Democratic Yemen, Ghana, Papua New Guinea, and the Philippines require a minimum level of elementary education.

Other similar programs in Gambia and India recruit mostly illiterates for training as community health workers. Candidates with education level higher than elementary education are rarely recruited as community health workers.

Bender et al.(1987) conducted a study regarding the selection of community health workers. According to Bender selection criteria vary from one country to another. However, age, sex, level of education , interest in areas related to health, and commitment to participation in training activities are common criteria. Experience suggests that the most reliable age group is usually from 25 to 40 years.

In all countries studied, once selected the community health worker receives training which will help him or her perform the specific roles.

Remuneration of Community Health Workers

With regard to the remuneration of community health workers Walt et al. (1989) remarked:

"When a community health worker program was introduced many governments made a crude assumption that communities would be willing to support their community health workers in kind or in cash, and would give labor in order to build a health facility for such a worker, but most communities have been reluctant or unable to sustain payments for community health workers over a longer period. Few communities see the advantage of paying for preventive care and where drug supply (sic) fail as they often do, community health workers lose what standing they had in the community. While volunteers are not paid by the community, they need incentives and rewards to maintain their activity levels. Continuing education, regular supervision and meetings with health staff may also be motivating forces but in many programs these are weak" (p.605).

Bender et al. (1987) suggested that some form of financial support is needed, whether from government or the community or both. According to Bender, community health workers require reimbursement on a regular basis (either salary or local fee-for service) in cash or in kind, otherwise they will stop functioning as community health workers.

Ofusu-Amaah (1983) suggests the importance of adequate remuneration of the community health worker. This was demonstrated by the Kava Project in Iran where 10 out of 16 of the first batch of trained community health workers decided to become full-time community health workers. It may mean that the community health workers found their

remuneration adequate and satisfactory. Ofusu-Amaah also stated that the issue of remuneration of the community health worker is being addressed in various ways and forms. The success of any scheme depends upon the social and economic circumstances of the given community and the political will and commitment of the state as well as on the extent to which the community is aware of its responsibilities. A reasonable remuneration for the community health worker is essential to reduce their high dropout rates.

According to Ofusu-Amaah (1983) adequate remuneration is important because it helps sustain interests and works as a motivational factor for community health workers.

The method of remuneration depends on the political, socioeconomic and cultural circumstances of countries. Based on her studies in Botswana, Costa Rica, Iran, Jamaica, Liberia, Papua New Guinea and the Sudan, Ofusu-Amaah (1983) reports that the community health worker is a salaried, full time government employee. In Papua New Guinea, although a community health worker is paid by the government, he/she sometimes receives some support from his or her community in the form of a house or land. It was observed in Botswana, Iran and Papua New Guinea that when paid by the government the community health worker tended to have less commitment to the community, because the community then has less commitment to community health workers. The community saw them as government employees who performed activities at the community level representing the government, and not as their own community health worker. In some countries, however, it

was more common for village health workers to be remunerated in kind, for example, a bag of millet at harvest time or the villagers helping to till the community health workers' fields. In Kenya, the community health worker was paid through cash contributions by community members. In some countries the development of new economic activities helped to get the resources to pay the community health workers. In Ethiopia, producer cooperatives were developed in conjunction with farmers associations to create economic activities which made financing possible for the payment of village health workers. Similar activities helped in remunerating the community health workers in the Philippines and Mali.

A Primary Health Care Review (1985) issued by the government of Ethiopia reported that varying degrees of dissatisfaction with the remuneration were expressed by the community health workers.

Training of Community Health Workers

The type of training varies from country to country, especially with regard to the length of training period, course content, instructional methods, place, instructors, continuing education and evaluation. The World Health Organisation (1980) in its working guide for primary health workers suggested an initial training period of 6-8 weeks with a plan for further on the spot or cyclical training.

Meche et al. stressed that the degree to which the community accepts responsibility for the cost of training and for arranging continued remuneration, and the effectiveness of the training and supervision provided by the health services are both crucial to the success of community-based health care.

Walt et al.(1989) reported the findings of their study done in Sri Lanka on adequacy and relevance of training as perceived by settlement and non-settlement volunteers. Sixty three percent of settlement volunteers were satisfied with the training given to them while twenty percent of the non-settlement volunteers felt that it was not enough. General feeling of inadequacy led volunteers to want more training. In the non-settlement areas volunteers were clearly seen as advisors and educators with no curative role.

A publication entitled "Primary Health Care Review, 1985" issued by the government of Ethiopia , reported the following findings in relation to community health workers training: most community health workers feel that their basic training is adequate, while some indicated the need for greater emphasis on some particular areas of the syllabus. The data presented in this review were based on surveys done by drawing eight separate samples which included a total of 3,136,048 respondents. As a result, the samples were considered representative of the total population.

Effectiveness of Community Health Workers

Mangelsdorf (1985) evaluated the effectiveness of the community health workers in Ecuador. Her studies showed that the older community health workers were more successful in convincing the community to adopt new health behaviors than young community health workers.

Christensen and Karlqvist (1990) conducted a survey in 1986 to evaluate the performance of community health workers, called health promoters, in Pucallpa, Peru. The training program of health promoters was part of a primary health care project for which the International Medical Cooperation Committee was responsible. Their survey found that 17 (40 percent) of the trained health promoters were still active 30 months after the project ended. The effects of the health promoters' work on the health behaviors of the people appeared most marked with regard to stimulating the people to use the public health care system. Some improvement was noted in the peoples' knowledge of diarrhea treatment. But significant changes, in actual diarrhea treatment or drinking water hygiene, were not observed. Gilson et al.(1989) also reported similar findings on studies done in Botswana ,Colombia and Sri Lanka.

Clow (1985) discovered in his study done in the Kingdom of Tonga, that instructions in the use of oral rehydration salt was most effectively given by non-medical staff to groups of mothers rather than by pediatricians in their inevitably brief, although important, explanation given in hospital.

Chowdhury et al.(1988) evaluated the effectiveness of teaching methods: individual and group teaching. The group teaching was done in Islampur and the individual teaching was in Sherpur Sadar upasila, Bangladesh. Although group teaching was found to be less expensive, no significant difference was noted in the outcome of teaching of community health workers with regard to diarrhea prevention and treatment.

Reynolds and Stinson.(1991) conducted a study which attempted to evaluate the knowledge levels of mothers in Pakistan as to how to mix and properly administer oral rehydration salts to their children. According to the researchers, the mothers knew what they were taught by the community health workers. The researchers further pointed out the effective work of community health workers in a similar study done in Bajju and in Dhaka in which mothers' ability to mix and administer oral rehydration solution was expressed at a very high level.

Berman et al. (1987) reported the result of an evaluation study done in 1978 in India on community health workers' knowledge and practice. Correct responses to questions about both medicine and dosage ranged from 25 to 56 percent for the first questions, averaging 45 percent. In 1979, an evaluation of the community health workers' knowledge was conducted in 23 states in India, and according to the authors, community health workers scored poorly. Berman et al.(1987) reported another study done in 1981-1982 in Mysore District, Karnataka State of India which evaluated the knowledge of community

health workers. The study found that eighty percent of community health workers did not know how to mix or use oral rehydration solution. Berman et al.(1987) pointed to a study done in Peru which indicated that community health workers could recognize at least some of the advanced signs of dehydration but were generally less aware of the early signs. Twenty five percent of community health workers recommended withholding all food during the first 24 hours of a diarrheal episode (which shows a lack of knowledge of diarrheal disease treatment). Over two-thirds knew how to prepare home made sugar-salt solution. Sixty percent of community health workers recommended use of antibiotics in routine treatment of fever in children. In contrast to these studies, Marchione's study of (1978) in Jamaica indicated that community health workers scored eighty percent on a knowledge test. Alam et al. (1989) reported the findings of their study on the effect of maternal, personal and domestic hygiene on the incidence of diarrhea in children aged 6-23 months from rural areas around Teknaf, Bangladesh. The intervention results showed that the use of hand pump water for drinking and washing, removal of child's feces from the yard, and maternal hand washing before handling food and after defecation of self and child, observed together, decreased yearly diarrhea incidence in households in which none or only one of these practices had been previously observed.

Taylor et al.(1979) completed a study on the Companion Project in Bangladesh which prepared village women to provide simple care for nutrition and maternal and child health care including family planning. Their findings indicated that although many of the women were illiterate, they performed well.

Summary

This chapter has provided the review of literature in the area of primary health care especially related to community health workers. The purpose of the literature review was to obtain both direction and insight into the research problem. The literature review has been provided under the following sub-headings: importance of community health workers' selection, remuneration, training and effectiveness in teaching and educating their target population.

According to the different studies, it was found that community health workers are residents in the community and are selected by the community. They are usually mature, male and are able to read and write. With regard to remuneration, studies have indicated that the remuneration methods differ from country to country. In general community health workers are paid by the community either in cash or in kind. Many studies also have shown that due to inadequacy of remuneration community health workers are frustrated and dissatisfied. Community Health Workers are trained by specially designed training programs in different countries. The focus of their training include the eight components of

primary health care: immunization programs, diarrheal diseases, food and nutrition, essential drugs, maternal and child health, health education, malaria control and water supply and sanitation. The studies evaluating the effectiveness of community health workers were few and the common findings indicated that they were not very effective in relation to the knowledge and skills needed to train their target population effectively.

CHAPTER III

RESEARCH METHODOLOGY

The primary purpose for conducting this study was to assess the teaching effectiveness of community health agents related to diarrheal disease prevention and treatment in the Kaffa Region, Ethiopia. The research design and procedures are discussed in this chapter. Included are the research questions, descriptions of the population and samples, development and validation of the data collection instruments, a brief description of their contents, and methods of data collection. In addition, presented in this chapter are the statistical techniques used for data analyses, and information on the presentational formats used to present the findings of the study in Chapter IV.

Permission to Conduct Research

The researcher sent a letter to the authorities of the Ministry of Health, Ethiopia, requesting the permission to do this study in the Kaffa region. The Ministry of Health granted permission by letter. (See letter in Appendix F).

Permission to conduct this study was needed from the University Committee on Research Involving Human Subjects (UCRIHS), Michigan State University. In order to get this permission the application included the following:

1. A cover letter describing the purpose of the study.
2. A copy of the research proposal.
3. A supporting letter from the chairperson of the doctoral committee. (See Appendix G)

4. A copy of the letter by the Ministry of Health, Ethiopia permitting to conduct the study.

The application was reviewed by the members of UCRIHS, and the approval to conduct this study was given (Appendix H).

Upon the request of the funding agency for this study, the Ethiopian government sent an agreement letter to the agency, indicating that all necessary help would be provided to the researcher during the data collection period (Appendix I)

Research Questions

The research questions of the study were:

1. What are the levels of respondents' perceptions of community health agents' teaching effectiveness?
2. Does the perceived teaching effectiveness of community health agents vary with the respondents' age, level of education, family income, and religious beliefs?
3. What is the level of expressed knowledge about diarrheal disease prevention and treatment by respondents?
4. Does the level of knowledge of respondents about diarrheal disease prevention and treatment vary with their age, level of education, family income and religious affiliation?

Research Design

The study employed a cross-sectional survey method. Bentley et al. (1988) have remarked that the most common mode of rapid social data collection in applied health research has been the survey method involving relatively large numbers of respondents. It particularly emphasizes the importance of local knowledge, personalistic interview approaches and open-ended interview techniques. Bentley et al. (1988). have pointed out that the survey method involves relatively large number of respondents, this approach utilizes extensive

samples, with rather thin information from individuals. The survey provides a broad picture of a population or region.

Development of Data Collection Instruments

Since no standardized data collection instruments were available for this study, an interview schedule and a knowledge test were designed, developed and tested. The interview schedule with Likert scales was used to gather perceptions of the respondents, and the knowledge test was employed to find out the level of knowledge of respondents in relation to diarrheal disease prevention and treatment.

Since the majority of the respondents of this study were unable to read and write, the use of an interview schedule was found more appropriate than the use of mail questionnaires. The final data collection instrument contained three sections: the first section helped to collect respondents' demographic information, the second section helped gather perceptions regarding community health agents' teaching effectiveness, and the third section helped test the level of respondents' knowledge about the prevention and treatment of diarrheal diseases.

To gather the perceptions of the respondents a five point Likert scale was used in the interview schedule. The reasons for using the Likert scale are: high reliability from fewer items (Moser & Kalton, 1972), unambiguous ordinality of response categories, and straight forward methods of index construction (Babbie, 1973). In a Likert scale statements are presented to the respondents and they are asked to express

the degrees of their agreement or disagreement with the statements.

Interview Schedule

In order to design and develop the interview schedule a number of steps were taken. First, a number of questions and statements were generated in the light of the research questions by consulting relevant literature, fellow researchers, and dissertation committee members. Efforts were taken to avoid words with double meanings and ambiguity. Statements and questions included in the interview schedule were brief, clear and relevant to the research questions.

The pre-test of the data collection instrument was thought to be very important. It was necessary to find out before the actual use of the interview schedule whether the questions and statements on it were clear and meaningful from the respondents' point of view, and if they elicited and measured the information desired to achieve the research objectives. Six professionals were asked to review and respond to the interview schedule . One was a registered nurse and two were public health experts and three from education. These six professionals examined the interview schedule for content and clarity and to determine if it would yield the needed information.

The interview schedule was revised on the basis of responses of the panel members. This revised instrument, was then administered to a group of six Ethiopian mothers in the East Lansing area to assess the clarity of the items and

instructions, from their perspective, and also to find out the average time needed to complete the interview schedule by a respondent. The final interview schedule contained two parts: the first part included respondents' demographic information, and the second part consisted of 30 statements with five point Likert scales. (See Appendix A). The perceptions of the respondents were gathered on a 5-point Likert scales. Numerical weights were assigned to each of the five response categories in a way that the higher the score the greater the respondents' degree of perceptions of the effectiveness of community health agents' teaching. The assigned weights were as follows:

Strongly Agree	(SA)	= 5
Agree	(A)	= 4
Neutral	(N)	= 3
Disagree	(D)	= 2
Strongly Disagree	(SD)	= 1

Knowledge Test

The teaching effectiveness of community health agents was assessed in three categories; community health agents' attitudes toward instruction, knowledge of subject matter, and teaching methods and skills they used in their training programs.

In order to produce the knowledge test instrument, several steps were taken. Information obtained through the literature review served as the basis for formulating the test questions. The questions related to: (1) Definition of diarrhea, its causes , complications, prevention and importance of giving normal food and drinks during a

diarrheal episode. (2) Environmental sanitation, the use of safe water, emphasis on hand washing, the use of the latrine, danger of flies. (3) Treatment and preparation of oral rehydration salt solution. The questions were generated through consulting related texts and teaching manuals on diarrheal disease prevention and treatment. In addition, fellow researchers, and research committee members also contributed in this regard. Once the instrument was developed, it was given to a panel of six judges to evaluate the clarity and relevance of the questions and statements. These judges were public health experts. The panel members suggested that the objective type test questions should not contain more than two choices so as not to confuse and mislead the respondents. The instrument was revised according to the suggestions of the panel members. This revised knowledge test, along with interview schedule, formed the final data collection instrument, which was administered to a group of six Ethiopian mothers in the Lansing area to determine if it was clear and meaningful to them. The six mothers indicated that the questions were clear, easy to understand and meaningful. Therefore, no changes were needed in the final draft of the data collection instrument (See Appendix B). The final version of the data collection was then translated into Amharic (See Appendix C)

Data Analysis

Once the data were collected, they were brought back to Michigan State University for analysis for the final report. The data were treated and analysed at the MSU computer laboratory using SPSS-X PC. soft ware. The statistical techniques used were the calculation of frequencies, percentages, means, and a one-way analysis of variance (ANOVA). Frequencies and percentages were used to present the demographic characteristics of respondents. Means were used to indicate the levels of respondents' perceptions of community health agents' teaching effectiveness. The analysis of variance (ANOVA) was used to determine if the respondents' perceptions of community health agents' teaching effectiveness varied with their age, level of education, family income and religious affiliation.

Variables

The independent variables for this study were respondents' age, level of education, family income and religious affiliation. The dependent variable refers to the respondents' perceptions of the effectiveness of community health agents' teaching of diarrheal disease prevention and treatment. The assessment of teaching effectiveness was done on the basis of respondents' perceptions and the level of their knowledge regarding diarrheal prevention and treatment.

Presentation Formats

The findings of the study were organized for presentation in exposition with reference to the research questions, supplemented by tables and charts. The findings will be discussed under four sub-headings:

1. Major Findings
2. Minor Findings
3. Demographic Data
4. Summary of the Findings

Population and Samples

The population of this study consisted of mothers of children under five years of age in the Kaffa (now called Illubabor) region of Ethiopia. These mothers have been taught and trained by community health agents with regard to the prevention and treatment of diarrhea among children under five years of age.

Initially it was planned that all the six districts of Kaffa region (now Illubabor region) would be included for the data collection. But due to the reorganization of administrative regions, districts, and sub-districts by the present transitional government in power since 1991 in Ethiopia, and also due to the current political instability, only five districts were included in the data collection plan. In those selected districts, the sub-districts or the health posts that are included in the study were the ones that were functional. In the non-functional health posts there was no community health agents' activity. (Table 3.1)

Considering the large number of mothers trained in these five districts, it was decided to draw samples separately for each sub-district.

Since the teaching effectiveness of community health agents was to be assessed, efforts were made to include as many community health agents as possible. Seventy-six community health agents were included, and for each community health agent, 12 mothers who were trained by them, were selected. Thus the total number of respondents came to 912.

Although there were 41 sub-districts (health Posts) in Mana Kersa District, 26 in Limu , 41 in Nada Dedo, 26 in Seka Chekorsa, and 46 in Gibe, the study included only those that were functional at the time of the study from each district. It should be noted that due to the political instability in the country a number of health posts stopped functioning. For each community health agent, 12 mothers who were trained by that health agent were selected (76 CHAs = 912 mothers).

Table 3.1

**Selected Districts and Sub-Districts in Illubabor (Kaffa)
Region for the Survey**

Districts	Mana Kersa	Limu	Nada Dedo	Seka Chekorsa	Gibie	Total
No.of sub- districts	41	26	41	26	46	180
Selected sub-districts.	8	15	15	11	27	76
No.of CHA.	8	15	15	11	27	76
No.of Mothers (respondents)	96	180	180	132	324	912

Data Collection

The original data collection plan developed by the researcher earlier could not be implemented because of the political and administrative changes that took place in Ethiopia after the installation of the new government in 1991. The new government reorganized the administrative zones, districts and sub-districts. Earlier, the Kaffa (now called Illubabor) region had 6 districts and 43 sub-districts, but after the reorganization Illubabor region has 16 districts and 394 sub-districts. Apart from the administrative zones reorganization, the political conditions of the country were not stable since the country has experienced many years of political problems. As a result, a new data collection plan was developed in consultation with the local health authorities in the

Illubabor region. Considering the existing conditions in Illubabor, the regional health department officials and the faculty of the Jimma Health Science Institute suggested the following:

1. The data should be collected only in the districts of Gibe, Mana Kersa, Nada Dedo, Seka Chekorsa and Limu of Illubabor region. Other districts were not recommended because the safety of the researcher could not be assured.
2. The data should be collected within a short period of time, because the conditions might become less stable.

Based on the above suggestions the researcher decided to collect data from the respondents living in 76 sub-districts. The remaining 318 health posts were excluded because they were not functional at the time of data collection. It should be noted that there is only one health post in each sub-district; and each health post has only one community health agent.

Survey Team Selection

In order to collect data within a short period of time the researcher recruited a survey team consisting of 18 interviewers and 6 field supervisors.

Interviewers selected were graduates of the Jimma Health Institute and they were working as head of clinics in their respective communities in Illubabor region. They had previous experience in data collection and were fluent in the local languages. The supervisors were selected from the staff of the Jimma Health Science Institute and the Regional Health Department. They were public health experts and had

experience in conducting survey research.

The Ministry of Health, from the head- quarters at Addis Ababa, informed the regional health authorities, the Jimma Health Science Institute and the Regional Health Department of Illubabor Region, of the study and requested cooperation. This was to include providing the necessary assistance needed by the researcher, such as personnel and transportation facilities. (See Appendix D).

The regional health department cooperated and excused the interviewers from their clinic activities, and replaced them with other health assistants until the data collection program ended. (See Appendix E). The Jimma Health Science Institute also provided similar cooperation.

Survey Zones

To facilitate the data collection the districts selected were divided into three zones:

Zone I: included two districts, Mena Kersa and Limu with a total of 23 health posts. It involved 276 respondents,

Zone II: consisted of two districts, Nada Dedo and Seka Chekorsa with 26 health posts involving 312 respondents, and

Zone III. consisted of one district, Gibe with 27 health posts involving 324 respondents.

Six interviewers were assigned for each Zone. Two supervisors were assigned for Zone I, another two for Zone II, and one for Zone III. The remaining single supervisor was involved in the overall supervision of the data collection with the researcher.

The interviewers' main responsibilities included:

- 1. Going to the respondent' homes in their assigned Zone to collect data.**
- 2. Greetings and introducing themselves to the members of the household and explaining the purposes of their visit.**
- 3. Interviewing the respondents to draw information needed to complete the interview schedules.**
- 4. Asking the respondents to respond to the questions on the knowledge test, and writing down the answers on the test sheets.**
- 5. Checking before leaving the locality if all the necessary information is recorded.**
- 6. Thanking the respondents for their cooperation and help, and reporting to their respective supervisors at the zone headquarters.**

The supervisors were responsible for:

- 1. Preparing guidelines for interviewing and administering the knowledge test.**
- 2. Clarifying questions for interviewers before going out to the field.**
- 3. Guiding their teams including, analyzing their tasks and then following a flow-chart to see that the sequences of tasks involved were completed.**
- 4. Creating a team atmosphere, and delegating activities among the team, such as assigning one representative in each group to report if there were any problems in the community during the data collection.**
- 5. Selecting village motels for the team to stay for nine to ten days in the community where the data collection were to take place.**
- 6. Checking the returned data collection instruments for their completeness.**
- 7. Contacting selected respondents to verify that the interviewers had collected the data from them as planned.**

8. As data collection began, they checked to determine if the interviewer was in the right geographic area.

Training Program for Interviewers and Supervisors

The training program took place at Jimma Health Center from Nov.9 to 12, 1991. The sessions included the following:

1. Information about the purpose and intent of the study, data collection and respondents.
2. The importance of collecting quality data.
3. The importance of being courteous and friendly during data collection.
4. The methods of support and supervision by supervisor and the researcher.
5. Explaining the contents of data collection instruments and answering related questions.
6. How to organize and record responses given by respondents on the interview schedule.

Since interviewers and supervisors had previous experience in data collection, the training program took only three days. Each interviewer, at the end of the training, was asked to interview a mother at the clinic of the Jimma Health Center so they could get the feel of doing the work in real situations.

After the training was over, the data collection phase began. The data collection from 912 respondents was completed within 9 days. The completed interview schedules and the knowledge test results were checked for completeness and errors.

Confidentiality and Anonymity

Every effort was made to maintain confidentiality of responses and anonymity of the respondents. In order to do so, no names or any identification marks were used on the completed schedule. The findings of the study will be reported only in aggregate forms. No mention of any individual respondent's name or address will be included. Before collecting the data, the respondents were assured that their responses would be kept confidential and that their names would not be revealed to anyone except the researcher and data collection assistants. Also, respondents were informed that participation in this study was voluntary on their part, and they could withdraw any time from the participation. This helped in obtaining free, frank, and truthful answers and reactions from the respondents.

Summary

The study employed a cross-sectional survey method to assess the effectiveness of community health agents' teaching with regard to diarrheal disease prevention and treatment in the Kaffa (now called Illubabor) region of Ethiopia. The data for the study were collected from 912 mothers of children under five years of age in five districts of the Illubabor region of Ethiopia. The teaching effectiveness of community health agents was evaluated on the basis of respondents' perceptions and also the extent of their knowledge about diarrheal disease prevention and treatment.

To collect the data an interview schedule and a knowledge test were designed, developed and validated. Considering the existing political instability in the country, the data was collected within a short period of time by employing 18 interviewers and 6 field supervisors.

Once the data were collected, they were brought back to Michigan State University for statistical analysis. The statistical techniques used to analyse the data were calculated frequencies, percentages, means and analysis of variance.

CHAPTER IV

DATA ANALYSIS AND FINDINGS

The principal objective of this study was to assess the teaching effectiveness of community health agents with regard to prevention and treatment of diarrheal disease in Ethiopia. This chapter reports the statistical techniques used to analyze the data, findings of the study and a brief summary of the chapter.

Data Analysis and Interpretation

The data collected from the 912 respondents in the Kaffa (now Illubabor) region of Ethiopia were brought back to Michigan State University for analysis, interpretation and reporting. The data were analysed by using the statistical analysis package SPSS-PC. The statistical techniques used calculated frequencies, percentages, means, and analysis of variance (ANOVA).

Frequencies and percentages were used to present the demographic characteristics of respondents, and also to report the findings related with the individual items of the interview schedule and the knowledge test.

The perceptions of the respondents were gathered on a 5-point Likert scale. Numerical weights were assigned to each of the 5 response categories in a way that the higher the score the higher the respondents' perceptions of the effectiveness of community health agents' teaching. To determine the levels of the perceptions of respondents with

regard to teaching effectiveness of community health agents, means on the five-point scale were computed. The rating means were grouped as follows:

High Level = Mean ratings of 4 or above

Medium Level = Mean ratings between 3 & 3.99

Low Level = Mean ratings of below 3

The ANOVA was used to determine if the respondents' perceptions of community health agents' teaching effectiveness vary with their age, level of educations, family income and religious beliefs.

Research Questions

The study attempted to answer the following research questions:

1. What are the levels of respondents' perceptions of community health agents' teaching effectiveness?
2. Does the perceived teaching effectiveness of community health agents vary with the respondents' age level of literacy, family income, and religious affiliation?
3. What is the level of expressed knowledge about diarrheal disease prevention and treatment by respondents?
4. Does the level of knowledge of respondents about diarrheal disease prevention and treatment vary with their age, level of literacy, family income and religious affiliation?

Findings of the Study

The findings of this study are presented under the following sub-headings:

1. Frequencies and percentages of responses
2. Major findings of the study
3. Minor findings of the study
4. Summary

Frequencies and Percentages of Responses

To further analyse the findings, individual responses given by the respondents with regard to individual items on the interview schedule and the knowledge test are presented in a tabular forms in terms of frequencies and percentages. Table 4.1 contains data related with perception items and Table 4.2 presents data related to knowledge of respondents. It should be noted that the 23 questions on the Knowledge test were grouped into three categories, namely, Knowledge about Diarrhea, Environmental Sanitation, and Treatment of Diarrhea.

Table 4.1

Percentages of Responses Related to Attitude,
Knowledge, and Methods and Skills

Attitude	SA	A	N	D	SD	Mean	Rank
CHA Showed enthusiasm during their teaching	6.1	47.4	19.0	21.4	6.1	3.26	4
CHA Showed involvement in their teaching	5.0	46.1	20.8	22.3	5.8	3.22	5
CHA Showed interest in their teaching	6.9	45.9	21.7	20.1	5.4	3.29	3
CHA Showed confidence in their teaching	4.3	41.9	26.5	22.6	4.7	3.18	7
The subject matter covered by CHA was satisfactory	5.5	43.3	21.6	5.3	5.3	3.22	5
Will recommend CHAs' teaching to mothers of children with diarrhea	12.4	46.5	18.6	17.7	4.5	3.45	1
CHA encourages mothers to learn	8.4	34.3	22.2	32.9	2.2	3.14	8
CHA's were friendly	9.3	48.7	19.1	18.0	5.0	3.39	2
CHA's were always prepared and ready to help	3.1	35.7	28.7	26.2	6.3	3.03	9

SA: Strongly Agree
D: Disagree

A: Agree
SD: Strongly Disagree

N: Neutral

Table 4.1 (continued)

Knowledge	SA	A	N	D	SD	Mean	Rank
CHA Provided a clear definition of diarrhea	5.0	42.2	18.9	27.8	6.2	3.12	8
CHA clearly discussed the causes of diarrhea	4.1	38.9	19.3	29.6	8.1	3.01	11
CHA clearly explained the use of latrine, hand washing, and about adequate clean water	9.3	50.0	15.8	18.7	6.2	3.38	1
CHA discussed benefit of sanitation	8.0	51.8	14.9	18.9	6.4	3.36	5
CHA showed ORS preparation	5.4	34.9	18.7	33.0	8.0	2.97	12
CHA's teaching were useful	8.1	49.1	19.7	18.4	4.7	3.38	1
CHA taught about prevention of diarrhea	3.3	40.1	20.1	30.5	6.0	3.04	10
CHA taught of dangers if diarrhea is not treated	4.3	42.0	19.2	27.8	6.8	3.09	9
CHA taught of safe and unsafe water	7.3	52.1	15.9	19.8	4.8	3.37	3
CHA taught how latrines are useful to prevent diarrhea	8.9	47.3	16.6	22.0	5.3	3.33	6
CHA explained how flies can contaminate food	9.9	45.3	16.8	23.7	4.4	3.33	6
CHA explained the danger if infants and young children's stools are not disposed well	11.4	45.5	15.4	23.7	4.1	3.37	3

SA: Strongly Agree
D: Disagree

A: Agree N: Neutral
SD: Strongly Disagree

Table 4.1 (continued)

Methods & Skills	SA	A	N	D	SD	Mean	Rank
CHA's teaching was clear	4.7	45.0	24.0	20.2	6.1	3.22	3
CHA changed methods of teaching	3.6	30.0	24.8	32.0	9.6	2.86	6
CHA used discussions in their teaching	1.1	23.6	21.5	43.4	10.5	2.62	8
CHA asked questions to verify your learning	1.5	27.9	22.9	38.3	9.4	2.74	7
CHA informed mothers of daily progress	9.7	43.4	21.6	22.7	2.6	3.35	1
CHA correct mistakes when preparing ORS solution	2.6	21.0	19.4	47.5	9.4	2.60	9
CHA lecture was easy to understand	3.4	47.2	21.8	22.9	4.8	3.22	3
CHA demonstrate how to prepare ORS solution	4.6	35.9	15.8	37.3	6.4	2.95	5
CHA stressed the significance of one liter of water to prepare ORS solution	9.5	43.0	43.0	28.4	4.9	3.24	2

SA: Strongly Agree
D: Disagree

A: Agree N: Neutral
SD: Strongly Disagree

Table 4.2

Frequencies and Percentages of Correct and Incorrect responses
to knowledge of diarrhea, environmental sanitation,
and treatment of diarrhea

Diarrheal Knowledge	Correct		Incorrect	
	n	%	n	%
What is diarrhea?	821	90.2	89	9.8
What happens if diarrhea is not treated?	834	91.6	76	8.4
How can diarrhea be prevented?	897	98.8	11	1.2
What is the long term prevention of diarrhea	900	99.1	8	0.9
Other than ORS solution, what else do you give if your child got diarrhea?	897	98.6	13	1.4
Do you give milk when a child has diarrhea?	803	88.3	101	11.7
If so why?	707	77.5	204	22.4
What do you do as soon as diarrhea occurs?	198	90.0	16	7.3
What are the common fluids given when a child gets diarrhea?	757	83.2	153	16.8
How much ORS solution do you give to a child with diarrhea?	871	96.0	36	4.0
Environmental Sanitation	Correct		Incorrect	
	n	%	n	%
What is safe water for drinking?	843	92.4	65	7.2
Why does one need to wash hands before eating and after using the latrine?	732	81.1	171	18.8
Why should food be always covered?	877	96.6	31	3.4
Why are flies dangerous to our health?	860	94.3	45	5.0
Why is the use of latrine important?	867	95.6	40	4.4
Do we leave latrine open after use, or cover it?	892	98.3	15	1.7

Table 4.2 (continued)

Treatment of Diarrhea	Correct		Incorrect	
	n	%	n	%
Have you learned about ORS solution?	653	71.9	255	28.1
If yes, what are the materials used?	46	6.5	665	93.5
Is ORS solution prepared without washing hands?	113	12.8	771	87.2
Do you boil the ORS powder with one liter or stir & mix with a liter of just clean water?	646	74.3	223	25.7
How much water is needed to prepare ORS solution?	739	84.9	131	15.1
What type of water is needed to prepare ORS solution?	856	93.9	39	4.4
What is the measurement when giving ORS solution for a child with diarrhea?	758	86.7	116	13.3

MAJOR FINDINGS

The major findings of the study are presented with reference to the research questions:

Research Question 1: What are the levels of respondents perceptions of community health agents' teaching effectiveness?

Three measures or sub-dimensions were used to create a composite measure of the teaching effectiveness variable. They were: (1) Attitude of community health agents toward instruction, (2) Knowledge of subject matter related with the diarrheal prevention and treatment, and (3) Skills and methods used during the training sessions. Attitudes were collected in part one of the interview schedule.

The data analysis indicated that the perceptions of respondents associated with the attitudes of the community health agents toward teaching was $x = 3.248$ or a medium level. The perceptions of respondents with regard to community health agents' knowledge of subject matter was at a medium level ($x = 3.229$), and the perceptions of respondents with regard to skills and methods used by the community health agents during the training sessions was at a low level ($x = 2.977$). Table 4.3 displays the rank order of the three components of teaching effectiveness; community health agents' attitudes toward teaching, knowledge of subject matter and skills and methods used to teach the respondents.

Table 4.3

Rank Order of Components of Teaching Effectiveness as
Perceived by the Respondents.

Variable	Number	Rank order	Mean	SD
Attitude	912	1	3.243	.700
Knowledge	912	2	3.229	.865
Skills and Methods	912	3	2.977	.629

The level of perceptions of respondents with regard to the overall teaching effectiveness of community health agents as a whole was found at medium level ($\bar{x} = 3.157$).

Research Question 2: Does the perceived teaching effectiveness of community health agents vary with the respondents' age literacy level family income, and religious affiliation?

Attitude Toward Instruction

Analysis of variance results showed that the respondents' perceived levels of community health agents' attitudes toward instruction varied by income, age, and level of literacy but not significantly at 0.05 level. No significant differences was also found in religious affiliation. For this study, respondents were categorized as literate if they had participated in the local volunteer literacy program which was a five month program. Other wise, they were categorized as illiterate . Religious affiliation was determined by the declaration of the respondents. At the time of data collection , 2.07 birr approximately equals one U.S. dollar. Table 4.4 contains the related results.

Table 4.4

**Analysis of Variance for Perceived Levels of CHAs' Attitude
Toward Instruction by the Respondents'
Demographic Characteristics**

Demographic Characteristics	n	Mean	SD	F	P-Value
Age group:					
Below 30 years	572	3.21	0.71	3.24	0.072
31 years and above	337	3.30	0.69		
Literacy Level:					
Illiterate	421	3.20	0.66	3.59	0.059
Literate	481	3.29	0.73		
Family income:					
Below 100 birr	560	3.21	0.72	2.80	0.094
100 birr and above	349	3.29	0.65		
Religion:					
Christian	183	3.25	0.86	0.03	0.833
Islam	728	3.23	0.81		

Knowledge of Subject Matter:

Analysis of variance results further showed that the respondents' perceived level of community health agents' knowledge of subject matter varied significantly with age ($F = 5.19$, $P < 0.05$) and with income ($F = 15.81$, $P < 0.05$). Results of the test indicated that the older (30 years and above years of age) perceived a significantly higher knowledge than the younger (below 30 years of age) respondents.

With respect of family income groups, the higher income earners (100 birr and above) perceived a significantly higher knowledge level than the low income earners (below 100 birr).

No statistically significant differences in Knowledge level were observed between respondents demographic characteristic of level of literacy ($F = 8.94$, $P > 0.05$) and Religious affiliation ($F = 0.04$, $P > 0.05$). Table 4.5 shows the related data.

Table 4.5

Analysis of Variance for Perceived Levels of CHAs's
Knowledge of Subject Matter by Respondents'
Demographic Characteristics

Demographic Characteristics	n	Mean	SD	F	P-Value
Age group:					
Below 30 years	572	3.18	0.87	5.18	0.023*
31 years and above	337	3.31	0.86		
Literacy Level:					
Illiterate	421	3.14	0.80	8.94	0.059
Literate	481	3.31	0.91		
Family income:					
Below 100 birr	560	3.14	0.88	15.81	0.001*
100 birr and above	349	3.37	0.82		
Religion:					
Christian	183	3.22	1.06	0.04	0.836
Islam	728	3.23	0.81		

* Significant at .05 level.

Skills And Methods:

With regard to skills and methods of instruction, the data analysis showed that the respondents' perceived level of community health agents' skills and teaching methods during instruction varied significantly with age ($F = 6.91$, $P <$

0.05) and with family income ($F = 25.44$, $P < 0.0.5$). No significant differences were found in terms of respondents' level of literacy and religious affiliation. These results indicated that older (30 years or more) perceived a higher level of skills and methods than the low income earners (below 100 birr). The results of this analysis are presented in Table 4.6

Table 4.6

Analysis of Variance for Perceived Levels of Skills and
Methods of Teaching by Respondents'
Demographic Characteristics

Demographic Characteristics	n	Mean	SD	F	P-Value
Age group:					
Below 30 years	572	2.93	0.62	6.91	0.009*
31 years and above	337	3.05	0.64		
Literacy Level:					
Illiterate	421	2.94	0.58	3.64	0.057
Literate	481	3.02	0.66		
Family income:					
Below 100 birr	560	2.90	0.63	25.44	0.000*
100 birr and above	349	3.11	0.59		
Religion:					
Christian	183	3.02	0.80	0.99	0.320
Islam	728	2.97	0.58		

* Significant at .05 level.

Perceived Teaching Effectiveness

The data were also analysed to determine if respondents' perceptions of community health agents' teaching effectiveness as a whole varied in terms of their age, income, education and religious affiliation.

Analysis of variance results showed that the respondents' perceptions of community health agents' teaching effectiveness as a whole varied significantly with age ($F = 2.76, P < 0.05$), level of literacy ($F = 6.49, P < 0.05$), family income ($F = 14.44, P < 0.05$). Results further indicated that the older (30 years or more), the literate, the higher income earners (100 birr or more) perceived a higher overall perceptions of community health agents teaching effectiveness than the young (below 30 years), the illiterate and the low income earners (below 100 birr). Table 4.7 presents the results of this analysis.

Table 4.7

**Analysis of Variance for the Differences in Perceived Level
of Teaching Effectiveness by Respondents'
Demographic Characteristics**

Demographic Characteristics	n	Mean	SD	F	P-Value
Age group:					
Below 30 years	572	3.11	0.70	2.76	0.018*
31 years and above	337	3.23	0.70		
Literacy Level:					
Illiterate	420	3.09	0.65	6.48	0.011*
Literate	480	3.21	0.73		
Family income:					
Below 100 birr	560	3.09	0.71	14.44	0.000*
100 birr and above	349	3.27	0.67		
Religion:					
Christian	183	3.17	0.89	0.04	0.838
Islam	728	3.16	0.65		

* Significant at .05 level.

Research Question 3: What is the level of expressed knowledge about diarrheal disease prevention and treatment by respondents?

To determine the respondents' levels of knowledge about diarrheal disease prevention and treatment, a knowledge test was given. The test had 23 objective type items and each item was given 4.34 points. The point total for the test was 100. On the basis of the scores respondents' knowledge levels were categorized as follows:

High level	=	95 - 100
Medium level	=	85 - 94
Low level	=	below 85

The results of data analysis showed that 27 respondents had a high level of knowledge; 456 had a medium level of knowledge and 427 had low level of knowledge. Table 4.8 presents the data.

Table 4.8

Scores of Mothers on Knowledge Test

Scores	Numbers	Percentage
Below 85	427	46.9
85 - 94	456	50.1
95 - 100	27	3.0
Total	912	100

Research Question 4: Does the extent of knowledge of respondents about diarrheal disease prevention and treatment vary with their age, level of education, family income and religious affiliation?

To determine if the respondents' levels of knowledge about diarrhea disease prevention and treatment differed with their age, family income, level of literacy and religious affiliation, ANOVA was used. The results of the data analyses indicated that the levels of respondents knowledge did not vary significantly in terms of their age, income, level of literacy and religious affiliation. Table 4.9 below indicates that F values did not reach the .05 level of significance.

Table 4.9

**Analyses of Variance for the Differences in the Level
of Knowledge of Respondents by their
Demographic Characteristics**

Demographic Characteristics	n	Mean	SD	F	P-Value
Age group:					
Below 30 years	572	81.87	10.29	0.03	0.870
31 years and above	336	81.75	10.24		
Literacy Level:					
Illiterate	420	81.26	11.09	2.12	0.146
Literate	480	82.25	9.47		
Family income:					
Below 100 birr	560	81.70	10.13	0.11	0.743
100 birr and above	349	81.94	10.60		
Religion:					
Christian	183	82.84	8.77	2.40	0.122
Islam	726	81.52	10.65		

MINOR FINDINGS

The demographic data related to the respondents (mothers) of the study are presented in this section. The data analysis showed that 52 respondents were below 20 years of age; 520 were between 21-30; 309 were in the category of 31-40 years, and 20 respondents were 41 and above years of age. Three respondents did not indicate their age.

Table 4.10
Distribution of Respondents by Age

Age Group	Number	Percentage
Below 20 years	52	5.7
21 to 30 years	520	57.2
31 to 40 years	309	34.0
41+	28	3.1
Total	909	100.0

With regard to level of literacy, the data analysis indicated that out of 912 respondents, 481 respondents were literate and 421 were illiterate. Table 4.11 shows the distribution of respondents by level of literacy. Ten respondents did not indicate their literacy level.

Table 4.11
Distribution of Respondents by Level of Literacy

Level of Literacy	Number	Percentage
Illiterate	421	46.7
Literate	481	53.3
-----	-----	-----
Total	902	100

With regard to the family income of respondents, the data analysis indicates that 560 respondents had monthly incomes below 100 birr, 286 respondents were in the group between 100-200 birr, 47 respondents were between 201-300 birr, 16 respondent were between 301-400 birr. Three respondents did not indicate their family income. Table 4.12 shows the distribution.

Table 4.12

Distribution of Respondents by Family Income

Monthly Family Income	Number	Percentage
Below 100 birr	560	61.6
100 to 200 birr	286	31.5
201 to 300 birr	47	5.2
301 to 400 birr	16	1.8
Total	909	100.0

Concerning the religious affiliation of the respondents, the data analysis indicated that 728 respondents were Muslims and 183 were Christians. One respondent did not indicate religious affiliation. Table 4.13 indicates the related data.

Table 4.13

Distribution of Respondents by Religion

Religion	Number	Percentage
Christian	183	20.1
Islam	728	79.9
Total	911	100.0

With regard to the distribution of respondents by locality (districts) the data analysis shows that 324 respondents were from Gibe district, 180 respondents were from Limu district, 96 respondents were from Mena Kersa district, 180 respondents were from Mada Dedo district, and 132 respondents were from Seka Chekorsa district. Table 4.14 presents the data.

Table 4.14
Distribution of Respondents by Locality

Locality	Number	Percentage
Gibe	324	35.5
Limu	180	19.7
Mena Kersa	96	19.5
Nada Dedo	180	19.7
Seka Chekorsa	132	14.5
Total	912	100

SUMMARY

The main objective of the study was to examine the teaching effectiveness of community health agents with regard to diarrheal disease prevention and treatment in the Kaffa (currently called Illubabor) region of Ethiopia. The data for this study was collected in the Kaffa region , and brought back to Michigan State University for analysis, interpretation and final reporting.

In order to respond to the four research questions of the study, a three part interview schedule was developed. The parts were: attitudes of community health agents toward instruction, their knowledge of subject matter, and skills and methods of instruction used by them during the training sessions. In addition a test of respondents' knowledge of diarrheal disease, environmental sanitation, and treatment of diarrhea was employed.

Results of the data analysis showed that the respondents' perception of community health agents' attitudes toward instruction and knowledge of subject matter were at a medium level. Skills and methods of instruction used by community health agents during the training sessions were perceived by the respondents at a low level. The teaching effectiveness of community health agents as a whole, was perceived by the respondents at a medium level.

The study further indicated that the respondents' perceptions of community health agents' levels of teaching effectiveness differed significantly in terms of their level of literacy and family income. Further, the respondents' perceived level of attitudes of community health agents toward instruction varied significantly with family income. No significant difference were found in terms of respondents' age, level of literacy, and religious affiliation. Respondents' perceptions of community health agents skills and teaching methods during instruction varied significantly in terms of respondents' age and family income. No significant differences in perception were found in terms of respondents' level of literacy and religious affiliation.

The survey results further revealed that the majority of the respondents scored above average on the knowledge test related to diarrheal disease prevention and treatment. However, no significant differences in respondents' levels of knowledge about diarrheal disease prevention and treatment were found in terms of age, income, level of literacy and religious affiliation.

In additions to the major findings reported above, information regarding the distribution of respondents by age, income, level of literacy, religious affiliation and locality (district) were reported in this chapter.

CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

This concluding chapter provides a brief summary of the study, presents a discussion of the findings, conclusions and implications of the findings are drawn. Recommendations for further studies and actions are presented.

Summary

This study assessed the teaching effectiveness of community health agents with regard to diarrheal disease prevention and treatment in the Kaffa (Illubabor) region of Ethiopia. The teaching effectiveness was assessed on the basis of perceptions and expressed knowledge of mothers of children under 5-years old in Kaffa region of Ethiopia. These mothers were trained by community health agents.

Diarrhea causes many deaths among Ethiopian children under five years of age. The proportion of mortality associated with diarrhea in different regions of Ethiopia ranges from 22.6 to 62.0 percent, with a median of 45 percent (Primary Health Care Review, 1985).

Eighty to eighty five percent of the people in Ethiopia live in rural areas, while eighty five percent of the physicians and hospitals are located in the cities. To address this situation and also to provide low cost health services to the people living in rural areas, the primary health care program was introduced in Ethiopia in 1978.

The Primary health care program includes community health agents and the traditional birth attendants. Community health agents are the most important human resources in the primary health care program. Acting as a liaison between the health care system and the community, the community health agents may be considered one of the most important links in the chain of health care. The community health workers perform multiple tasks ranging from prevention to cure to information collection.

The primary goal of community health workers is to improve the health in his/her community by helping the people to change their health practices through teaching and demonstrations. Meche et al. (1984) identified the following duties of the community health agents. They

1. Stimulate members of the community to participate actively in improving the health of their families and communities and coordinate this participation,
2. Provide health education relevant to local health problems,
3. Implement different methods of controlling communicable diseases,
4. Provide maternal and child health services,
5. Provide curative services for minor illness and injuries and refer those people who require more complex examination and treatment, and
6. Collect health information and statistics and perform administrative work as required.

The community health agents are recruited from and by the community and trained by the Ministry of Health in basic community health and medical care. Upon completion of their training, they serve under the complete control of and are

paid by their communities. They receive technical guidance, support and periodic retraining to work in the community in close relationship with the health care system.

Community health agents have trained a large number of mothers in diarrheal disease prevention and treatment in Ethiopia. However, no systematic evaluation of the effectiveness of their teaching with regard to diarrheal diseases has been conducted. Therefore, this study attempted to assess the effectiveness of community health agents' teaching. The assessment was done on the basis of perceptions and expressed knowledge of mothers of children under five years old who have been trained by community health agents.

Since no standardized data collection instruments were available for this study, an interview schedule and a knowledge test were designed developed and tested. The interview schedule with Likert scales was used to gather perceptions of the respondents, and the knowledge test was employed to determine the level of knowledge of respondents in relation to diarrheal disease prevention and treatment.

The data were collected from the five districts of the Kaffa (Illubabor) region, namely, Gibe, Mana Kersa, Nada Dedo, Seka Chekorsa and Limu, which are also further sub-divided into sub-districts. A total of 912 respondents from the above districts participated in this study.

To complete the data collection, the researcher recruited a survey team consisting of 18 interviewers and 6 field supervisors.

The data were analysed by using the statistical analysis package SPSS-PC. The statistical techniques involved frequencies, percentages, means, analysis of variance (ANOVA) and the Tukey test. Frequencies and percentages were used to present the demographic characteristics of respondents, and also to report the findings related with the individual items on the interview schedule and the knowledge test.

The findings of the study are summarized below:

The data analysis indicated that the respondents' perceptions of the community health agents' attitudes toward teaching were at a medium level ($x=3.248$). Also the respondents' perceptions of the community health agents knowledge of subject matter were at a medium level ($x=3.229$). Respondents' perceptions of the community health agents' skills and methods used during teaching were at a low level ($x=2.997$).

A further analysis of data showed that the respondents' perceived levels of the community health agents' attitudes toward instruction varied with age and family income but not significantly. No significant difference was found in terms of respondents' age, level of literacy, and religious affiliation. The analysis further showed that the respondents' perceived level of community health agents' knowledge of subject matter varied significantly with the respondents' age and family income. Regarding skills and methods, the data analysis revealed that the respondents' perceived level of community health agents' skills and

teaching methods during instruction varied significantly with the respondents' ages and family income. No significant differences were found in terms of respondents' literacy levels and religious affiliations.

The respondents perceived teaching effectiveness of community health agents as a whole was at a medium level, and it varied in terms of the respondents' age, income and level of literacy.

With regard to levels of knowledge of respondents about diarrheal disease prevention and treatment, the results showed that 27 (3%) respondents had a high level of knowledge; 456 (50%) had a medium level of knowledge and 427 (47%) had low level of knowledge. A further analysis of data indicated that the levels of respondents' knowledge did not vary significantly in terms of their age, family income, level of literacy or religious affiliation.

With regard to respondents' demographic background the data analysis showed that 5.7% of the respondents were below 20 years of age; 57.2% were between 21 - 30; 34% were in the category of 31 - 40 years, and 3.1% respondents belonged to the 41 and above years of age group.

The data analysis further indicated that out of 912 respondents, 53.3% respondents were literate and 46.7% were illiterate. The study also revealed that 61.6% of the respondents had monthly incomes below 100 birr, 31.5% respondents between 100 -200 birr, 5.2% respondents between 201 - 300 birr, and 1.8% respondents between 301 - 400 birr. Three respondents did not respond to the question regarding

income. The study found that 79.9% of the respondents were Muslim and 20.1% were Christian.

With regard to the distribution of respondents by locality (districts) the study showed that 35.5% of the respondents were from Gibe district, 19.7% were from Limu district, 19.5% were from Mean Kersa district, 19.7% were from Nada Dedo district, and 14.5% respondents were from Seka Chekorsa district of the Illubabor Region.

Discussions of the Findings

The findings of this study showed that the respondents' perceptions of community health agents' attitudes and knowledge of subject matter were at a medium level; and respondents had a low perception with regard to the skills and methods of instruction used by community health agents. The medium rating given to attitudes and knowledge suggests that, the respondents perceived the community health agents' attitudes toward instruction and knowledge of subject more or less satisfactory. The lowest rating given to skills and methods of instruction used by community health agents indicates that respondents are not satisfied with the community health agents' skills and methods of instruction.

With regard to the findings related to the differences in the perceived level of attitude of community health agents in terms of independent variables of this study, differences were noted in terms of age, level of literacy and income, though, these differences were not significant at 0.05 level.

With regard to community health agents' knowledge of subject matter, significant differences were noted in respondents' perceptions in terms of their age and family income. Respondents in the age group 30 years or more, with family income of 100 birr or more expressed higher levels of perceptions toward community health agents' knowledge than respondents who were younger than 30 years and those with income of less than 100 birr.

One of the reasons for these significant differences between the groups of respondents may be that the older respondents with higher income had more maturity, experience and understanding to appreciate, judge and assess the level of community health agents' knowledge of subject matter than those who were young and with low family incomes.

With regard to the respondents' perceptions of the level of teaching effectiveness of community health agents the findings showed significant differences in relation to the age and family income of the respondents. The higher perceived level of effectiveness was reported by the higher income group and older respondents. It may be possible that older respondents with higher income had more maturity, experience, and understanding than younger respondents with low family income.

One of the reasons for this significant deference between these groups of respondents may be that the respondents of the higher income groups somehow were able to meet their basic needs compared to the lower income groups. Also they

might have more time to attend health education programs and appreciate them more. The more they attended the programs the more likely they were to understand these teachings. The respondents with low incomes usually find it difficult to meet their basic needs. They may not have the time, energy and the motivation to get involved in such programs.

The findings of the study further indicate that the respondents' perception of community health agents' teaching effectiveness as a whole differed significantly in terms of their levels of literacy and levels of income. The respondents who were more literate and whose income were higher expressed a higher level of perceived effectiveness toward community health agents than those with lower literacy and income levels. One of the reasons for this significant difference may be that the respondents with higher literacy and income levels were able to understand, judge and assess the effectiveness of community health agents' teaching more effectively than those with lower literacy and income levels.

Conclusions and Implications

In this section, conclusions are drawn on the basis of the findings presented, and related implications are highlighted.

The conclusions that can be drawn from the findings related to the level of respondents' perceptions of effectiveness of community health agents' teaching is that the respondents have different levels of perceptions with regard to their attitudes, knowledge of subject matter, and

skills and methods of instruction. The medium level of effectiveness of community health agents' teaching was expressed by higher income and middle-aged groups of respondents whereas a lower level of teaching effectiveness was perceived by younger respondents with lower incomes.

The medium levels of respondents' perceptions of the attitudes and knowledge of community health agents has implications for the health authorities in Ethiopia. It can be concluded that more efforts should be made to make the community health agents teaching program more effective. The low level of respondents' perception of community health agents' teaching skills and methods suggests that steps must be taken quickly to improve the situation.

Relating this Research to other Research

Drawings from a number of other studies on community health workers, weaknesses in community health workers program can be pointed to with respect to :

1. Selection, remuneration and training of community health agents.
2. Community participation
3. Curative and preventive roles of community health agents.
4. Supervision and support for community health agents.

Selection, Remuneration and Training

Several studies have indicated that the most common cause of failure of primary health workers programs may be attributed to poor selection of community health workers. Recruitment and selection of community health workers should

be considered more carefully from the very beginning of the planning and implementing a primary health care program.

Remuneration is another factor that may be held responsible for the lack of higher perceptions of the teaching effectiveness of community health agents. Walt et al. (1989) pointed out that when community health workers programs were introduced many governments made a crude assumption that communities would be willing to support their community health workers in kind or in cash. However, most communities have been reluctant or unable to sustain payments for community health workers over a longer period of time. It seems that on the whole, poor rural communities can not, or are not prepared to contribute to community health workers' work in cash or in kind, on a regular basis (Gilson, 1989). Studies (primary Health Care Review, 1985), have also shown that majority of the community health agents are dissatisfied with their remuneration. Therefore, it is likely that they may not feel highly motivated to do their job.

Training of community health workers is often done by local paramedics with little or no experience in public health and minimal preparation for training the community health agents. This results in community health workers with low levels of knowledge and skills (Berman, 1987). A study done in Ecuador to assess community health workers' knowledge in the areas of prevention and treatment revealed that community health workers retained less than 50 percent of what they learned one year after graduation (Mangilsdorf, 1988).

Community Participation

The community health worker was considered a key person to provide primary health care and to educate the community with regard to better health habits by involving the community people in activities. However, this expectation was not fulfilled because the community people were not involved in the planning and executing of the program. Instead, the community health workers programs were planned and managed by those in government health systems. As a result the communities perceived the community health agents as government representatives and not part of the community (Berman,1987).

Curative and Preventive Roles

According to the original plan of the Alma-Ata conference, the primary health care program was supposed to put emphasis on preventive aspects of health services with little focus on curative services. Studies have shown that existing programs have a strong tendency to emphasize curative care in practice. This findings is in line with a recent review of 52 USAID-funded primary health care projects, (Berman,1987). According to this review there is a significant short fall between what community health workers are trained to do and what they actually do (Berman,1987). On the other hand, community health workers have less credibility in the community if they do not have curative skills. This may be due to the fact that community people perceived curative care more important than preventive services. This may have led community health agents to devote

more time to curative services, for which they are not adequately trained.

Supervision and Support

Studies have consistently revealed that both supervision and support for community health workers are weak. Community health workers are not regularly supervised, retrained and supported either by the health authorities or the communities in which they work. Therefore, the attrition rates of community health workers are high (Reynolds,1991).

Recommendations

In the light of the findings, conclusions and implications of this study, the following recommendations are made for the (1) Improvement of the community health agents' training program, and (2) Recommendations for further research,

(1) Improvement of the community health Agents' training program

1. It is necessary to find out what the village people know think, and believe before attempting to bring new ideas to the community.
2. Local communities should be involved in selection of community health workers.
3. Regular supervision of the community health workers' activities is important.
4. Trainers of community health workers should have good knowledge of the subject they are teaching.
5. There should be a regular in-service training program for the community health workers.
6. A village health committee should be organized in the community, which will give support to the community health workers.

(2) Recommendations for Further Research

- 1. This study was confined to evaluate the teaching effectiveness of community health agents as perceived by respondents (mothers of under 5-years of age). But for an additional insight of the problem, the community health workers themselves and administrators of the primary health program should also be investigated.**
- 2. A similar study of assessment of the teaching effectiveness of community health agents in other areas such as mother and child health, immunization, environmental sanitation etc. should be done to provide a valuable parallel insight of the problem of community health agents effectiveness in their teaching.**
- 3. Studies should be undertaken to investigate the level of community participation for their full support of the community health agents' programs.**
- 4. Different research methods, such as ethenographic should be employed to investigate the problem.**

The most important contribution of the Alma-Ata conference and "Health For All by the Year 2000", was to emphasize, and to get acceptance of the principle of equity in health care in developing countries. If Ethiopia is to achieve the goal of health for all, quick answers will have to be found to the problems faced by the community health workers highlighted in this study.

Respondents perception of community health agents' performance, with regard to skills and methods used by the community health agents during teaching were at a low level. Also studies have indicated that community health workers have problems of remuneration, lack of support and supervision, weak training and absence of in-service training programs. These issues need to be addressed by related authorities in the Ministry of Health. However, the progress achieved during the last ten years provides a basis for hope

that health for all will become a reality for the poor and deprived of the world population.

APPENDIX A
Interview Schedule

APPENDIX A
Interview Schedule
(Respondents are mothers of under 5 years of age)

PART ONE

Directions. Please answer the following

1. What is your age group?
_____ Below 20 years
_____ 21 to 30 years
_____ 31 to 40 years
_____ 41 + Years
2. Level of Literacy
_____ Illiterate
_____ Literate
3. If literate, then indicate type of school attended:
_____ Literacy Campaign
_____ Traditional Church
_____ Other
4. Family Income (Per month)
_____ Below 100 Birr
_____ 100 to 200 Birr
_____ 201 to 300 Birr
_____ 301 to 400 Birr
_____ 401 to 500 Birr
5. What is your religious affiliation?
_____ Christian
_____ Islam
_____ Other
6. How many times over the last three weeks you heard about diarrhea?
_____ Once
_____ Twice
_____ Three Times
7. Did your child had diarrhea in the last three weeks?
_____ Yes
_____ No
8. If yes, where did you go for treatment?
_____ Health Station (CHA)
_____ Clinic
_____ Hospital

9. How effective to your belief is ORS treatment?

_____ Very effective
 _____ Somewhat effective
 _____ Not effective

PART 2

DIRECTIONS: For each of the following items, please indicate the extent to which you agree or disagree with the statement. If you strongly agree, circle "SA"; if you agree circle "A"; if you are neutral, "N"; if you disagree, "D"; and if you strongly disagree, circle "SD".

- | | | | | | |
|---|----|---|---|---|----|
| 1. CHA expressed enthusiasm during their teaching. | SA | A | N | D | SD |
| 2. CHA showed involvement in their teaching | SA | A | N | D | SD |
| 3. CHA showed interest in their teaching | SA | A | N | D | SD |
| 4. CHA expressed confidence in their teaching | SA | A | N | D | SD |
| 5. the subject matter covered by CHAs' teaching was satisfactory | SA | A | N | D | SD |
| 6. I would recommend CHAs' training to mothers of children with diarrhea | SA | A | N | D | SD |
| 7. CHA provided clear definitions of diarrhea | SA | A | N | D | SD |
| 8. CHA discussed clearly the causes of diarrhea | SA | A | N | D | SD |
| 9. CHA clearly explained the use of latrine, hand washing and use of adequate clean water | SA | A | N | D | SD |
| 10. CHA discussed benefits of sanitation | SA | A | N | D | SD |
| 11. CHA showed step-by-step how to prepare ORS solution | SA | A | N | D | SD |
| 12. Generally, CHA s' teaching were clear and easy | SA | A | N | D | SD |
| 13. CHAs' teaching were useful | SA | A | N | D | SD |
| 14. CHA used different methods of instruction | SA | A | N | D | SD |
| 15. CHA involved us in discussions | SA | A | N | D | SD |
| 16. CHA asked questions to verify our learning | SA | A | N | D | SD |
| 17. CHA informed us of our daily progress | SA | A | N | D | SD |

18. CHA always encouraged us to learn	SA	A	N	D	SD
19. CHA corrected our mistakes when we prepare ORS solution & continue treatment at home	SA	A	N	D	SD
20. CHA was warn and friendly	SA	A	N	D	SD
21. CHA lectures were easy to understand	SA	A	N	D	SD
22. I learned a lot about prevention of diarrhea from CHA	SA	A	N	D	SD
23. CHA was always prepared and ready to to help us	SA	A	N	D	SD
24. CHA told clearly the consequences of diarrhea if not treated	SA	A	N	D	SD
25. CHA explained the difference between safe and unsafe water	SA	A	N	D	SD
26. CHA demonstrated how to prepare ORS solution & the importance of hand washing	SA	A	N	D	SD
27. CHA stressed the significance of measuring one liter of water to prepare ORS solution	SA	A	N	D	SD
28. CHA explained how latrines are useful to prevent diarrhea	SA	A	N	D	SD
29. CHA explained step-by-step how flies contaminate our food	SA	A	N	D	SD
30. CHA explained that stool of infants and young children are dangerous and should be disposed properly	SA	A	N	D	SD

ATTITUDE

- A-1 Community health agents expressed enthusiasm during their teaching.
- A-2 Community health agents showed involvement in their teaching.
- A-3 Community health agents showed interest in their teaching.
- A-4 Community health agents expressed confidence in their teaching.
- A-5 The subject matter covered by CHAs' teaching was satisfactory
- A-6 I would recommend CHAs' training to mothers of children with diarrhea.
- A-7 Community health agents always encouraged us to learn.
- A-8 Community health agents were warm and friendly.
- A-9 Community health agent was always prepared and ready to help

KNOWLEDGE

- B-1 Community health agent provided clear definitions of diarrhea
- B-2 Community health agent discussed clearly the causes of diarrhea.
- B-3 Community health agent clearly explained the use of latrine, hand washing and the use of adequate clean water.
- B-4 Community health agent discussed benefits of sanitation.
- B-5 Community health agent showed step-by-step how to prepare Oral Rehydration Salt (ORS).
- B-6 Community health agent teaching were useful.
- B-7 I learned a lot about prevention of diarrhea from the community health agent.
- B-8 Community health agent told clearly the consequences of diarrhea if not treated.
- B-9 Community health agent explained the difference between safe and unsafe water.
- B-10 Community health agent explained how latrine are useful to prevent diarrhea.
- B-11 Community health agent explained step-by-step how flies contaminate our food

- B-12** Community health agent explained that stool of infants and young children are dangerous and should be disposed properly and immediately.

METHODS AND SKILLS

- C-1** Generally, community health agent teachings were clear and easy.
- C-2** Community health agent used different methods of instruction.
- C-3** Community health agent involved us in discussions.
- C-4** Community health agent asked questions to verify our learning.
- C-5** Community health agent informed us of our daily progress.
- C-6** Community health agent corrected our mistakes when we prepare ORS solution and continue treatment at home.
- C-7** Community health agents' lectures were easy to understand.
- C-8** Community health agent demonstrated how to prepare ORS.
- C-9** Community health agent stressed the significance of measuring one liter of water to prepare ORS solution.

KNOWLEDGE ABOUT DIARRHEA:

- A-1** What is diarrhea?
- A-2** which of the following brings diarrhea?
- a. contaminated water
 - b. boiled water
- A-3** what happens if a child with diarrhea is not treated?
- a. Malnutrition
 - b. Nothing happens
- A-4** Diarrhea can be prevented by:
- a. using proper latrine, clean water and hand washing
 - b. Using open field instead of latrine
- A-5** What is the long term solution to prevent diarrheal disease?
- a. Sanitation and hygiene
 - b. Moving away to another place

- A-6 What else do you give to your child with diarrhea other than ORS solution?
- a. Continue giving normal food
 - b. Stop feeding
- A-7 Do you give milk when your child has diarrhea?
- a. Yes
 - b. no
- A-8 If no, why?
- a. Worsens diarrhea
 - b. CHA advised me not to give milk
- A-9 As soon as children gets diarrhea, mothers
- a. Give more fluid than usual
 - b. Stop fluid and food
- A-10 What are the common fluids that you give to your child with diarrhea?
- a. soup, rice water, milk, tea
 - b. Coffee, beer, tella (local alcoholic drink)

ENVIRONMENTAL SANITATION

- B-1 What is safe water for drinking
- a. Water from uncovered wells
 - b. Piped water
- B-2 One should wash ones' hands before eating and after using the latrine because
- a. To look good
 - b. To get rid of dirt and germs
- B-3 Food should always be kept covered
- a. To keep it warm
 - b. To keep flies from sitting on food
- B-4 Why are flies dangerous to our health?
- a. They are not nice to look at and make noise
 - b. They carry germs
- B-5 Why is the use of the latrine important?
- a. It helps not to allow germs to spread around
 - b. It helps to protect us from cold air

B-6 Latrine should be

- a. Covered after use
- b. Kept open for flies to get in

TREATMENT OF DIARRHEA

C-1 Have you learned about ORS?

- a. yes
- b. No

C-2 If yes, indicate the materials needed to prepare ORS solution

- a. ORS package plus one liter of clean drinking water
- b. ORS package plus half a liter of river water

C-3 ORS solution is prepared without washing hands and utensils

- a. yes
- b. No

C-4 ORS solution is prepared after

- a. Putting the whole powder into one liter of clean drinking water and stirring it until it dissolves
- b. Boil the ORS package (powder) with one liter of water

C-5 ORS solution is prepared by mixing the content

- a. Into a liter of water
- b. Into a cup of water

C-6 The water used in preparing ORS must be

- a. Clean drinking water
- b. River water

C-7 How much ORS solution do you give to your child when he gets diarrhea?

- a. One to two cups of ORS solution after each diarrhea or vomiting
- b. One liter of ORS solution after every watery diarrhea

APPENDIX B
Knowledge Test

PART 3 Knowledge Test

DIRECTION: Please choose the right answer.

1. What is diarrhea?
 - a. One having one watery diarrhea a day
 - b. One having three or more watery diarrhea a day
2. Which of the following brings diarrhea?
 - a. Contaminated water
 - b. Boiled water
3. What is safe water for drinking?
 - a. Water from uncovered wells
 - b. Piped water
4. One should wash ones' hands before eating and after using the latrine because
 - a. To look good
 - b. To get rid of dirt and germs
5. Food should always be kept covered
 - a. To keep it warm
 - b. To keep flies from sitting on foods
6. Why are flies dangerous to our health?
 - a. They are not nice to look at and make noise
 - b. They carry germs
7. Why is the use of the latrine important?
 - a. It helps not to allow germs to spread around
 - b. It helps to protect us from cold air
8. Have you learned about ORS?
 - a. Yes
 - b. No
9. If yes, indicate the materials needed to prepare ORS solution:
 - a. ORS package plus one liter of clean drinking water
 - b. ORS package plus half a liter of river water
10. ORS solution is prepared without washing hands and utensils
 - a. Yes
 - b. NO
11. ORS solution is prepared after:
 - a. putting the whole powder into one liter of clean drinking water and stirring it until it dissolves
 - b. Boil the ORS package with one liter of water
12. What happens if a child with diarrhea if not treated?
 - a. Malnutrition
 - b. Nothing happens

13. Diarrhea can be prevented by:
 - a. Using proper latrine, clean water and hand washing
 - b. Using open field instead of latrine
14. Latrines should be:
 - a. covered after use
 - b. Kept open for flies to get in
15. ORS solution is prepared by mixing the content:
 - a. Into a liter of water
 - b. Into a cup of water
16. What is the long term solution to prevent diarrheal disease?
 - a. Sanitation and hygiene
 - b. Moving away to another place
17. The water used in preparing ORS must be:
 - a. Clean drinking water
 - b. River water
18. How much ORS solution do you give to your child when he gets diarrhea?
 - a. One to two cups of ORS solution after each diarrhea or vomiting
 - b. One liter of ORS solution after every watery diarrhea
19. What else do you give to your child with diarrhea other than ORS solution?
 - a. Continue giving normal food
 - b. Stop feeding
20. Do you give milk when your child has diarrhea?
 - a. Yes
 - b. No
21. If no, why?
 - a. Worsens diarrhea
 - b. CHA advised me not to give milk
22. As soon as children gets diarrhea, mothers
 - a. Give more fluid than usual
 - b. Stop fluid and food
23. What are the common fluids that you give to your child with diarrhea?
 - a. Soup, rice water, milk, tea
 - b. Coffee, beer, Tela (local alcoholic drink)

APPENDIX C
Interview Schedule and Knowledge Test

የቀበሌ ጤና ተጠሪዎች ለእርሶች

ተምህርት አሰጣጥ ጥናታዊ

መጠይቅ

አውራጃ/ወረዳ/ _____

የቀበሌ _____

መንደር _____

የቤተሰብ ሀሳፊ _____

ጣባባሊያ፡- ከዚህ በታች የተዘረዘሩትን ጥያቄዎች ከ5 ዓመት በታች የህፃን ሕፃናት በሚገኙበት ቤተሰብ በእናቶች የሚመለሱ መጠይቅ ፡

ክፍል 1

1. ዕድሜዎ ስንት ነው?

_____ ከሃያ ዓመት በታች

_____ ከ21 _ 30

_____ ከ31 _ 40

_____ ከ41 ዓመት በላይ

2. ተምረዋል፡

_____ የተማሩ

_____ ያልተማሩ

3. የተማሩ ከህፃን የተምህርት ደረጃ

_____ የመሠረተ ተምህርት

_____ የፎክ/የርዳኝ ተ/ቤት

_____ መደበኛ ተምህርት

4. የወር ገቢዎ ምን ያህል ይሆናል

_____ ከመቶ በታች

_____ ከመቶ _ 200

_____ 201 _ 300

_____ 301 _ 400

_____ 401 _ 500

5. ሃይማኖትዎ ምንድን ነው?

_____ ክርስቲያን

_____ እስላም

_____ ሌላ/ይገለጽ _____

6. ባለፉት 3 ባምንታት ስለ ተቃጣጥ በሸታ ስንት ጊዜ ሰዎች ባለው:

_____ አንድ ጊዜ

_____ 2 ጊዜ

_____ 3 ጊዜ

7. ባለፉት 3 ባምንታት _____ / ለጅም ተቃጣጥ ይዞት ነበር?

_____ አዎን

_____ የአይደለም

8. ተቃጣጥ ተይዞ ከ ነበር ለሕክምና የት ወሰዱት?

_____ የቀበሌ ጤና ተጠሪ

_____ ከሊኔክ

_____ ሀኪም

_____ ሌላ/ይገለጽ _____

9. በእርስዎ እያንዳንዱ ስ.አ.አ.አ/ወይም ሕይወት ስድን/ ፍትን ነት የትን ያህል ነው:

_____ በጣም ፍትን ነው

_____ ደህና ነው

_____ ፍትን አይደለም

ክፍል ሂ

ግብረኛ:

ከዚህ በታች በቀደም ተከተለ በተገለጹት ስረጌች/ዓረፍተ ነገር አቀጣጧ ተስማሚውን አስተያየት በመክበብ አመልክቱ::

	በጣም አስማማለሁ	አስማማለሁ	ገለልተኛ	አልአስማማም	በጣም አልአስማማም
1. የቀበሌ ጤና ተጠሪው ሲያስተምር በታላቅ ፍላጎት ነበር ?	x	x	x	x	x
2. ጤና ተጠሪው ሲያስተምር በሙሉ ተሳታፊ ነበር ?	x	x	x	x	x
3. ሲያስተምር በፍላጎት ነበር ?	x	x	x	x	x
4. በማስተማር ችሎታው ይተማመን ነበር ?	x	x	x	x	x
5. በተምርተ የታቀፍተ ጭነት ነገሮች አጥጋቢ ነበሩ ?	x	x	x	x	x
6. ጤና ተጠሪው እና ተቸገረ ሲያስተምር ጠቃሚ ነው ይላሉ ?	x	x	x	x	x
7. ስለ ተቃዋሚ ገለጽ የህገ መንግሥት ሰጥቷል ?	x	x	x	x	x
8. የተቃዋሚውን ጥያቄዎችን በገለጽ አስረድቷል ?	x	x	x	x	x
9. ስለ ሽንት ቤት ፣ እጅ መታጠብና ጉዳዩ ውሃ ጠቅሚያ ገለጽላቸው ነበር ?	x	x	x	x	x

	በጣም አስጣጣሉ	አስጣጣሉ	ገለልተኛ	አልሰጣጣም	በጣም አልሰጣጣም
10. ስለ ገለና አካባቢ ገጽህና ገለጽኃታል ፣	x	x	x	x	x
11. ስለ ሶ.አር.ኤስ ፈባሽ አዘገ ጃይት በቀደም ተከተል አባይ ተ ያታል ፣	x	x	x	x	x
12. በአጠቃላይ የጤና ተጠሪው ተም ህርት ገልጽና ቀላል ነበር፣	x	x	x	x	x
13. የጤና ተጠሪው ተምህርት ጠያሚ ነበር፣?	x	x	x	x	x
14. ጤና ተጠሪው ቢያስተምር የተለያዩ ዘዴዎችን ተጠቅሞ ነበር፣?	x	x	x	x	x
15. ጤና ተጠሪው በተምህርት እንዲ ወያዩ ንብዛዎት ነበር፣	x	x	x	x	x
16. ተምህርት እንደገባዎት ለጭንቀት ጥያቄዎችን ይጠይቁዎት ነበር?	x	x	x	x	x
17. ተምህርት እንደገባዎት በየጊዜው ይከታተሉዎት ነበር ፣	x	x	x	x	x
18. ጤና ተጠሪው ስለ ጤና እንዲጻፉ ያጠራታቸዎት ነበር፣	x	x	x	x	x
19. ጤና ተጠሪው በሶ.አር.ኤስ ፈባሽ ጸክሮና ቢሰጡ ይከታተሉዎት ነበር	x	x	x	x	x
20. ጤና ተጠሪው በፈገገታና በአከባቢ ይመለከቱዎት ነበር ፣	x	x	x	x	x

21.	ጤና ተጠሪው የሚከሰተው ምርት ተምህርት ቀላልና ገለጽ ነበር?	x	x	x	x	x
22.	ሰለ ተቃዋሚ በሽታ መከላከያ ከቀበሌ ጤና ተጠሪው በዙ ተሞረዋል ፣?	x	x	x	x	x
23.	ቀበሌ ጤና ተጠሪው እና ቶፍን ለማስተማርና ለመርዳት ዝግጁ ነው ፣?	x	x	x	x	x
24.	ተቃዋሚ የሚከሰኩት ለውጥ ጠንቀኝ አስረድቶታል?	x	x	x	x	x
25.	ጤና ተጠሪው በገጽህና ገጽህ ባለሀኪም ውሃ መካከል ያለውን ልዩነት ገልጾለታል፣	x	x	x	x	x
26.	ጤና ተጠሪው ሰለ ስኬት አስ ፈላጊ ሽጭ መታጠብ ጥቅም አሳይቶታል፣?	x	x	x	x	x
27.	ጤና ተጠሪው ስኬት አስ ፈላጊ ሲዘጋጅ አገዳሪ ሊተር ውሃ በተከከለ መልኩት እንዳለበት በጥበቃ ነገርታል፣?	x	x	x	x	x
28.	ጤና ተጠሪው በሽንት ቤት መጠቀም ለተቃዋሚ መከላከል አስፈላጊነትን አስረድቶታል፣?	x	x	x	x	x
29.	ዘገቦች እንዳት ምገብን እንደሚጠቀሙ አገዳሪ ባንድ ገልጾለታል፣	x	x	x	x	x
30.	የሕፃናትና የልጆች ዓይነት ድርጅት ጉዟት በማጠራረት መወገድ የሚገባው መሆኑን አስረድቷል፣?	x	x	x	x	x

ከፍለ ሾ

ግብረሰብ:

ለሚከተሉት ጥያቄዎች ተከክለኛ ነው ብለው ያመነኩትን መልስ ያመለክቱ
/ይዎረጡ/

1. ተቃራኒ ዎንድ ነው ?
 ሀ. ሕይወት/ሰው/ በቀን አንድ ጊዜ ውሃ ተቃራኒ ሲያስጠጡ ?
 ለ. ሕይወት/ሰው/ በቀን 3 ወይም ከዚያ በላይ ውሃ ተቃራኒ ሲያስጠጡ?
2. ከሚከተሉት ተቃራኒ የሚያመጣው የተኛው ነው?
 ሀ. የተከሰተ ውሃ
 ለ. ገጽታ የመጠጥ ውሃ
3. ለመጠጥ የሚሆን ገጽታ ውሃ የት ነው?
 ሀ. ያለተጠበቀ ውሃ
 ለ. በአካባቢው ቁሳቁስ ወይም ሲሆን የተጠበቀ ውሃ
4. ዎንብ ከመብላት በፊትና ሸንተ ቢት ከተጠቀሙ በኋላ እድገት መታጠብ ያስፈልጋል:
 ለዎን = ይመስለዎታል?
 ሀ. ገጽታ ለመዎሰል
 ለ. የባሻና ጉዳ ሕዝብን ለማስወገድ
5. ዎንብ ዎንጊዜም ቢሆን ተከደኛ መጠቀም አለበት: ለዎን ይመስለዎታል?
 ሀ. ተከሰ ሀኛ እንዲቆይ
 ለ. ዘጠና የባሻ እንዲያርፍበት
6. ዘንቦች ለዎን ለጤና ጠንቅ ይሆናሉ?
 ሀ. ለእይታ ጥሩ አይደለም
 ለ. ጉዳ ሕዝብን ለሰላምና ለሰላምነት
7. በሸንተ ቢት መጠቀም ለዎን አስፈላጊ ሆነ?
 ሀ. ጉዳ ሕዝብን በዓይነትም ያለውን አካባቢን እንዲያስተካክሉ
 ለ. ከጤና ለሰላምነት
8. ስለ ሥነ ስር አስ ተወረዋል?
 ሀ. አያን
 ለ. የለም

9. ከተማ ለጭዘጃት አስፈላጊ የሆነ ቁሳቁስ የት ነው?
 ሀ. 1 ከረጢት ሥ አር አስ እና 1 ሊተር ገጽህ የመጣው ሃ
 ለ. 1 ከረጢት ሥ አር አስ እና 1/2 ሊተር ገጽህ የመጣው ሃ
10. የሥ አር አስ ፈሳሽ የሚዘጋጀው የአፎና የዕጋጋጋ ገጽህና ሳይጠበቅ ነው
 ሀ. አጋጋ
 ለ. የለም
11. የሥ አር አስ ፈሳሽ የሚዘጋጀው አገጥሞ ነው?
 ሀ. ተቋቁሞ በጥጥር ሊተር ገጽህ ሆኖ በጥጥር ማጥፋት
 ለ. ተቋቁሞ በአገጥሞ ሊተር ሆኖ ጋር ማፍላት
12. በተቋማት የተገዛ ልጅ ሕፃናት በጋራ ጋራ ይሆናል ፤
 ሀ. የጋራ ዕጥረት በሽታ ይደርሳል/ይከሰታል/
 ለ. ጋራ አይሆንም
13. የተቋማት በሽታን በየተፈቀደው መንገድ መከላከል ይቻላል
 ሀ. ሽታን ቤት በመጠቀም ገጽህ ሆኖ በመጠቀም እጅግ በመታጠብ
 ለ. በሚገኝ በመጸዳዳት
14. የመጸዳዳት ቤት
 ሀ. ከተጠቀሙ በኋላ መከደን
 ለ. ለዘገባቸው ሳይከደን መተው
15. የሥ አር አስ ፈሳሽ የሚዘጋጀው
 ሀ. በአገጥሞ ሊተር ሆኖ
 ለ. በአገጥሞ የቡና ስኬት ሆኖ
16. የተቋማት በሽታን ለመከላከል ዘላቂው መፍትሄ
 ሀ. የገለፍ የአካባቢ ገጽህና መጠበቅ
 ለ. አካባቢውን በውሃ ማጥፋት

17. የኮሌጅ ስራ ፈላጊ ለማድረግ የሚያስፈልገው የውሃ ጥጽ ነፃነት
 ሀ. ገንዘብ የመጣው ውሃ
 ለ. ያለተጠበቀ ውሃ
18. ተቃራኒ ለይዘው ልጅ ሆኖ የኮሌጅ ስራ ፈላጊ ይሰጣል?
 ሀ. ከ1_2 ሰዓት ፈላጊ ባለቤትና ባለቤትነት ቁጥር
 ለ. 1 ሊተር ፈላጊ ባለቤትና ባለቤትነት ቁጥር
19. ልጅዎ ተቃራኒ ሲይዘው ከኮሌጅ ስራ ፈላጊ ሊሆን ይችላል?
 ሀ. ምንም እንኳን
 ለ. ምንም እንኳን
20. ልጅዎ ተቃራኒ ሲይዘው ወተት ይሰጣል?
 ሀ. አዎ
 ለ. የአዎ
21. ባለቤት ለምን ?
 ሀ. ተቃራኒ ያባባላል
 ለ. ጤና ተጠሪው ወተት እንዳይሰጥ ስለመከረፍ
22. እናቱ ለጽሑፍ ተቃራኒ ሲይዘው ወዲያውኑ ምን ማድረግ አለባቸው ይላሉ?
 ሀ. ከወተርው የበለጠ ፈላጊ መሰጠት
 ለ. ምንም ፈላጊ መሰጠት ማለት
23. በቤት ውስጥ ተቃራኒ ለይዘው ልጅ ወተር የሚሰጠው ፈላጊ ምን ምን ነው?
 ሀ. አጥሟት ፣ ወተት ፣ የረዝ ውሃ ፣ ሽህና ገንዘብ ውሃ
 ለ. ቢና ፣ ጠላት ፣ አረቂ

APPENDIX D
Letter from the Ministry of Health
to the Region in the Study

ተገረ Wb 327/26/9
 ቀን 22/2/88

ለጽሓፊ ጠና ሃይገብ ሊገባታለት

ደ ግ

የጠ/ቦታችን ባለደረባ ሲ/ር ፋንታ ዶክተር በአጻፍባን አገር የ/ FHD /
 ተጽህፎቻቸውን በጠቀሱት ላይ አገላለጽ የሰርጌይ ሥራ ለግክፍውን በአሁኑ ጊዜ
 ለህገ አባባ በተግ ጭጥ ይገኛሉ፡፡

ተጠቃሪ የሰርጌይን ሥራ ለግክፍውን የፈለጉት ወደ አባተኛይ ክልሉ በጠ
 ምባት በላህነ አህፃር 10/84 አባባ ህፃር 30/84 በጥናት ሥራ ላይ በክልሉ በግ
 የግባት ወቅት ተገቢው ተባብሮ አገላግሎት ሊሰጥበባለን፡፡

ገለባጭ

ለሲ/ር ፋንታ ዶክተር
ጠና የበታ



ከሠላምታ ጋር

ቁጥር 11/6327/26/89

ቀን 17/12/84

ለሊዛቦር አስተዳደር አካባቢ ጤና መዋሪያ

ፌዴሬሽን

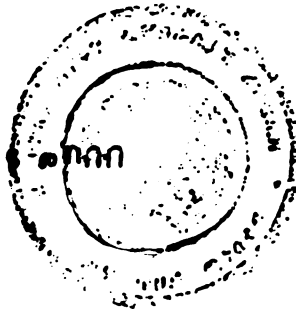
የወ/ቤታገን ባለደረባ ባለደረባ ሲ/ር ፋንታ ወጣብ በአዲስአበባ
አገራዊ የ/PHD /ተምህርታዊ መከታተል ላይ አገላለጽ የሰርጌድ ሥራ ለግ
ከናወን በአሁኑ ጊዜ አላን አበባ በተግ ውስጥ ይገኛሉ፡፡

ተጠያቂ የሰርጌድ ሥራ ለግከናወን የረላገት ወደ አስተዳደር
ከሰሉ በመዋገድ ስለሆነ ከሀገር 10/84 እስከ ሀገር 30/84 በጥናት
ሥራ ላይ በከለሉ በሚቀጥሉት ወቅት 7 ባለውያንና አበረሳቾች ከሆነ መሆኑ
በጤና ተገቢ ተብሎ እንዲረገግና አያባባሉን ፣ አገልግሎት ለሚሰጡት
የወሉ አበላና ነገሩ ጥያቄ ለመርዳት በተረዳቸው ገንዘብ ወደ አድርገው
ወሰደላቸው የሚገኙ መሆኑን አገልግላለን፡፡

ገልግሎት/

ሲ/ር ፋንታ ወጣብ

ጤና ጥበቃ



ከሠላምታ ጋር

[Handwritten signature]

አዲስ አበባ

/አወጣጥ

ቁጥር 11/6327/26/89

ቀን 17/12/84

ለሕዝባዊ አስተዳደር አካባቢ ጤና መዋሪያ

ፌ.ገ.ፌ.

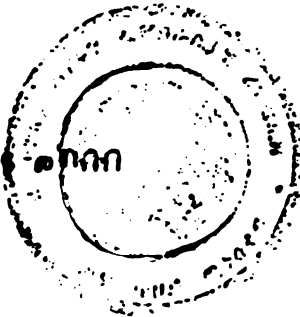
የወ/ቤታገን ባለደረባ ባለደረባ ሲ/ር ሩገታዬ መስጠን በአዲስ አበባ
አገራዊ የ/PHD /ተምህርታዊውን በመከታተል ላይ አገላለጽ የሰርጌይ ሥራ ለግ
ከናወን በአሁኑ ጊዜ አላለን አበባ በተግ ውስጥ ይገኛሉ፡፡

ተጠያቂ የሰርጌይ ሥራ ለግክናወን የረላገት ወደ አስተዳደር
ከሰሉ በመዋገድ በሰህን ከሀገር 10/84 እስከ ሀገር 30/84 በጥናት
ሥራ ላይ በከሰሉ በሚቀደሙት ወቅት 7 ባለሙያና አበረሳቅ በሆነ መጠን
በጤና ተገቢው ተብሎ እንዲረገግባቸው አያስባቸው፤ እንደአበረሳቅነት
የወሉ አበላና ነገሩ ጥያቄ ለማረጋገጥ በተረጋገጠው ገንዘብ ወደ አደርገው
በረላገው የሚገኙ መሆኑን እንገልጻለን፡፡

ገለባጭ/

ሲ/ር ሩገታዬ መስጠን

ጤና ጥበቃ



ከሠላምታ ጋር

[Handwritten signature]

አዲስ አበባ

/አወጣጥ

APPENDIX E
Other Correspondence Related to the Study

11/2/84

ለአስተዳደርና ፋይናንስ ጠቅላይ

ጤና ጥበቃ

አንደኛው የሆነ ሁሉ በአዲሱ ሃገር ተምህርቱን ለመከታተል ሂጅ የሚከተሉት
ፋይናንስ ባንክ በጋራ ለየሰው አንድዋላ በተረፈው ጠቅላይ ጠቅላይ ተምህርቱን ባጠና ቀይ
ቻለሁ፡፡

በዚህ ጠቅላይ የሰርቤዬ ሥራ ለማከናወን ወደዚህ የጠቅላይ ሰላሳ የሚከናወን
ውጭ ጥናት ለሃገሪቱ ጠቅላይ ጠቅላይ ተምህርቱን ከሕዝብ 10 አስከ ሀዳር 30 1984 ዓ/ም
ሰርቤዬ ለማከናወን አንድዋላ፡፡

1. አራት ወር ምት
2. በባት ባለጠቅላይ ከዋናው ወ/ቤት ለሰርቤዬ
3. በምት ከሕዝብ ጤና ጠቅላይ ተምህርቱን ለማከናወን ይረዳል፡፡

ዘንድ በተሰጠው አጠቃላይ፡፡

የሁሉንም አጠቃላይ የሰርቤዬ ከተረፈው ወጭ አድርጎ የምከናወን ጠቅላይ በዚህ
አገጣጣሪ አረጋግጣለሁ፡፡

ከሠላም ታ ጋር

Yontu

ፋንታ ወጣብ

ቁጥር ሄ.መ.ገ/3092/84
 ቀን 15/2/84

የ ቤ ር ግ በ ታ ወ በ

ለጤና አገልግሎት ተጽዕኖተኞች

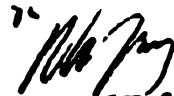
በአበተዳደርና ፋይናንስ ወቅጪ

የወ/ቤተን ባለደረባ ሲ/ር ፋንታ ወክብ በአዲስ አበባ
 ተቃራኒነትን በሀገራችን የሚከተሉት ሀገራዊት ከገጥሞች በኋላ
 በአሁኑ ወቅት ለ/የዘመን / የሚያበቃ ተቃራኒነት በወከታተል ላይ ይገኛሉ፡፡

ተጨማሪ በአሁኑ ወቅት የቤተሰብ ሥራ ለማከናወን ወደ ሊተዩዩ
 የተሰለጠነ ስለሆነና ገና ተገዝቶ ከሀገር 10/84 እስከ ህዳር 30/84 ድረስ
 የሚከተሉት ስለሆኑ ለብርሃን ሥራ በባለ ባለውያን አንዳወደባቸው
 በ11/2/84 በተፈጸመው ጥያቄ አቅርበዋል፡፡

በዚህ ወረቀት ሲ/ር ፋንታ ለቦርድ ከተፈጸመባቸው ገንዘብ የወሰዱ
 ለቦሎን ወክሎት የሚሉት ወሰኑ በባለ ባለውያን አንዳወደባቸው ተገቢው
 ተብብር እንዲረገፍ እናባባላለን፡፡

በሠላም ትር



አዲስ አበባ የጥቅም ሲ/ር
 ገብረ ገብረ

ገለባጥ/

— ሲ/ር ፋንታ ወክብ

ጤና ገብረ

/አወጣጥ

ቀን 30/309/84
 ቀን 15/2/84

የቦር ግብታወክ

ለ ንብረት ለስተዳደርና ጠ/አ/ዋ ከፍለ
 ከ ለስተዳደርና ፋይናንስ ጭሪያ

የጠ/ቤታን ባለደረባ ሲ/ር ፋንታዩ ጠብቀን በአዲሱ ስር
 የ / FHD / ተምህርታቸውን ሲታተሉ የቆዩ በአሁኑ ወቅት ለቦር
 ሲላን ሥራ ለህገ ለቦር ከተጻፉ ይገኛሉ፡፡

ተጠቃሚ ለጭነት የሰርቲፎኬት ተገባር ነፃድ የውሉ ለቦር
 ለምርጫ ከተረፈባቸው ገንዘብ ወጭ ለደርገው የጭነት ለህገ ለገደ
 ጭነት በመደብ ረገድ ተገባው ተብሎ ለንግድ ለፍባባላን፡፡

ገለባጭ

ለሲ/ር ፋንታዩ ጠብቀን

ጭና ገባጭ

ከባለቤቱ ጋር


 ለስተዳደርና ፋይናንስ ጭሪያ ኃይል

APPENDIX F
Letter of Approval



በኢትዮጵያ ሕዝባዊ ዲሞክራሲያዊ ሪፑብሊክ

የጤና ጥበቃ ሚኒስቴር

People's Democratic Republic of Ethiopia

MINISTRY OF HEALTH

የፕሮ ሰ/ፊ 327/26/88
HSP No.

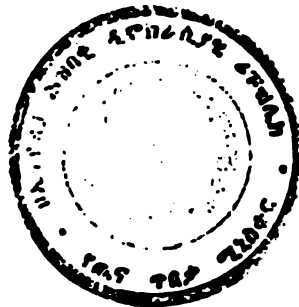
አዲስ አበባ 3/12/88 ጥገና 83 ነጥ.
10018 ለዘመን 19

ድህረ ምረቃ) 51 74 14 51 71 02
TEL. \ 51 79 23 51 78 31

ፖ. ግ. ጥ. }
P. O. Box } 1234

Ms. Fantaye Nekbeb
P.O. Box 6825
Michigan State University
East Lansing MI 48826
U.S.A

አ.አ.አ. በ1/6/91 የጻፉት ደብዳቤ ደርሶን ተመልክተነዋል፡፡
በመሠረት በተገኘው አሁን የደረሰው ደረጃ የሚያበረታታ ሲሆን፣ በዚህ
መሠረት ጥናትን በአገር ያለፍላል ምክር ቤት ጥያቄ፣ በጤና ጥበቃ
ሚኒስቴር በጤና ሚኒስቴር ፊርማ ለማግኘት ማወቅ፡፡



በሰላም ቤት
ደ/ር ከ/ሰ/ፊ 327/26/88
የጤና ሚኒስቴር

APPENDIX G
Letter of Support

MICHIGAN STATE UNIVERSITY

COLLEGE OF EDUCATION
DEPARTMENT OF EDUCATIONAL ADMINISTRATION
ERICKSON HALL

EAST LANSING • MICHIGAN • 48824-1034

September 23, 1991

To Whom It May Concern

Dear Sir/Madam:

I write this letter as the major professor and academic advisor for Fantaye Mekbeb as she pursues the Ph.D. at Michigan State University.

Mrs. Mekbeb has successfully completed all of the course work leading to this degree and the comprehensive examination over that course work. The proposal for her dissertation has been approved by the appropriate university committee, and she is in good standing at this university.

She plans to collect the data for her dissertation in Ethiopia during the 1991-1992 academic year (October-June), after which she will return to the East Lansing, Michigan campus to complete the writing of her dissertation and to defend it.

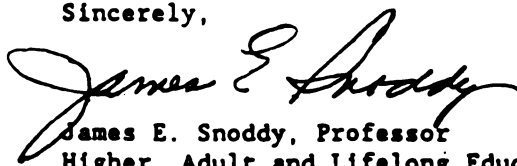
Mrs. Mekbeb has been awarded a financial grant from the African Development Foundation to do the data collection in Ethiopia.

Any assistance you can extend to Mrs. Mekbeb will be greatly appreciated by both Mrs. Mekbeb and by those of us responsible for her academic progress.

If I can be of further assistance in the matter, please contact me.

Thank you.

Sincerely,



James E. Snoddy, Professor
Higher, Adult and Lifelong Education

APPENDIX H
Letter of Agreement

MICHIGAN STATE UNIVERSITY

OFFICE OF VICE PRESIDENT FOR RESEARCH
AND DEAN OF THE GRADUATE SCHOOL

EAST LANSING • MICHIGAN • 48824-1046

January 23, 1992

Fantaye Mekbeb
417 Erickson Hall

RE: ASSESSMENT OF COMMUNITY HEALTH WORKERS' TEACHING EFFECTIVENESS RELATED TO
DIARRHEAL PREVENTION AND TREATMENT IN ETHIOPIA, IRB #91-506

Dear Ms. Mekbeb:

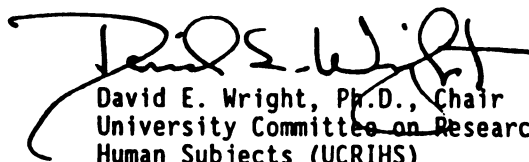
The above project is exempt from full UCRIHS review. The proposed research protocol has been reviewed by another committee member. The rights and welfare of human subjects appear to be protected and you have approval to conduct the research.

You are reminded that UCRIHS approval is valid for one calendar year. If you plan to continue this project beyond one year, please make provisions for obtaining appropriate UCRIHS approval one month prior to January 15, 1993.

Any changes in procedures involving human subjects must be reviewed by UCRIHS prior to initiation of the change. UCRIHS must also be notified promptly of any problems (unexpected side effects, complaints, etc.) involving human subjects during the course of the work.

Thank you for bringing this project to my attention. If I can be of any future help, please do not hesitate to let me know.

Sincerely,



David E. Wright, Ph.D., Chair
University Committee on Research Involving
Human Subjects (UCRIHS)

DEW/deo

cc: Dr. James Snoddy

APPENDIX I
Letter of Approval from UCRHS



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Dear Sirs,

We are writing in connection with Mrs. Fantaye Makbib, who is an Ethiopian doctoral student and who wish to apply for a Dissertation Internship Awards 1989-90 by the Rockefeller Foundation. This programme has been announced for African doctoral students enrolled in the United States and Canadian Universities to undertake supervised dissertation research in Africa.

We understand that the proposed dissertation topic of Mrs. Fantaye Makbib is "A Study to Assess the Effectiveness of Community Health Workers' Teaching Related to Diarrheal Prevention and Treatment as Perceived by Mothers of Children under Five Year of Age in the District of Keffa Region in Ethiopia."

We are pleased to confirm that, in view of the usefulness of the programme and considering the vital role to be played by Mrs. Fantaye Makbib upon completion of her final studies and return to her home country, we are ready to provide the necessary services, such as laboratory facilities, access to study sites and technical advise to make her programme a success. The area for her dissertation ~~programme will be near or around the Mama Health Sciences~~ Institute and the study will be conducted on the basis of our District Health Development Network Programme.

With this in view and considering the recent trend in the implementation of the concept of Primary Health Care where service, training and research are to be operationally integrated, we feel that it would be highly effective and

Dr. Col. Getachew Tadesse
Vice Minister



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beneficial if the supervision is carried out in groups i.e. by the concerned officials of the Institute under the guidance of the Dean of the same Institute. We therefore recommend that:-

- 1) Dr. Abdulagiz Aduz, Head of the Health Department of Illubabor Region.
- 2) Dr. Tesfaye Shifferaw of the Research Department of the Jimma Health Science Institute and
- 3) Mr. Mekonnen Assefa of the Community Health Department of the Institute be involved in the supervision of her work.

We would like to take this opportunity to express our admiration and appreciation for the untiring efforts made by Mrs. Fantaye Mekbib to successfully continue her studies and we wish her every success in the completion of her study work.

Thanking you for all your cooperation and assistance in this respect.



Yours sincerely,

African Dissertation Internship
The Rockefeller Foundation
1133 Avenue of the Americas
New York, New York 10036
U.S.A.

Col. Getachew Tadesse
Vice Minister

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