

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF MEDICAL SCIENCES

DEPARTMENT OF COMMUNITY HEALTH



**ASSESSING MOTHERS' KNOWLEDGE OF PREVENTION OF DIARRHOEAL DISEASES
AMONG CHILDREN UNDER FIVE YEARS IN AHAFO ANO SOUTH DISTRICT OF
GHANA**

**A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES, KWAME
NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI IN
PARTIAL FULFILMENT OF REQUIREMENT FOR THE AWARD OF DEGREE IN
MSc. HEALTH EDUCATION AND PROMOTION**

KWAME ADINKRA AMO

OCTOBER 2007

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF MEDICAL SCIENCES

DEPARTMENT OF COMMUNITY HEALTH

**ASSESSING MOTHERS' KNOWLEDGE OF PREVENTION OF DIARRHOEAL
DISEASES AMONG CHILDREN UNDER FIVE YEARS IN AHAFO ANO SOUTH
DISTRICT OF GHANA**

**A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES,
KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,
KUMASI IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE
AWARD OF DEGREE IN MSc. HEALTH EDUCATION AND PROMOTION**

KWAME ADINKRA AMO

OCTOBER 2007

DECLARATION

I hereby declare that, with the exception of references to other people's works and publications which have been duly acknowledged, this dissertation is the result of my own independent research work. I also declare that, this work has not been presented, either wholly or in part for any degree or other academic honours anywhere else.

SIGNATURE

KWAME ADINKRA AMO

STUDENT

SIGNATURE.....

DR. ELLIS OWUSU DABO

SUPERVISOR

SIGNATURE.....

DR. ANTHONY.K. EDUSEI

HEAD OF DEPARTMENT

DEDICATION

I dedicate this work to my late father, Opanin Joseph Kwadwo Amo and my mother, Madam Mary Adwoa Dufie for the good things they have done for me.

KNUST



ACKNOWLEDGEMENT

My deepest appreciation goes to the Almighty God for His divine protection and guidance given to me to complete this thesis. I extend my warmest gratitude also to my academic supervisor, Rev Dr. Edmund Nii Laryea Browne for his patience, guidance, support and corrections made for its successful completion. My special thanks go to Professor (Mrs) E A. Addy, Dr. Easmon Otupiri, Dr. Anthony K. Edusei, Dr. Ellis Owusu Dabo and Dr. Peter Agyei Baffour, all of the Department of Community Health, Kwame Nkrumah University of Science and Technology.

My thanks also go to Mrs. Gladys Fabyan (Former Principal, Nurses' Training College, Kumasi), Nana Yaa of KCCR (KNUST), Mr. Andrew Adjei Druyeh of Health Learning Centre, Kumasi, Messers. Mumuni Musah and Adama Musah all of Unity Farms (Dormaa Ahenkro), Miss Georgina Antwi (London), Mr. Yaw Poku (KNTC) Ms Olivia Nyarko Mensah and Mr. David Baba all of Nurses' and Midwifery Training College, Kumasi for assisting me in diverse ways to enable me write my thesis successfully.

I am equally indebted to the acting District Director of Health Services, Ahafo Ano South District, Mrs Mary Owoahene and the District Chief Executive of Ahafo Ano South District, the Assemblymen, Nurses and other workers of Mankranso Hospital for their assistance and support during this study.

Finally, it is my pleasure to thank the various authors from whose work I extracted very valuable information to make the study complete.

DEFINITION OF TERMS

Caregiver - someone who takes care of a child or sick person

Cholera - acute infectious enteritis that is marked by severe diarrhoea and caused by *Vibrio cholerae*

Colostrum - the thin, yellow, milky fluid secreted by the mammary gland a few days before or after parturition

Dehydration- a condition that results from undue loss of large volume of fluid from the body tissues

Diarrhoea - rapid movement of watery faecal matter through the intestines resulting in poor absorption of water and nutritive elements

Early Adults- persons between 25 and 35 years

Formula feed - feeding of a baby with food other than mother's breast milk.

Food hygiene- a practice of producing, preparing and storing food to prevent it from contamination

Formal education –acquisition of knowledge and skill from an established institution

Hand washing- a practice of regular washing of hands

Health education - a designed educational activity to improve and maintain health

Household- a number of people who live and enjoy the same facility together

Malnutrition- a condition resulting from a lack of food or right type of food

Measles - infectious disease that is characterised by fever and small red spot

Middle Adults- persons between 36 and 45 years

Mothers- respondents in the research

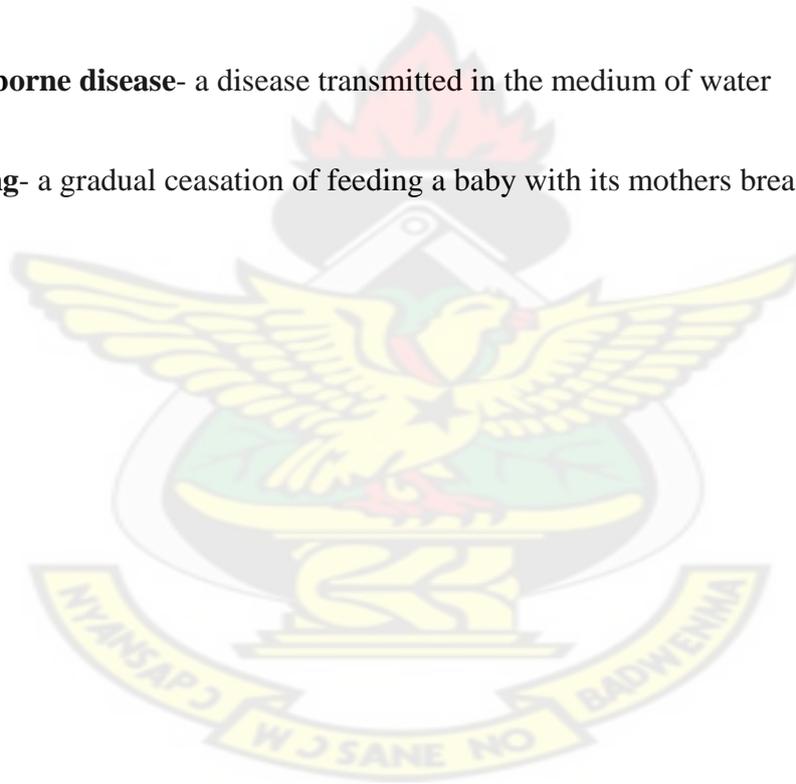
No formal education-a person who has not attended school

Sanitation- a system that ensures efficient disposal of refuse and human waste

Supplementary feeding- adding extra food to breast milk

Water borne disease- a disease transmitted in the medium of water

Weaning- a gradual cessation of feeding a baby with its mothers breast milk



ABBREVIATION/ACRONYMS

| | |
|--------|---|
| AASD | Ahafo Ano South District |
| CDC | Centre for Disease Control |
| CHPS | Community-based Health Planning Services |
| DCAHD | Department of Child and Adolescent Health and Development |
| DHMT | District Health Management Team |
| IEC | Information, Education and Communication |
| IOMEH | Institute of Occupational Medicine and environmental Health |
| HDR | Human Development Report |
| KNUST | Kwame Nkrumah University of Science and technology |
| MOH | Ministry of Health (Ghana) |
| NADMO | National Disaster Management Organization |
| NGO | Non-Governmental Organization |
| NO | Nursing Officer |
| PNO | Principal Nursing Officer |
| ORS | Oral Rehydration Solution |
| ORT | Oral Rehydration Therapy |
| RHA | Regional Health Administration |
| UNICEF | United Nations Children's Fund |

| | |
|-------|--|
| USAID | United States Agency for International Development |
| WFP | World Food Programme |
| WHO | World Health Organization |
| WIFA | Women in Fertile Age-group |

KNUST



TABLE OF CONTENTS

| | |
|-----------------------------------|------|
| TITLE | i |
| DECLARATION..... | ii |
| DEDICATION..... | iii |
| ACKNOWLEDGEMENTS..... | iv |
| DEFINITION OF TERM..... | v |
| ABBREVIATION/ACRONYMS..... | vii |
| TABLE OF CONTENTS..... | viii |
| LIST OF TABLES..... | xi |
| LIST OF FIGURES..... | xiii |
| LIST OF APPENDICES..... | xiv |
| ABSTRACT..... | xv |
| CHAPTER ONE – INTRODUCTION | |
| 1.0 INTRODUCTION..... | 1 |
| 1:1Background..... | 1 |
| 1:2 Problem Statement | 3 |
| 1:3 Rationale | 4 |
| 1:4 Research Questions..... | 5 |
| 1:5 Objectives of the Study..... | 6 |
| 1.5.1 General Objective..... | 6 |
| 1.5.2 Specific Objectives..... | 6 |
| 1:6 Conceptual Framework..... | 7 |

CHAPTER TWO - LITERATURE REVIEW

| | |
|--|----|
| 2:0 INTRODUCTION..... | 8 |
| 2:0.1 Global report on diarrhoea diseases..... | 8 |
| 2.1 FEEDING PRACTICES..... | 9 |
| 2.1.1 Feeding Practices by respondents..... | 9 |
| 2.1.2 Food storage..... | 15 |
| 2:2 SOURCES AND STORAGE OF DRINKING WATER..... | 16 |
| 2.2.1 Access to Drinking water | 16 |
| 2.2.2 Sources and Storage of Drinking water..... | 17 |
| 2.2.3 Storage of food..... | 17 |
| 2:3 HYGIENE PRACTICES..... | 18 |
| 2.3.1 Treatment of water..... | 18 |
| 2.3.2 Sanitation Facilities..... | 18 |
| 2.3.3 Hand washing practices..... | 20 |
| 2:4 SOCIO-CULTURAL BARRIERS AGAINST THE ACCEPTANCE AND USE OF HEALTH INFORMATION..... | 20 |
| 2.4.1 Socio-cultural barriers against acceptance and use of IEC..... | 20 |
| 2.5 USE OF INFORMATION, EDUCATION AND COMMUNICATION STRATEGIES..... | 22 |
| 2.5.1 Health Education..... | 22 |
| 2.5.2 Information and Communication..... | 22 |
| 2.5.3 Hygiene Education | 23 |
| 2:6 MANAGEMENT OF DIARRHOEA DISEASES OF CHILDREN..... | 23 |
| 2.6.1 Management of Diarrhoea Diseases..... | 23 |
| 2.6.2 Feeding of Diarrhoea patients..... | 25 |

| | |
|---|----|
| 2.6.3 The use of drugs in the treatment of diarrhoea..... | 25 |
| 2.6.4 Health Seeking Behaviours..... | 26 |

CHAPTER THREE – METHODOLOGY

| | |
|---|----|
| 3.0 METHODOLOGY | 27 |
| 3:1 STUDY METHOD | 27 |
| 3:2 DATA COLLECTION TECHNIQUE AND TOOLS..... | 27 |
| 3.2.1 Data Collection Techniques..... | 27 |
| 3:3 STUDY POPULATION..... | 28 |
| 3:4 DISTRICT PROFILE..... | 28 |
| 3.4.1 Location..... | 29 |
| 3.4.2 Population in the district..... | 29 |
| 3.4.3 The District Health Administration..... | 30 |
| 3.4.4 Communication Network..... | 31 |
| 3.4.5 The District Assembly..... | 31 |
| 3.4.6 Water Supply..... | 31 |
| 3.4.7 Sanitation | 31 |
| 3.4.8 Economic activities | 31 |
| 3.4.9 Agricultural activities..... | 32 |
| 3.4.10 Educational Facilities | 32 |
| 3.5 PRE-TESTING..... | 35 |
| 3:6 SAMPLING TECHNIQUE AND SAMPLE..... | 35 |
| 3.6.1 Sampling Technique..... | 35 |
| 3.6.2 Sample Size determination..... | 36 |
| 3:7 DATA HANDLING TECHNIQUE..... | 36 |
| 3.8 DATA ANALYSIS..... | 36 |

| | |
|------------------------------------|----|
| 3:9 ETHICAL CONSIDERATIONS..... | 37 |
| 3.10 LIMITATIONS OF THE STUDY..... | 37 |
| 3:11 ASSUMPTIONS..... | 37 |

CHAPTER FOUR – RESULTS

| | |
|---|----|
| 4.0 INTRODUCTION..... | 38 |
| 4.1 Socio-Demographic Data..... | 38 |
| 4.2 FEEDING PRACTICES..... | 40 |
| 4.2.1 Feeding of children..... | 40 |
| 4.2.2 Giving of artificial foods to Children..... | 45 |
| 4.2.3 Weaning of children..... | 48 |
| 4.3 HYGIENE PRACTICES..... | 51 |
| 4.3.1 Hand washing practices and storage of food..... | 51 |
| 4.3.2 Sources and storage of drinking water..... | 55 |
| 4.3.3 Treatment of water by respondents..... | 57 |
| 4.3.4 Toilet facilities and how they are kept..... | 58 |
| 4.4 SOCIO-CULTURAL BARRIERS TO THE USE OF IEC..... | 64 |
| 4.4.1 What respondents consider as socio-cultural barriers..... | 64 |
| 4.4.2 Shortfalls of health workers in dissemination of information..... | 65 |
| 4.5 MANAGEMENT OF DIARRHOEA DISEASES..... | 67 |
| 4.5.1 Facilities in which respondents delivered their babies..... | 67 |
| 4.5.2 Children who have passed diarrhoea..... | 68 |
| 4.5.3 Health seeking behaviour..... | 69 |
| 4.5.4 Knowledge about treatment of diarrhoea..... | 70 |
| 4.5.5 Feeding of Children who have diarrhoea..... | 71 |
| 4.5.6 Health education on diarrhoea..... | 72 |

| | |
|--|----|
| 4.6 INFORMATION, EDUCATION AND COMMUNICATION (IEC) | |
| STRATEGIES..... | 73 |
| 4.6.1 Use of IEC by respondents..... | 73 |
| 4.7 RESPONDENTS' SUGGESTION TO AUTHORITIES ON HEALTH EDUCATION | |
| AND PROMOTION..... | 79 |

CHAPTER FIVE – DISCUSSIONS

| | |
|--|----|
| 5:0 INTRODUCTION..... | 81 |
| 5:1 FEEDING PRACTICES BY RESPONDENTS..... | 81 |
| 5.1.1 Respondents' level of education and initiation of breastfeeding..... | 81 |
| 5.1.2 Respondents' age and initiation of breastfeeding..... | 82 |
| 5.1.3 Effect of employment on initiation of breastfeeding..... | 82 |
| 5.1.4 Introduction of first water to babies..... | 83 |
| 5.1.5 Giving of artificial foods to babies..... | 83 |
| 5.1.6 Storage of children's food..... | 84 |
| 5.2 SOURCES, STORAGE AND TREATMENT OF WATER..... | 84 |
| 5.2.1 Sources and storage of domestic and drinking water..... | 84 |
| 5.2.2 Treatment of water..... | 85 |
| 5.3 HYGIENE PRACTICES BY RESPONDENTS..... | 85 |
| 5.3.1 Hand washing practices..... | 85 |
| 5.3.2 Toilet facilities and how they are kept..... | 86 |
| 5.3.3 Care of hygiene needs of children..... | 86 |
| 5.4 SOCIO-CULTURAL BARRIERS AGAINST THE USE OF IEC..... | 87 |
| 5.5 MANAGEMENT OF DIARRHOEA DISEASES..... | 87 |
| 5.5.1 Health seeking behaviour of respondents..... | 87 |

| | |
|---|----|
| 5.5.2 Passage of diarrhoea stools..... | 87 |
| 5.5.3 Treatment of children with diarrhoea diseases..... | 88 |
| 5.5.4 Feeding of children when they pass diarrhoea..... | 88 |
| 5.5.5 Health education in the management of diarrhoea diseases..... | 88 |
| 5.5.6 Preferred language to be used in health education..... | 89 |
| 5.6 USE OF IEC ON HEALTH ISSUES..... | 89 |
| 5.7 RESPONDENTS' SUGGESTIONS TO HEALTH AUTHORITIES FOR HEALTH EDUCATION..... | 90 |

CHAPTER SIX - CONCLUSIONS AND RECOMMENDATIONS

| | |
|---|----|
| 6:0 CONCLUSION..... | 91 |
| 6:1 RECOMMENDATIONS..... | 93 |
| 6.2.1 Mothers and caregivers..... | 93 |
| 6.2.2 The District Health Management Team..... | 93 |
| 6.2.3 The District Assembly..... | 97 |
| 6.2.4 The Regional Health Directorate..... | 97 |
| 6.2.5 Ministry of Health/Ghana Health Service..... | 98 |
| 6.2.6 Ministry of Local Government/Government of Ghana..... | 99 |
| 6.2.7 Development Partners..... | 99 |

LIST OF TABLES

Table 3.1: Population Distribution of the AASD

Table 3.2: Health staff strength in the AASD

Table 3.3: Population distribution in the AASD

Table 3.4: Educational institutions in the AASD

Table 3.5: Top Ten causes of admission in the Ashanti Region (2003-2005)

Table 3.6: Diarrhoea diseases among children under five in AASD

Table 3.7: Report on diarrhoea diseases among children under five from other clinics

Table 3.8: Deaths from cholera and other diarrhoea diseases (2005-2007)

Table 3.9: Variables

Table 4.1: Socio-demographic data

Table 4.2: Feeding practices by respondents

Table 4.3: The relationship between respondents' level of education and initiation of breastfeeding

Table 4.4: The relationship between respondents' level of occupation and initiation of breastfeeding

Table 4.5: The relationship between respondents' age and initiation of breastfeeding

Table 4.6: Respondents' reasons for giving artificial foods

Table 4.7: Common local foods mothers give to their children during weaning

Table 4.8: Hygiene practices by respondents

Table 4.9: The relationship between respondents' level of education, occupation and age and hand washing before breastfeeding

Table 4.10: Sources and storage of drinking water

Table 4.11: Places where respondents defaecate

Table 4.12: How respondents care for their children after they have defaecated

Table 4.13: Reasons respondents listed as socio-cultural barriers

Table 4.14: Type of facility respondents delivered their babies

Table 4.15: Age respondents' children passed first diarrhoea stools

Table 4.16: Where respondents treat their children when they pass watery stools

Table 4.17: The relationship between respondents' level of education and occupation and the use of IEC

Table 4.18: Methods health workers use to educate respondents

Table 4.19: Language respondents preferred to be used in health education

LIST OF FIGURES

Figure 4.1: Duration of breastfeeding of children of respondents

Figure 4.2: Giving of artificial foods to children

Figure 4.3: Person who feeds the child when respondent is busy

Figure 4.4: Weaning of respondents' children

Figure 4.5: Period weaning started

Figure 4.6: Treatment of water

Figure 4.7: Availability of toilet (latrine) in respondents' homes

Figure 4.8: How respondents keep their toilet in the house

Figure 4.9: Where respondents' children defaecate

Figure 4.10: How respondents dispose the faeces of their babies

Figure 4.11: Existence of socio-cultural barriers

Figure 4.12: The major shortfalls of health workers in the dissemination of health information

Figure 4.13: Respondents' knowledge about treatment of diarrhoea diseases

Figure 4.14: How often respondents feed their children when they pass watery stools

Figure 4.15: Education of respondents about diarrhoea diseases

Figure 4.16: Where do respondents often get health information

Figure 4.17: How often respondents were educated on health matters

Figure 4.18: Common language used to educate mothers

Figure 4.19: Difficulty of understanding the language used in health education

Figure 4.20: Respondents' preferred method for health education.

Figure 4.21: Respondents' preferred method for health education



LIST OF APPENDICES

APPENDIX 1: QUESTIONNAIRE

APPENDIX 2: MAP OF AHAFO ANO SOUTH DISTRICT

APPENDIX 3: MAP OF ASHANTI REGION OF GHANA

APPENDIX 4: A WOMAN AND A BOY COLLECTING WATER FROM A
STREAM IN AASD



ABSTRACT

In the year 2005, there was an outbreak of cholera in the AASD of the Ashanti Region. The number of Out-Patient-Department cases in the district rose to a total of 684. Notwithstanding the various interventions, there was an increase to 690 in 2006. A study to assess mothers' knowledge of prevention of diarrhoea diseases was conducted in the Ahafo Ano District of Ghana.

A three-staged sampling strategy was used to select 300 respondents. This study showed that 58.3% of the respondents practised exclusive breast feeding; it exceeded the WHO recommendation (James, 2000). There were positive associations between mothers' level of education and introduction of water, occupation and hand washing, and the level of education and the use of IEC on health issues ($p < 0.05$; OR=1.46). IEC was highly effective for feeding practices.

The findings also showed that there was no significant association between occupation of mothers and introduction of water, however, 85.1% of the 121 respondents who served water to their babies before six months were self-employed. Significantly, 60.2% of the respondents were also adult mothers between 26 and 35 years who gave artificial feed to their children.

This study showed that 44.7% and 1.3% of the respondents obtain drinking water from hand-dug wells and streams respectively. This revelation render support to WHO 2005 Report that indicated one billion people in the world cannot get access to safe drinking water and develop diarrhoea. 143 (47.7%) of the respondents mentioned that they sometimes wash their hands with soap and water before they breastfeed their babies. This confirms the results by Mensah and others in 2002. The study also revealed that 79.9% of those who do not wash their hands with soap and water were self-employed and 20.1% were public service employees (Odds ratio=1.4594), this shows a positive association between mother's occupation and hand washing practices. Again, 39.3% of the respondents store water in wide-mouthed pots and buckets and the use of cups which are kept under unhygienic conditions. This can cause contamination. Significantly, there were no clear socio-cultural barriers to the use health information but farming and poverty affect mothers use of health information.

In management of diarrhoea diseases, 26.0% mentioned the use of ORS and drugs; this confirms the WHO/UNICEF Report in 2008 that recommends the combination of ORS and oral zinc supplementation. It is recommended that more health staff should be retrain to manage diarrhoea cases, intensify and broaden its health education and promotion activities.

CHAPTER ONE - INTRODUCTION

1:1 BACKGROUND

To ensure the control of diseases in the country, preventive medicine has now shifted focus more towards a study of relationship between man and his environment. It is quite evident that the ultimate elimination or significant suppression of disease must depend on the adjustment between the two. The adjustment can be effected in two ways, either man must alter his way of living to suit environment or he must modify his environment to suit his way of living.

Developing countries like Ghana are engulfed with numerous health problems that are related to poor personal and environmental hygiene. Water and food borne diseases have plagued the country so much that it loses rich human resources through preventable diseases among which are diarrhoeal diseases.

The WHO Report (2004) indicated that Water and Sanitation constitute one of the primary drivers of public health. The report added that once we can secure access to clean water and to adequate sanitation facilities for all people, irrespective of the difference in their living conditions, a huge battle against all kinds of diseases will be won.

WHO (2000) Water, Sanitation and Health also stated in their report that diarrhoea is most commonly caused by gastrointestinal infections which kill around 2.2 million people globally each year, mostly children in developing countries. The use of water and hygiene are important preventive measures as contaminated water is also an important cause of diarrhoea.

Additionally, the report stated diarrhoea as a rare occurrence for most people who live in developed countries where sanitation is widely available, access to safe water is high and personal and domestic hygiene is relatively good. The report added that world-wide around 1.1 billion people lack access to improved water sources and 2.4 billion have no basic sanitation and diarrhoea due to infection is widespread throughout the developing world. In Southeast Asia and Africa, diarrhoea is responsible for as much as 8.5% and 7.7% of all deaths respectively.

Amongst the poor and especially in developing countries, diarrhoea is a major killer. In 1998, diarrhoea was estimated to have killed 2.2 million people, most of whom were under 5 years of age (WHO, 2000).

In relation to health hazards, a report by WHO (2005) noted that approximately 4 billion cases of diarrhoea each year cause 2.2 million deaths, mostly among children under the age of five. This is equivalent to one child dying every 15 seconds, or 20 jumbo jets crashing every day. These deaths represent approximately 15% of all child deaths under the age of five in developing countries.

Intestinal worms infect about 10% of the population of the developing world. These can be controlled through good sanitation, hygiene and water supply. Intestinal parasitic infections can lead to malnutrition, anaemia and retarded growth, depending upon the severity of the infection.

1:2 PROBLEM STATEMENT

When people are aware of the links between environmental damage and their activities, it can lead to changes in behaviour and practice leading to a reduction in negative environmental impact. Dissemination of hygienic behaviours and environmental knowledge through local health and environmental workers via mass media have contributed minimally in the improvement in the area of environmental resources management (solid waste management, water and sanitation), quality assurance of water supply, hygienic food preparation and affordable water and storage.

In Africa, there has been increased numbers of diarrhoeal diseases in many hospitals and clinics, this emanated from lack of water resource management, poor waste management, attitude of the people, poor hygienic practices of the people and lack of commitment of most health and environmental workers.

This situation is not different in the Ahafo Ano South District (AASD) in the Ashanti Region of Ghana. The AASD is among the districts that have recently seen a rise in diarrhoeal diseases including the more deadly cholera outbreak in 2005 and 2006.

In 2005, there were 1,454 reported diarrhoeal cases in the district. Out of this number, 684 were children less than five years. In 2006 the number rose from 684 to 690 out 1,467 cases. The annual report indicated that reported diarrhoeal diseases formed 4% and 1.7% of Out-Patient Department and In-Patient Admission cases respectively at the Mankranso Hospital.

From 2003, Child morbidity and mortality has been rising and is a reflection of the recorded higher figures in diarrhoeal diseases in the Ashanti Region. In the AASD, between 2005 and

2007 eight (8) people were reported to have died from diarrhoea diseases and one and four persons were confirmed to have died from cholera in 2005 and 2006 respectively.

In 2005, the district health directorate adopted information, education, and communication (IEC) strategy to prevent the frequency of diarrhoeal diseases. The strategy was implemented using both micro and macro media. Despite these interventions, the situation became worse when there was another outbreak in cholera in 2006 which was described as more severe. The 2006 district annual report also showed an increase in other diarrhoeal diseases. Preliminary community visit revealed that most of the inhabitants are farmers who live in poor communities where vector factors, lack of safe water resources and unsanitary environment characterize the prevailing living situation. The DHMT aimed at curtailing or reducing the increasing trend in diarrhoeal diseases. This has however proved somewhat unsuccessful. This study therefore looks at factors contributing to increase occurrence of diarrhoeal diseases in the district.

1:3 RATIONALE

Improvement of child health and betterment of living through the provision of safe drinking water, exclusive breastfeeding and healthful sanitation is a declared goal of most governments. Therefore governments have to commit themselves to allocate increased funding and accelerate the pace of implementation of pragmatic child nutrition and sanitation programmes or policies in the allocation of resources to improve the living conditions and especially in ensuring food security and safe water for its citizens.

The reason for diarrhoeal diseases among children in the district is directly related to lack of access to safe drinking water, and unhealthy sanitation and other poor hygienic behaviours.

The unfortunate situation may be due to low coverage of health education and promotion programmes in the Ahafo Ano South District of the Ashanti Region of Ghana. In view of the perceived problems, the outcome of the research will identify the appropriate method of education and ensure that the personnel are well equipped with the knowledge to bring closer a desired healthy lifestyle in the district. The researcher will also recommend or suggest what can be done to strengthen health education and promotion programmes in the district in order to bring a change in attitude or good hygienic behaviour to the people. Such desired hygienic behaviours would go a long way to prevent epidemics of diarrhoeal diseases in the district.

1:4. RESEARCH QUESTIONS

- a. What are the feeding practices used by mothers?
- b. What are the sources of water and the methods of storage of domestic (drinking) water?
- c. What are the hygienic behaviours of the mothers?
- d. Are IEC activities socio-culturally accepted by the mothers?
- e. What extent are mothers involved by health workers in the management of diarrhoeal diseases in children?

1:5 OBJECTIVES OF THE STUDY

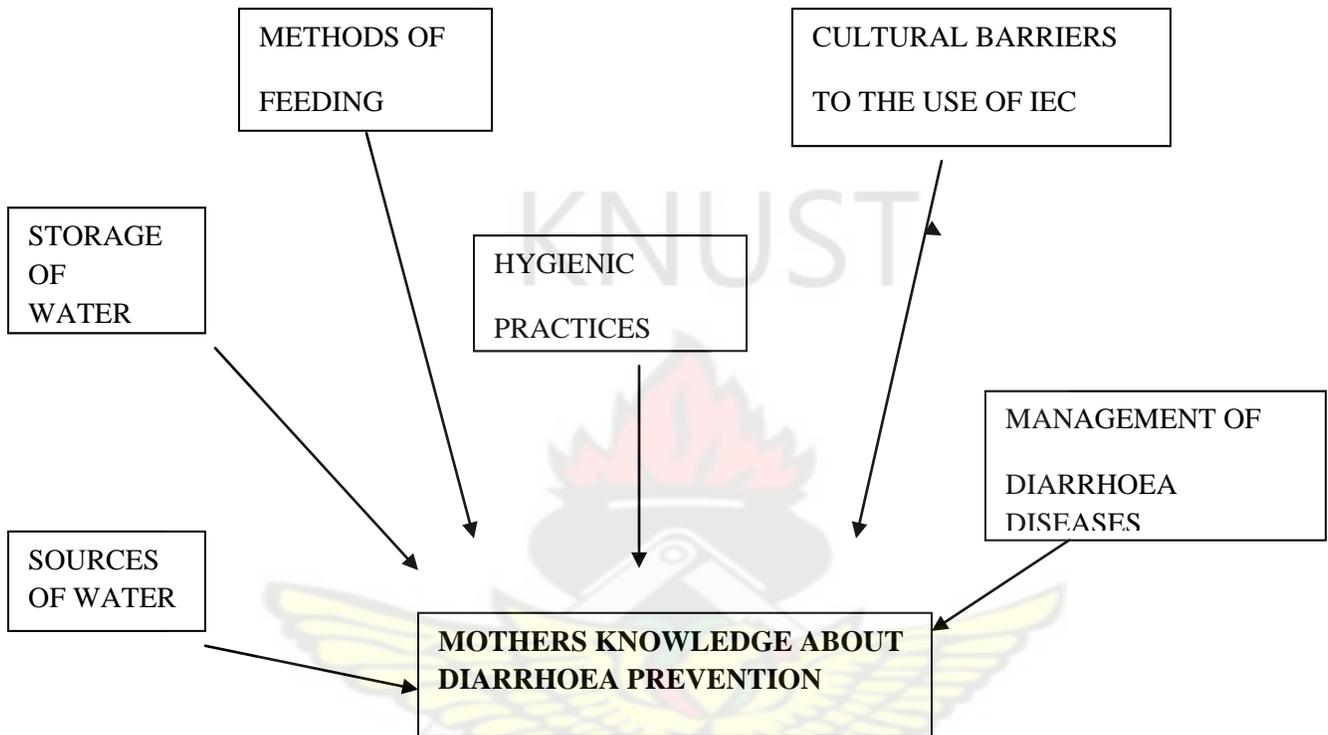
1:5.1 General Objective

To assess mothers' knowledge about prevention of diarrhoeal diseases among children under five years in Ahafo Ano South district, Ghana.

1:5.2 Specific Objectives

- a. To examine mothers knowledge about methods of feeding of children under 5 years.
- b. To determine sources of water and how mothers store drinking water at home.
- c. To determine hygienic practices among mothers of children less than five years.
- d. To determine socio-cultural barriers that mitigate against acceptance and use of health information, education and communication.
- e. To determine how mothers participate in management of diarrhoeal diseases among children under five years are managed at home.
- f. To determine appropriate suggestions to the authorities in the design of health education and promotion programmes for the prevention of diarrhoea diseases.

1:6 CONCEPTUAL FRAMEWORK



CHAPTER TWO - LITERATURE REVIEW

2:0 INTRODUCTION

MOH-Ghana (2004) stated that diarrhoea is the passage of frequent, loose, watery stools three or more times in a day. Diarrhoea is often accompanied by vomiting, dehydration, and exhaustion and housebound. It is very common in children. The commonest cause in this age is viral. The bowels open urgently, sometimes 20 to 30 times a day. The underlying disease process may be associated with pain, mal-absorption or inflammation. However fastidious the patient is, there is often the unmistakable odour of faeces about him, and problems arise where people have to share toilet facilities. This can affect individual's daily activities and productivity and even may become fatal. Examples of diarrhoeal diseases are cholera, dysentery, and typhoid fever.

2.0.1 Global Reports on Diarrhoea

WHO Report (2007), mentioned that water, sanitation and hygiene are closely linked to childhood malnutrition. Water, Sanitation and Health (WSH) risks are a major cause of repeated gastro-intestinal infections, which may lead to reduced absorption of nutrients. This, in turn, causes malnutrition. In simple terms, WSH risks cause malnutrition, and through malnutrition they contribute to a variety of infectious diseases that include diarrhoeal diseases and parasite infestations.

More than 1 billion people in developing countries lack access to safe water, and 2.2 million die annually of diarrhoea. Unfortunately, communities where diarrhoea is a leading cause of morbidity and mortality often lack the capacity and the resources to establish and sustain centrally purified water free from sewage.

Tumwine (2005) reported that 88% of diarrhoea disease is attributed to unsafe water supply, inadequate sanitation and hygiene. An improved water supply reduces diarrhoea morbidity by between 6% and 25%, and improved sanitation reduces diarrhoea morbidity by 32%. Again, hygiene interventions including hygiene education and promotion of hand washing can lead to a reduction of diarrhoea cases by up to 45%.

WHO Report (2005) from WHO Regional Office for Africa mentioned that Dr Chris Ngenda Mwikisa, Director of the Division of Healthy Environment and Sustainable Development said “Food and water transmit a variety of disease-causing agents which are at the origin of the high burden of diarrhoea cases. In Africa, these are estimated at up to four episodes per child per year. He added that “Several devastating outbreaks of food-borne diseases such as cholera, salmonellosis, entero-haemorrhagic Escherichia coli (EHEC), hepatitis A and acute aflatoxicosis have occurred in a number of African countries recently and in 2005, there were 34 000 cases of cholera due to contaminated water and food reported in 30 countries with more than 1000 deaths”.

2:1 FEEDING PRACTICES

2.1.1 Feeding Practices by Respondents

WHO Report (2008) stated that The Millennium Development Goal 4 was set to reduce childhood mortality. The increase is attributable to under-nutrition, which exacerbates the impact of diseases such as malaria, diarrhoea and acute respiratory infections among 143 million children under five years old. The prevalence is lower in sub-Saharan Africa, at around 28%, but progress in reducing this figure has been particularly slow

WHO Reproductive Health Library (2007) reported breastfeeding's role in the survival, growth, and development of children as significant. In developing countries only about one-third (36%) of newborns are exclusively breastfed for the first six months of life. Based on data from 37 countries with trend data available (covering 60% of the developing world's population), the rate of exclusive breastfeeding for the first six months of life increased from 34% to 41% across the developing world between 1990 and 2004. Significant improvements were made in sub-Saharan Africa, where rates more than doubled from 15% to 32% during this same time period. Western and Central Africa, in particular, experienced significant improvements with rates rising from 4% to 22%. It is also worth noting that each year, under-nutrition is implicated in about 40% of the 11 million deaths of children under five in developing countries, and lack of immediate and exclusive breastfeeding in infancy causes an additional 1.5 million of these deaths.

A study by James (2005) mentioned that two million infants die each year from not being adequately breastfed and lack of clean water in many developing countries means that bottle-fed babies are 15 times more likely to die from diarrhoea than their breast-fed counter-parts. Financial hardship in developing countries can lead a mother to over-dilute formula to make it last longer. Increasing breastfeeding rates in the developing world is a key intervention to reach Millennium Development Goal 4 (MDG 4) to reduce the mortality rate among children under five by two thirds by 2015. The World Health Organisation recommends exclusive breastfeeding for the first six months of life, the introduction of local, nutrient rich complementary foods thereafter with continued breastfeeding to two years of age and beyond. UNICEF has

estimated that since 1990, six million lives a year have been saved by exclusive breastfeeding and global breastfeeding rates have risen by at least 15%.

UNICEF Report (2004) on the review of Accelerated Child Survival and Development (ACSD) programme in the Upper East Region of Ghana stated that breastfeeding improves nutritional status and reduces morbidity and mortality of children. The MOH (Ghana) recommends that babies are put to breast within one hour of delivery and are exclusively breastfed for the first 6 months. The report added that the early initiation of breast feeding of children within an hour of delivery increased substantially from 6.9% in 1998 to 86.3% in 2003.

WHO Report in 2003 presented that malnutrition is responsible, directly or indirectly, for 60% of the 10.9 million deaths annually among children under five. Well over two-thirds of these deaths, which are often associated with inappropriate feeding practices, occur during the first year of life. No more than 35% of infants worldwide are exclusively breastfed during the first four months of life; complementary feeding frequently begins too early or too late, and foods are often nutritionally inadequate and unsafe. Urbanization results in more families that depend on informal or intermittent employment, with uncertain incomes and few or no maternity benefits. Both self-employed and nominally employed rural women face heavy workloads, usually with no maternity protection.

A conclusion from a study by Ergenekon-Ozelci and his colleagues in 2001 indicated in their study that breastfeeding promotion must be seen as a priority for the improvement of the health and the quality of life of children and their families. The strategies should vary

according to the population and its cultural characteristics, habits, beliefs and socio-economic levels.

Another qualitative study was conducted by Ergenekon-Ozelci (2001) to explore the breastfeeding beliefs and practices of mothers who were forced to migrate from their original villages and were currently living in the slums of Diyarbakir in Turkey. Their study revealed that mothers generally have a positive attitude towards breastfeeding, but colostrum is usually perceived negatively. No woman was found to feed her infant exclusively by breastfeeding. Only 9.9% of mothers initiated breastfeeding within the first hour of birth. Forty per cent of mothers started solid foods before 4 months. Mother's education appeared as a significant factor influencing the introduction of colostrum to the newborn. Mothers with lower education generally believed that the colostrum should not be fed to the infant and that a pregnant woman's milk is unhealthy for the baby. There was also a belief that 'working under the sun' decreases the quality of milk of a mother. They concluded that cultural beliefs have a significant influence on breastfeeding practices. Some of these practices are potentially harmful to newborns. Health education programmes should address these beliefs and practices in culture sensitive ways.

Similarly, Ergenekon-Ozelci and his colleagues in 2001 found out that babies who are exclusively breastfed are less likely to get diarrhoea, because breast milk is free from germs and contains antibodies, which protect a baby from infection. Bottle-fed babies are more likely to get diarrhoea. Feeding bottles are very difficult to keep clean, and dirty bottles are a major source of illness, especially diarrhoea. Bottle-fed babies are also at risk from contaminated water, which may be used to mix up powdered milk. If a baby has diarrhoea, always continue breastfeeding because a baby still needs food, and especially liquids, to

replace what is lost during the diarrhoea. Their study also mentioned that women in that community believe that pregnant women's milk is 'spoiled milk', and religiously it is forbidden to feed a baby with it. A young woman noted that 'because I am pregnant my milk is the right of my baby inside me.... If I breastfeed, my breastfeeding child will get sick.' Another woman said, 'Pregnant women's milk is spoiled milk. It may give harm to the breastfed baby.... I know it because the Imam [religious man in Islam] said pregnant women should not breastfeed their babies.' One mother said, 'When I was pregnant I vomited and my children also vomited. My milk caused the sickness of my children'.

The results from a study by Misra et al in 2000 also showed that age and tribe/ethnicity are critical factors in the decision to breast-feed. Unfortunately younger adolescents breast-feed less, when it is their infants who would benefit the most from breast-feeding since they are more likely to be born prematurely and have low birth weights. The authors acknowledged that the study population might have been influenced by the fact that women in reproductive age provide infant formula for up to one year to eligible infants. Again, it was established in the findings that the benefits of breastfeeding for both mothers and infants are well known. However, despite generally undisputed advantages, many women either do not breastfeed or breastfeed for only a short period of time. In some other instances, a mother may start breastfeeding too late. There are many factors that affect how women feed their infants and the length of time for which they breastfeed. Some of these factors are (i) urban or rural residence, (ii) socioeconomic status, (iii) maternal education, (iv) women's employment status, and (v) market pressures for using formulas and knowledge about, and the availability of, breast milk substitutes.

According to another report by Misra et al (2000), advantages of breast-feeding are well known and include anti-infectious and the ability to improve the immune system, these have great benefits for the infant. Breast milk is also the least allergenic of any infant food, it costs less than commercial formulas, and it promotes close mother-child bonds. Medical and health professionals promote it as the optimal feeding method for the first six months of life. However, studies show that few women in the United States choose to breast-feed, with adolescent mothers being the least likely to breast-feed. Adolescent mothers are more likely to be African-American, single, and have less education and lower income, all of which are associated with low rates of breast-feeding.

The report by Misra et al (2000) also said that a number of adolescent mothers currently breast-feeding their infants were significantly lower than the number of adult mothers, 19% and 68%, respectively. However, 95% of adolescents and adult mothers who did breast-feed started formula by the second week. Subjects who were currently breast-feeding were more likely to be aged 20-29 years, white, married, and college-educated with higher income levels. Longer duration of breast-feeding was associated with educated, older adolescents who were unmarried, with lower income and who started medical care in the first trimester.

In 2000 Maxwell and his colleagues conducted a study that provided descriptive characteristics of the principal caregiver (i.e. age, education, work status) and of the household (socioeconomic factors and the availability of services) that may affect the caregivers' ability to provide good care for the growing child. According the findings, growing cities such as Accra are characterized by a deteriorating environment and physical infrastructure, a lack of basic services, an increased exposure to environmental contamination and rising poverty levels. Under such conditions, households can foster good health and

nutrition in young children only if they can maximize the efficacy of use of their scarce resources. It added that all but three of the caregivers who were not biological mothers were grandmothers. The majority of primary caregivers in the study had some basic education. About 12 percent had no education at all, and 25 percent had a high school education or higher. The majority of primary caregivers were working, either full time (55 percent) or part time (9 percent). Of those working, 49 percent were selling in the markets or on the streets, 34 percent were working from home (self-employed), and only 17 percent were either factory or office workers or shopkeepers.

2.1.2 Food Storage

The WHO Report in 2008 defined food security as physical and economic access to sufficient, safe and nutritious food that meet dietary needs. According to the report food contamination may occur during all stages of food production, including growing, harvesting, processing, transporting, retailing, distributing, preparing, storing and consumption. Because of insufficient food to meet demand on the African continent, the majority of people are only concerned with satisfying hunger and do not give due attention to the safety of food. Bacteria, parasites and viruses are the major causative agents of food-borne diseases in the African Region. Outbreaks of cholera, which occurs due to contaminated water, are common in the Region and available data show an upward trend. Food-borne zoonotic diseases and chemical contamination of food from pesticides and veterinary drug residues are also of concern. There are multiple sources of contamination from the environment, and contaminants could enter food during production, harvest, storage, retailing and preparation for consumption.

2.2 SOURCES AND STORAGE OF DRINKING WATER

2.2.1 Access to Drinking Water

A study in 2007 by Kauffmann mentioned that the limited access to water and sanitation in Africa is not mainly a resource issue. Though a third of countries experience some pressure on their internal water resources, they are overall considered abundant. The problem is one of poor management, pollution and wastage, as well as lack of storage facilities. In most African cities over 50 per cent of the water supply is wasted or unaccounted for. The report added that the population in developing countries has grown even faster with the result that the absolute number of un-served people that has increased by about 60 million. Consequently, the number of additional people obtaining access to drinking water annually would need to triple to reach the water MDG by 2015. The situation is even worse for sanitation, both in the low level of access and the limited progress made since 1990. For the region to reach the MDG, 35 million more people annually need access to improved sanitation.

2.2.2 Sources and Storage of Drinking Water

WHO Report in 2005 stated that Household Water Treatment and Safe Storage (HWTS) Network Bulletin released that more than 1 billion people are without access to safe drinking water, simple and cheap measures can make an immediate impact. Household water treatment and safe storage (HWTS) techniques have been shown to dramatically improve water quality and reduce the spread of deadly waterborne diseases. Contamination of water during collection, transport, and storage at home presents a serious risk to health for millions of households in developing countries. Several studies have shown an increased risk of diarrhoea because of inadequate water storage. Regardless of where or how the water is

collected, storage vessels with wide openings such as pots or buckets are easily contaminated with faeces, through the introduction of cups, dippers, or hands. Water might also be contaminated by flies, cockroaches, and rodents.

In another development, a study by Nanan et al (2003) showed that inadequate water and sanitation services adversely affect the health and socioeconomic development of communities. The Water and Sanitation Extension Programme (WASEP) project, undertaken in selected villages in northern Pakistan between 1997 and 2001, was designed to deliver an integrated package of activities to improve potable water supply at village and household levels, sanitation facilities and their use, and awareness and practices about hygiene behaviour. Children not living in WASEP villages had a 33% higher incidence of diarrhoea diseases than children living in WASEP villages. The findings in this study helped refine the approach to future water, sanitation, and hygiene initiatives in northern Pakistan.

Another study by Maxwell and his colleagues in 2000 looked at refuse disposal and sources of drinking water among respondents and revealed that 58% of the majority of respondents obtain water from wells. Only 38 percent of households had water in the compound of their homes, and just 7 percent had indoor piping. Waste disposal methods were mainly public dumping sites, dumping in gutters or empty lots, household's collection, and burying or burning on compounds of homes.

2.2.3 Storage of Food

Kimmons et al (1999) in their study stated that microbial contamination of complementary foods is a major cause of childhood diarrhoea. In a community-based study in Ghana, they evaluated whether fermentation of maize porridge or storage of porridge in vacuum flasks

reduces coliform contamination. The result indicated that contamination is reduced by fermentation, and further reduced by vacuum flask storage of fermented foods.

2.3 HYGIENE PRACTICES AMONG RESPONDENTS

2.3.1 Treatment of Water

In 2004, Wright and others conducted a study that showed that policies that aim to improve water quality through source improvements may be compromised by post-collection contamination. Safer household water storage and treatment is recommended to prevent this, together with point-of-use water quality monitoring.

2.3.2 Sanitation Facilities

Looking at the need to improve existing sanitation, Curtis et al in 2005 undertook a study that showed that improving domestic hygiene practices is potentially one of the most effective means of reducing the global burden of diarrhoeal diseases in children. If hygiene promotion is to succeed, it needs to identify and target only those few hygiene practices which are the major source of risk in any setting. It added that any behaviours which prevent stools from getting into the domestic arena, the child's main habitat, are likely to have a greater impact on health than those practices which prevent pathogens in the environment from being ingested. Hence safe stool disposal, a primary barrier to transmission, may be more important than hand-washing before eating.

Through a systematic review, Curtis et al (2005) also affirmed that washing hands with soap and water reduces the risk of diarrhoeal diseases by 47% and hand washing promotion could

save millions of lives. The review also called for better designated trials to further measure the impact of hand washing on diarrhoeal diseases in developing countries.

Strina in 2003 conducted a study in Salvador, Brazil, on domestic hygiene behaviour. Fieldworkers were trained to check a list of 23 forms of hygienic or unhygienic behaviour by the child or the child's caretaker, if any behaviour were seen during the visit. The study revealed that households with adequate excreta disposal were significantly more likely to be in the "mainly hygienic" group. The prevalence of diarrhoea among children for whose parents mainly practiced unhygienic behaviour recorded 2.2 times of diarrhoea as compared to those children belonging to the "mainly hygienic" group.

Evidence from research by Misra et al in 2001 evaluated storage of domestic water that published by University of Florida and revealed 3 vessel types for storage of water: (1) wide-mouthed, 20-L clay vessels; (2) narrow-mouthed, 20-L clay vessels with lids and spigots (modified clay vessel); and (3) narrow-mouthed, 20-L plastic jerry cans with lids. According the researchers treated water with 1% sodium hypochlorite, use of filtration technique and storing it in a narrow-mouthed clay vessel reduced *Escherichia coli* infections.

Maxwell et al in 2000 conducted a study in Accra and evidence showed factors affecting quality of care given by caregivers and their ability to maintain a hygienic environment—include the availability of water and sanitary facilities. The toilet facilities available to Accra's population are mainly public latrines (54 percent) and private improved pit latrines (20 percent). Only 10 percent of households had flush toilets at the time of the study, and 16 percent did not have or use any toilets at all (that is, they used empty lots and gutters).

Acra et al (1984) stated in their study that improvements in sanitation reduce the transmission of pathogens that cause diarrhoea by preventing human faecal matter from contaminating environments. Improving sanitation facilities has been associated with reduction in diarrhoea incidence of 36 per cent across reviewed studies.

2.3.3 Hand Washing Practices

In 2008 a World Bank Release on Hand Washing with Soap (HWWS) programme in Kenya was aimed to curb diseases like cholera and diarrhoea infections. Speaking in Kisumu during a workshop attended by public health officers from various districts in Nyanza province, the country hand washing coordinator, Mr. Rufus Eshuchi, said that most diseases like cholera and diarrhoea infections were at a high rate due to improper hand washing behaviour.

In a study concluded in Accra by Mensah et al (2002), their findings showed that street foods can be sources of enteropathogens. Vendors should therefore receive education in food hygiene. Special attention should be given to the causes of diarrhoea, the transmission of diarrhoeal pathogens, the handling of equipment and cooked food, hand-washing practices and environmental hygiene.

2.4 SOCIO-CULTURAL BARRIERS AGAINST ACCEPTANCE AND USE OF HEALTH INFORMATION

2.4.1 Socio-cultural Barriers against Acceptance and use of Health Information

Tully et al in 2006 over the last four decades examined the role of both public and private religious expression on health and longevity. The studies showed that the practice of religious activity improves health and increases longevity. The effect is seen even when other

social/psychological differences are taken into account. For example, one 16-year study examined mortality rates in 11 religious vs. 11 secular kibbutzim in Israel. Although both communities were demographically-matched and provided similar levels of social support, three times more people died in the secular kibbutzim compared to the religious Kibbutzim.

Ergenekon-Ozelci (2001) report in Turkish Demographic and Health Survey showed that understanding of culture and beliefs are important for health care providers who are challenged to provide culturally sensitive care to diverse populations. Different ethnic groups may have different beliefs, attitudes, and practices in terms of nutrition and breastfeeding even though they are living in the same region. However, there is insufficient information about differences in nutritional habits, particularly infant feeding patterns, in Turkey. According to the survey, 51.8% of infants were breastfed within 1 hour of delivery and solid foods were given to 49.3% of infants under 1 month. Despite high breastfeeding initiation rates and long total duration of breastfeeding, exclusive breastfeeding is a rare practice in developing countries.

In a related study, Ergenekon-Ozelci in 2001 explored in depth the traditional beliefs and practices of Kurdish women who were forced to migrate from their villages to the slums of Diyarbakir province. The study revealed that a greater number of the women had negative attitudes about giving colostrum to the newborn.

2.5 USE OF INFORMATION, EDUCATION AND COMMUNICATION (IEC)

2.5.1 Health Education

According to WHO/IOMEH Report (2003), information, education, and communication (IEC) is a package of planned interventions, which combine informational, educational and motivational processes achieving measurable behaviour change and changing societal norms. Such an intervention can bring about change and reinforce desired behaviours in social and community norms.

Jahan (2000) also studied in prevention of diarrhoea diseases in rural Bangladesh and revealed the relationship between health education and health literacy. According to him, achieving health literacy implies that health education does not only relay information, but also enhances a person's ability to think about healthy behaviours, seek and use information, and motivates people to take action to improve health. He emphasised that the dynamic process of communication, community needs and participation, identification of problems are related to socio-economic and environmental factors, and role of the field workers.

2.5.2 Information and Communication

Rao et al (2007) conducted a study in India. The study looked at the effect of person-to-person or direct communication on mothers' ability in management of diarrhoea diseases. According to them, a contributory cause of childhood dehydration and consequent death is the objection of the mother to providing fluids to the child suffering from diarrhoea. They recommended the need to design messages that will motivate them to respond timely response at the first sign of diarrhoea.

2.5.3 Hygiene Education

In 2005, Piwoz and colleagues assessed the impact of health education among selected women in Zimbabwe. About half of those who were exposed to an intervention were able to distinguish between HIV and AIDS, and could cite ways to reduce risks. Exposure to the intervention was significant determinant of acquiring knowledge.

Elfituri et al (1999) stated that the level of knowledge does not necessarily help to translate information into practical application. One possible explanation for this discrepancy is that knowledge can be held by an individual who does not know how best to express it in behavioural terms.

In another development, Hitchcock and Appelt (2007) in a study that looked Sustainable collaboration for community outreach: lessons from the Spanish Access to Literature/Usa Directo (SALUD) project, the team was curious about whether patient satisfaction improves when patients are provided with information in their preferred language and at an appropriate reading level. They recommended that in future research could systematically investigate what health education materials staff would use in a clinic and how many appropriate materials are available for those topics.

2:6 MANAGEMENT OF DIARRHOEA DISEASE OF CHILDREN

2.6.1 Management of Diarrhoea Disease

WHO/UNICEF Report (2008) elaborated on a new Oral Rehydration Solution (ORS) formula and the introduction of zinc supplementation offer much improved outcomes for the treatment of childhood diarrhoea. This programme looks to prevent deaths from diarrhoea

and decrease child susceptibility to diarrhoea after episodes by educating all health-care providers and mothers about zinc supplementation. Even though the accepted ORS formula was proven effective, researchers continued to work on developing an improved formula that would allow for more hydration while decreasing the amount of stool output. As a result, an ORS formula with lower glucose and sodium concentrations was developed, and it has proven to be more effective by decreasing the need for intravenous therapy, decreasing stool output, and decreasing the rate of vomiting.

WHO News Letter (2008) put emphasis on management of acute diarrhoea and respiratory infections. It mentioned that home management with high dose oral amoxicillin has been found to be just as effective as hospitalization for severe uncomplicated pneumonia. Using low-osmolality solutions of oral rehydration salts (ORS) and zinc in the case management of acute diarrhoea improves the outcome. Hand washing alone can reduce the incidence of ARIs and diarrhoeal diseases by 30 to 50%. Improving the quality of water especially at the point-of-use is effective in preventing diarrhoeas.

Rao et al (2007) reported that the Government of India has identified oral rehydration therapy (ORT) promotion as a priority child survival strategy. Since two-thirds of mothers in India are illiterate, radio and television have been important vehicles for educating mothers about the need to increase a child's fluid intake and continue feeding during episodes of diarrhoea, to use pre-packaged oral rehydration salts (ORS) or a recommended home-made solution (RHS), and to recognize symptoms that require treatment at a health facility. It was revealed that 43% of mothers were aware of ORS. Only 18% of infants received ORS and 19% were given RHS during the recent diarrhoea episode; 69% received neither ORS nor RHS.

Ellis et al in 2006 studied in Southern Mali and indicated that although all parents know Oral Rehydration Salt could replace lost fluids, its inability to stop diarrhoea that caused parents to seek antibiotics from local markets, traditional medicine or anti-malarial to cure the illness.

UNICEF (2004) Report on review of Accelerated Child Survival and Development (ACSD) programme in the Upper East Region of Ghana stated that diarrhoea is estimated to contribute about 18% of mortality in children under-five years. The proportion of children correctly managed with ORS or dehydration fluid in the region decreased from 62% in 1998 to 35% in 2002, then increased to 65% in 2003.

2.6.2 Feeding of Diarrhoea Patients

Rao et al (2007) study in India revealed that depending on their feeding status, children should receive breast-milk or diluted milk feeds; in cases of dehydration, these should be offered as soon as initial rehydration therapy has been completed. Appropriate locally available foods (cereals) should be offered as soon as the appetite returns. After the diarrhoea ceases, more than the usual amount of food should be given for a short period. The routine use of any special infant formula (lactose-free products) for diarrhoea cases should be strongly discouraged as they are only rarely necessary and are costly.

2.6.3 The use of Drugs in the Treatment of Diarrhoea

Rao and colleagues (2007) also mentioned in their study that selected antibiotics should be judiciously used for the treatment of severe dysentery and cholera; otherwise, there is no need for other pharmaceuticals in the routine treatment of acute diarrhoea.

2.6.4 Health Seeking Behaviours

Olagun et al in 2006 stated that there is a positive relationship between occupation and health seeking action of the mothers. It was also recognized in the literature that there is correlation between occupation and access to basic social services such as health, recreation and leisure activities For instance; they submitted that occupation plays a major role in shaping life styles.

KNUST



CHAPTER THREE: METHODOLOGY

3.0 METHODOLOGY

3:1 STUDY METHODS AND DESIGN

The study employed a descriptive cross-sectional survey with quantitative approach that classified variables and described relationships between study variables. A randomised survey method was used to collect data from 300 respondents on the effectiveness of the use of IEC in the prevention of diarrhoea diseases.

3:2 DATA COLLECTION TECHNIQUES AND TOOLS

3.2.1 Data Collection Technique

The study made use of primary and secondary sources of data. An interview guide was used to collect data. The study collected information on socio-demographic characteristics (age, sex, marital status, and level of education), the feeding practices and methods used by mothers, sources of water and the methods of storage of domestic (drinking), hygienic behaviours of the mothers/caregivers, IEC activities on prevention of diarrhoea diseases that are socio-culturally accepted, and knowledge about management diarrhoeal diseases in children.

Questions were designed in such a way to reflect the information and observation was used to study the attitude and skills of the Reproductive and Child Health staff as part of the source of primary data. Review of reporting statistics from 2005-2006 was used as a source of secondary data. Site visits were conducted in the various communities to assess

the factors that contribute to diarrhoea diseases among children under five years. To minimize non-response and ensure confidentiality of the information, respondents were assured that the information obtained would be confidential and used only for academic purposes.

Four (4) field assistants who were health workers were trained in data collection techniques or skills with emphasis on administration of questionnaires. The questionnaire was hand delivered and respondents were asked to answer the questions. The questionnaire was and translated to respondents.

3:3 STUDY POPULATION

The study population included mothers who attend CWC regularly with children below five years, that is, those who have visited the clinic more than three and has it recorded in the child health record card as such. Interviews with each mother visiting the centres were conducted separately so that answers were less likely to be affected by the presence of others. Each question was asked in simple language. A total number of 300 mothers were interviewed.

3:4 DISTRICT PROFILE

3.4.1 Location

The Ahafo Ano South District (AASD) is in the Ashanti Region of Ghana. It is among the districts that have recently seen a rise in diarrhoeal diseases including the more deadly cholera outbreak in 2005 and 2006. The AASD has a population of 163,318 people. People of the area are predominantly farmers (majority are peasant farmers) and about 65% are Akans.

3.4.2 Population in the District

The AASD has a population of 163,318 people. People of the area are predominantly farmers (majority are peasant farmers) and about 65% are Akans.

Table 3.1: Population Distribution of the AASD

| SUB-DISTRICT | TOTAL POPULATION 2005 | TARGET 4% (EXP. PREG./C HN. 0-11 MONS | TARGET 3.9% CHN. 12-23 MONS | TARGET 8.6% CHN. 24-59 MONS | TARGET 24% WIFA | TARGET 36.4% SCH. AGE POP. |
|--------------|-----------------------|---------------------------------------|-----------------------------|-----------------------------|-----------------|----------------------------|
| Mankranso | 33,317 | 1,332 | 1,299 | 2,865 | 7,996 | 12,127 |
| Pokukrom | 30,051 | 1,202 | 1,171 | 2,584 | 7,212 | 10,938 |
| Mpasaso | 29,397 | 1,176 | 1,146 | 2,528 | 7,055 | 10,701 |
| Wiaso | 28,091 | 1,123 | 1,095 | 2,415 | 6,741 | 10,225 |
| Sabronum | 23,680 | 948 | 923 | 2,036 | 5,683 | 8,619 |
| Biemso | 18,782 | 752 | 732 | 1,615 | 4,507 | 6,837 |
| TOTAL | 163,318 | 6,533 | 6,369 | 14,045 | 39,196 | 59,447 |

Source: National Population and Housing Census, GSS. (2000)

3.4.3 District Health Administration

The district is divided into six sub-districts; they are Mankranso, Mpasaaso, Sabronum, Pokukrom, Wioso, Wioso and Biemso. There is a district hospital at Mankranso, four (4) health centres at Mpasaso, Sabronum, Pokukrom, and Wioso.

Community-based Health Planning Services (CHPS) Zones at Anitemfi, Essiemkyem, and Dotiem. There are also two (2) Mission Hospitals at Domeabra and Adugyama with two (2) Maternity Homes at Adugyama and Asibey Nkwanta. Most of these health facilities offer clinical, preventive and health promotion services.

Table 3.2: Health staff strength in the AASD

| CATEGORY | NUMBER |
|--------------------------|--------|
| Medical Officer | 1 |
| Medical Assistants | 4 |
| P.N.O | 2 |
| P.M.S | 2 |
| N.O | 0 |
| Senior Executive Officer | 1 |
| Nurses | 15 |
| Orderlies | 23 |

Source: AASD Health Directorate 2006 Annual Report

3.4.4 Communication Network

The road network is fairly good with the only tarred road linking the District capital to Kumasi, the Regional Capital and Tepa, the district capital of Ahafo Ano North District. The rest of the communities are linked to each other by feeder roads and footpaths, majority of which are inaccessible in both raining and dry seasons.

3.4.5 The District Assembly

The AASD is headed by a District Chief Executive (DCE). The district has various units that include Environmental Health Office, Planning and Budget Office, Support and Preventive Service, Health Administration, NADMO Office, education office and National Youth Development Office.

3.4.6 Water Supply

There is a relatively regular water supply to the district. Most of the communities obtain water from bore-holes, stand pipes, hand dug wells and streams.

3.4.7 Sanitation in the District

Sanitary facilities such as waste disposal sites and public places of conveniences, even though are available but not sufficient. There are two big dumping sites that are burnt periodically. There are two public latrines at Mankranso, two at Kunso and one at Beposo.

3.4.8 Economic Activities in the District

The main economic activities of the people are farming and trading. Other people are also engaged in public and civil services in various institutions such as health, police, district assembly, forestry and schools.

3.4.9 Agricultural Activities

Farming is the major economic activities of the people and it is mainly on subsistence level. Some of the farm products include cocoyam, plantain, cassava, vegetables and the cash crops are cocoa, coffee, and oil palm. The inhabitants also engage in animal farming that includes piggery and poultry.

3.4.10 Educational Facilities

Table: 3.3 Educational institutions in the AASD

| PRE-SCHOOL | PRIMARY | JUNIOR HIGH | SENIOR HIGH |
|------------|---------|-------------|-------------|
| 101 | 105 | 53 | 1 |

Source: AASD Health Directorate 2006 Annual Report



Table 3.4: Top Ten causes of admission in Ashanti Region (2003-2005)

| No. | DISEASE | 2003 | 2004 | 2005 |
|-----|----------------------------|-------|-------|-------|
| 1 | Malaria | 19479 | 21394 | 25111 |
| 2 | Anaemia | 3900 | 4751 | 5391 |
| 3 | Hernia | 1710 | 2204 | 1824 |
| 4 | Diarrhoea | 3396 | 3132 | 2923 |
| 5 | Pregnancy related diseases | 3932 | 4929 | 5472 |
| 6 | Gynaecological disorders | 1745 | 2007 | 1776 |
| 7 | Road Traffic Accident | 914 | – | – |
| 8 | Typhoid | 2053 | 1970 | 1944 |
| 9 | Hypertension | 437 | 1817 | 1844 |
| 10 | Hepatitis | 437 | – | – |

Source: Ashanti Regional Health Directorate Annual Report-2005

Table 3.5: Diarrhoeal diseases among children under five years in AASD

| YEAR | OPD ATTENDANCE | | ADMISSION TO WARD | | | |
|------|----------------|--------|-------------------|------|--------|-------|
| | MALE | FEMALE | TOTAL | MALE | FEMALE | TOTAL |
| 2005 | 352 | 332 | 684 | 3 | 1 | 4 |
| 2006 | 400 | 290 | 690 | 15 | 5 | 20 |

Source: Mankranso District Hospital

Table 3.6: Report on Diarrhoea diseases among children under 5 years from other clinics in AASD

| YEAR | NUMBER OF CASES |
|-----------------|-----------------|
| 2005 | 175 |
| 2006 | 83 |
| 2007 (JAN-JULY) | 202 |

Source: Mankranso District Hospital

Table 3.7: Deaths from cholera and other Diarrhoea diseases (2005-2007)

| YEAR | DISEASES | TOTAL |
|------------|-----------|----------|
| 2005 | Diarrhoea | 1 |
| 2005 | Cholera | 1 |
| 2006 | Diarrhoea | 4 |
| 2006 | Cholera | 1 |
| 2007(July) | Diarrhoea | 1 |
| 2007 | Cholera | - |
| | | 8 |

Source: Mankranso District Hospital

Table 3.8 VARIABLES

| Dependent variables | Independent variables |
|---|---|
| Information, Education and Communication Strategies | Methods of feeding children Sources of water Storage of water Hygiene Practices Socio-cultural barriers Management of diarrhoea diseases |

3.5 PRE-TESTING

The research technique and tools were pre-tested in two communities in Atwima Nwabiagya district also in the Ashanti region which have the same or similar characteristics with AASD district. Ten (10) households were selected and interviewed for the purpose of proper arrangement of question, knowing how to ask questions to facilitate understanding and time taken to complete a questionnaire among other factors. All the research team members were involved at the pre-testing stage.

3:6 SAMPLING TECHNIQUES AND SAMPLE SIZE

3.6.1 Sampling Technique

A three-stage sampling strategy was used as follows:

Stage 1: selection of sub-districts

A simple random sampling was used to select the sub-districts for the study. The six sub-districts were coded and used as the sampling frame. The codes were written on pieces of papers and lottery method was used to select one sub-district which was Mankraso Sub-district.

Stage 2: selection of towns

All the towns in the Mankranso sub-districts were written on pieces of paper and assigned numbers from 1 to 9. A random picking was done and number 3 was selected. Therefore three towns were selected using simple random sampling to constitute the study areas.

Stage 3: Selection of Houses/ Study Participants

Systematic and simple random sampling strategy was used to select the houses from which participants were chosen. A lottery method was used to select the number 3 as the sampling

interval. At the centre of each town a bottle was spun and the direction of the neck of the bottle was followed. In that direction, each third house was chosen as a study unit. A total of 300 houses were used for the study. Purposive sampling was used to select respondents from each household.

3.6.2. Sample Size Determination

Epi info Version 6.00 (1999) was used to calculate the sample size. Using the national proportion of WIFA at 23.2% the target population was obtained by finding 23.2% of the total population of the district i.e. 163,318. This amounted to 37,890. At expected frequency 50% and worst accepted error of 45% at 90% confidence level, a sample size of 270 was obtained. However the figure was scaled up to 300 to compensated for errors during data collection

3.7 Data Handling

To ensure quality of data, self-administered questionnaire was used; written questions were crosschecked to make sure that all questions were answered properly and systematically. Responses were collated at the end of each day. The answered questionnaires were kept in files, placed in a suitcase and finally stored in a computer.

3.8 Data Analysis

The analysis of the data was done at the end of the data collection. On daily basis responses were collated. Epi Info version 6.00 (1999) was used for the analysis from which tables and graphs were made. This enhanced consistent computer data entry. The information eventually was summarized into tables, diagrams and graphs.

3:9 ETHICAL CONSIDERATIONS

The objective of the study was succinctly explained to respondents after a consent was obtained from the School of Health Sciences, Department of Community Health all of KNUST and from all relevant authorities. These included the district director of health services, the medical superintendent of Mankranso Government Hospital, the chief and elders, Assemblymen, opinion leaders and individual respondents from the three towns where the study was conducted.

3:10 LIMITATION OF THE STUDY

The first limitation of the study was the sample size and the restriction of the data to mothers who attend CWC. This was as a result of the time earmarked for such an extensive study. The time allocated was too short considering the geographical area of the district. This in fact limits the generalizability of results. Secondly, responses obtained from respondents are subjected to reporting errors and biases. Finally, for want of time the study was narrowed to mothers/caregivers of children and this limits the extent of issues addressed on prevention of diarrhoea diseases.

3:11 ASSUMPTIONS

The communities within Ahafo Ano South district have common characteristics. All responses and information provided by the respondents are assumed to be accurate and a true characteristic and reflection of the study area.

CHAPTER FOUR - RESULTS

4.0 INTRODUCTION

This chapter brings to fore a detailed presentation of the findings from the 300 mothers/caregivers interviewed. The presentations are made in the form of tables, graphs and charts for easy comprehension.

4.1 SOCIO-DEMOGRAPHIC DATA

Table 4.1: Socio- demographic data

| Variable | Frequency (N=300) | Percentage (%) |
|-----------------------------|-------------------|----------------|
| A. Educational Level | | |
| No formal Education | 134 | 44.7 |
| Formal Education | 165 | 55.0 |
| No response | 1 | 0.3 |
| B. Occupation | | |
| Self Employed | 239 | 79.7 |
| Public Service Employee | 59 | 19.7 |
| No response | 2 | 0.7 |
| C. Age | | |
| Adolescents | 78 | 26.0 |
| Early Adults | 177 | 59.0 |
| Middle Adults | 35 | 11.7 |
| No response | 10 | 3.3 |
| D. Tribe | | |
| Hausa | 35 | 11.7 |
| Akan | 168 | 56.0 |
| Dagbani | 7 | 2.3 |
| Ewe | 23 | 7.7 |
| Ga | 16 | 5.3 |
| Others | 46 | 15.3 |
| No response | 5 | 1.7 |

Source: Field Survey, 2007

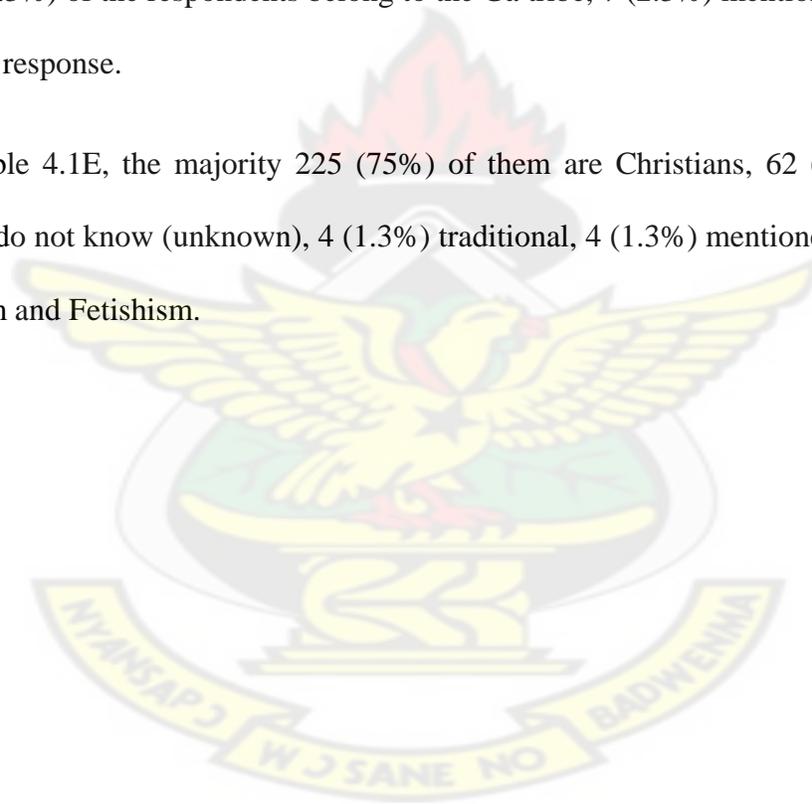
From Table 4.1A, with the standard deviation of 6.3, majority 165 (55.0%) of the respondents had obtained formal education, 134 (44.7%) also had no formal education and 1 (0.3%) of the respondents gave no response.

Again, with a standard deviation of 6.3, Table 4.1B depicts that 239 (79.7%) were self-employed, 59 (19.7%) public service employees and 2 (0.7%) did not respond.

Similarly, the average age of the respondent was 28.2 years with a standard deviation (SD) of 6.3. The majority 177(59.0%) were early adults, 78 (26.0%), 35 (11.7%) were middle adults and 10 (3.3%) indicated no response. This is shown in Table 4.1C.

Table 4.1D shows that the majority 168 (55.3%) of the respondents were Akans, 46 (15.3%) belong to other tribes such as Baasare, Aowin, Dogoseh and Builsa. 35 (11.7%) indicated that they are Hausas, 16 (5.3%) of the respondents belong to the Ga tribe, 7 (2.3%) mentioned Dagbani, and 5 (1.7%) gave no response.

As shown in Table 4.1E, the majority 225 (75%) of them are Christians, 62 (20.7%) Islam, 5 (1.6%) said they do not know (unknown), 4 (1.3%) traditional, 4 (1.3%) mentioned other religions such as Buddhism and Fetishism.



4.2 FEEDING PRACTICES

4.2.1 Feeding of Children

Table 4.2: Feeding practices by respondents

| Variable | Frequency=300 | Percentage |
|---------------------------------------|---------------|------------|
| A. Introduction of breast milk | | |
| Within 24 hours | 271 | 90.3 |
| After 24 hours | 27 | 9.0 |
| No response | 2 | 0.7 |
| B. Introduction of Water | | |
| Before 6 months | 121 | 40.3 |
| After 6 months | 175 | 58.3 |
| No response | 4 | 1.3 |
| C. Feeding with colostrums | | |
| Yes | 275 | 91.7 |
| No | 25 | 8.3 |

Source: Field Survey, 2007

Table 4.2A illustrates the time respondents initiated breastfeeding. Out of the 300 respondents, majority 271 (90.3%) started breastfeeding within 24 hours, 27 (9.0%) did so after 24 hours and 2 (0.7%) indicated no response.

In Table 4.2B, mothers mentioned the time they introduced water first to their children. Majority, 175 (58.3%) of the mothers gave water after 6 months, 121 (40.3%) of the mothers gave water before 6 months, and 4 (1.3%) did not respond.

In Table 4.2C, respondents answered to whether they gave colostrum to their children or not. The majority, 275 (91.7%) said yes while 25 (8.3%) mentioned no.

Table 4.3: The relationship between respondents' level of education on initiation of breastfeeding water

| A. Introduction of Breastfeeding | | | |
|---|---------------------|--------------------|-------------------|
| | Within 24 hours (%) | After 24 hours (%) | Total (%) |
| No formal education | 119 (43.9) | 14(51.8) | 133(44.6) |
| Formal Education | 152(56.1) | 13(48.1) | 165(55.4) |
| Total | 271(100) | 27(100) | 298(100) |
| Odds Ratio: 0.7270 Relative Risk: 0.7484 | | | χ^2 : 0.6265 |
| B. Introduction of Water | | | |
| | Before 6 months (%) | After 6 months (%) | Total (%) |
| No formal education | 64 (52.8) | 68(38.8) | 132(44.6) |
| Formal Education | 57(47.1) | 107(61.1) | 164(55.4) |
| Total | 121(100) | 175(100) | 296(100) |
| Odds Ratio: 1.7668 Relative Risk: 1.2665 | | | χ^2 : 5.1497 |

Source: Field Survey, 2007

Table 4.3A illustrates how mothers' level of education is related to initiation of breastfeeding. For a total of 271 respondents who started breastfeeding within 24 hours, 152 (56.1%) had obtained formal education and 119 (43.9%) had no formal education. Similarly, for those who started after

24 hours, out of 27 respondents 13 (48.1%) had obtained formal education and 14 (51.8%) had no formal education

Table 4.3B is showing how level of education is related to early introduction of water to babies. Out of a total of 121 who served water before 6 months 64 (52.8%) had no formal education and 57 (47.1%) had obtained formal education. With a total of 175 respondents who started giving water to their babies after 6 months 107 (61.1%) had obtained formal education and 68 (38.8%) had no formal education.

Table 4.4: The relationship between respondents' occupation and initiation of breastfeeding and water

| A. Introduction of Breastfeeding | | | |
|---|----------------------------|----------------------------|------------------|
| Occupation | Within 24 hours (%) | After 24 hours (%) | Total (%) |
| Self Employed | 219(81.1) | 19(70.3) | 238(80.1) |
| Public Service Employee | 51(18.9) | 8(29.6) | 59(19.9) |
| Total | 270(100) | 27(100) | 297(100) |
| | Odds Ratio: 0.5531 | Relative Risk: 0.5881 | χ^2 :1.1681 |
| B. Introduction of Water | | | |
| Occupation | After 6 months (%) | Before 6 months (%) | Total (%) |
| Self Employed | 133 (76.4) | 103(85.1) | 236(80.0) |
| Public Service Employee | 41(23.6) | 18(14.9) | 59(20.0) |
| Total | 174(100) | 121(100) | 295(100) |
| | Odds Ratio: 0.5669 | Relative Risk: 0.8110 | χ^2 :2.8452 |

Source: Field Survey, 2007

Table 4.4A shows how occupation of respondents is related to the initiation of breastfeeding. With a total of 270 respondents who started breastfeeding within 24 hours after delivery 219(81.1%) were self-employed and 51 (18.9%) were public service employees. On the other hand, out of a total of 27 who started breastfeeding 24 hours after delivery 19 (70.9%) were self-employed and 8 (29.6%) were public service employees.

Table 4.4B is showing how respondents' occupation is related to introduction of first water to their babies. Out of a total of 174 respondents who gave first water to their babies after 6 months 133 (76.4%) were self-employed and 41 (23.6%) were public service employees. With regard to a total of 121 who gave first water to their babies before 6 months 103 (85.1%) were self-employed and 18 (14.9%) were public service employees.

Table 4.5: The relationship between respondents' age and initiation of breastfeeding and water

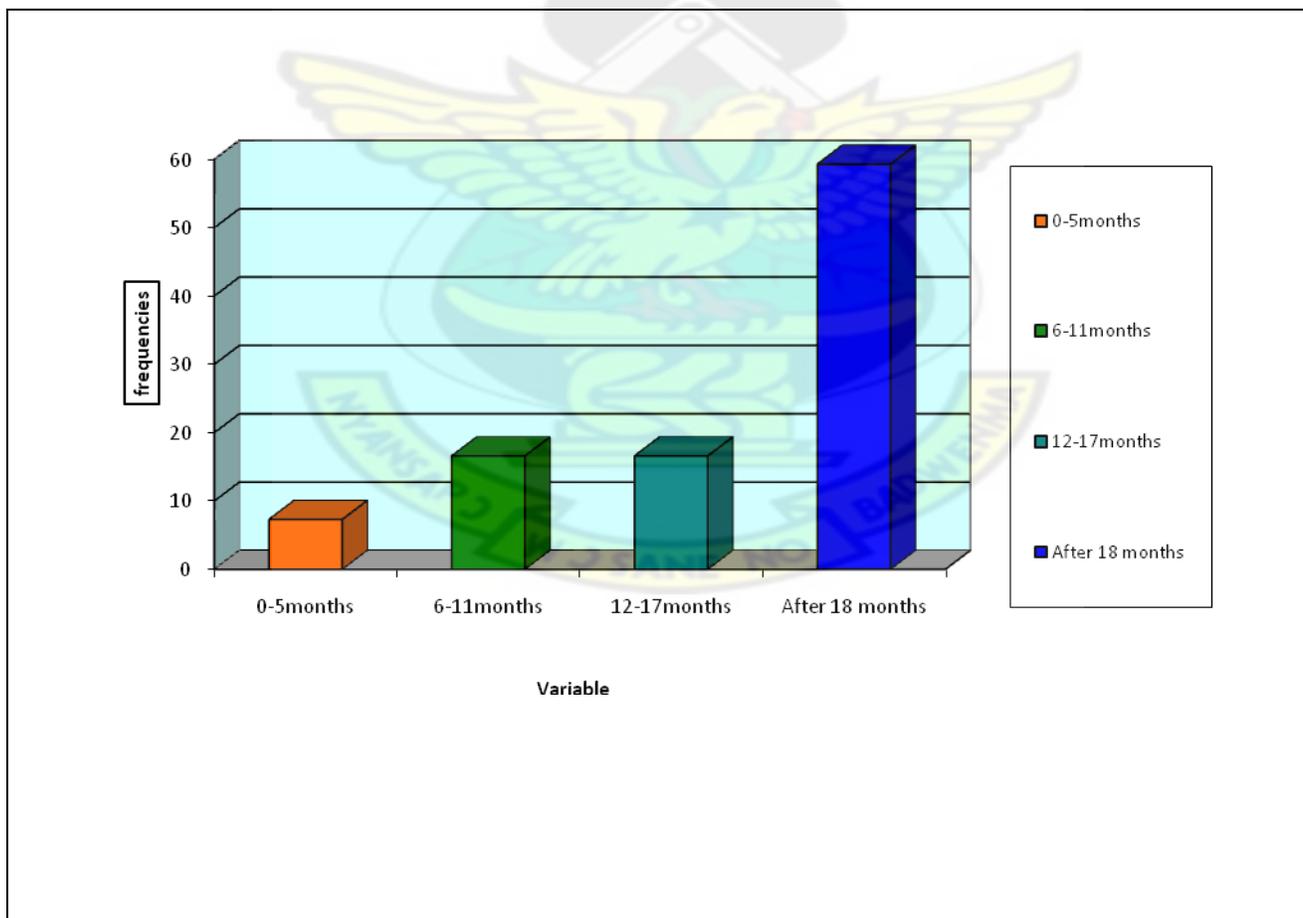
| A. Respondents' age and initiation breastfeeding | | | |
|---|----------------------------|---------------------------|------------------|
| Age | Within 24 hours (%) | After 24 hours (%) | Total (%) |
| Adolescents | 72 (27.2) | 6(24.0) | 78(26.9) |
| Early Adults | 160(60.4) | 17(68.0) | 177(61.0) |
| Middle Adults | 33(12.4) | 2(8.0) | 35(12.1) |
| Total | 265(100) | 25(100) | 290(100) |
| X ² = 0.68, df=2, P=0.71 | | | |
| B. Respondents' age and initiation of water | | | |
| Age | After 6 months (%) | Before 6 months(%) | Total (%) |
| Adolescents | 24 (20.5) | 54(31.6) | 78(27.1) |
| Early Adults | 73(62.4) | 103(60.2) | 176(61.1) |
| Middle Adults | 20(17.1) | 14(8.2) | 34(11.8) |
| Total | 117(100) | 171(100) | 288(100) |
| X ² = 7.9, df=2, P=0.02 | | | |

Source: Field Survey, 2007

Table 4.5A shows that out of 265 respondents who started breastfeeding within 24 hours, 160 (60.4%) were early adults, 72 (27.2%) were adolescents and 33 (12.4%) were middle adults. With regard to the 25 respondents who started breastfeeding after 24 hours 17 (68.0%) were early adults, 6 (24.0%) were adolescents and 2 (8.0%) were middle adults.

In Table 4.5B a total of 171 respondents introduced water to their babies before 6 months. Out of this, 103 (60.2%) were early adults, 54 (31.6%) were adolescents and 14 (8.2%) were middle adults. Similarly, the table shows that with a total of 117 respondents who gave first water to their babies after 6 months 73 (62.4%) were early adults, 24 (20.5%) were adolescents and 20 (17.1%) were middle adults.

Figure 4.1: Duration of breastfeeding of children of respondents

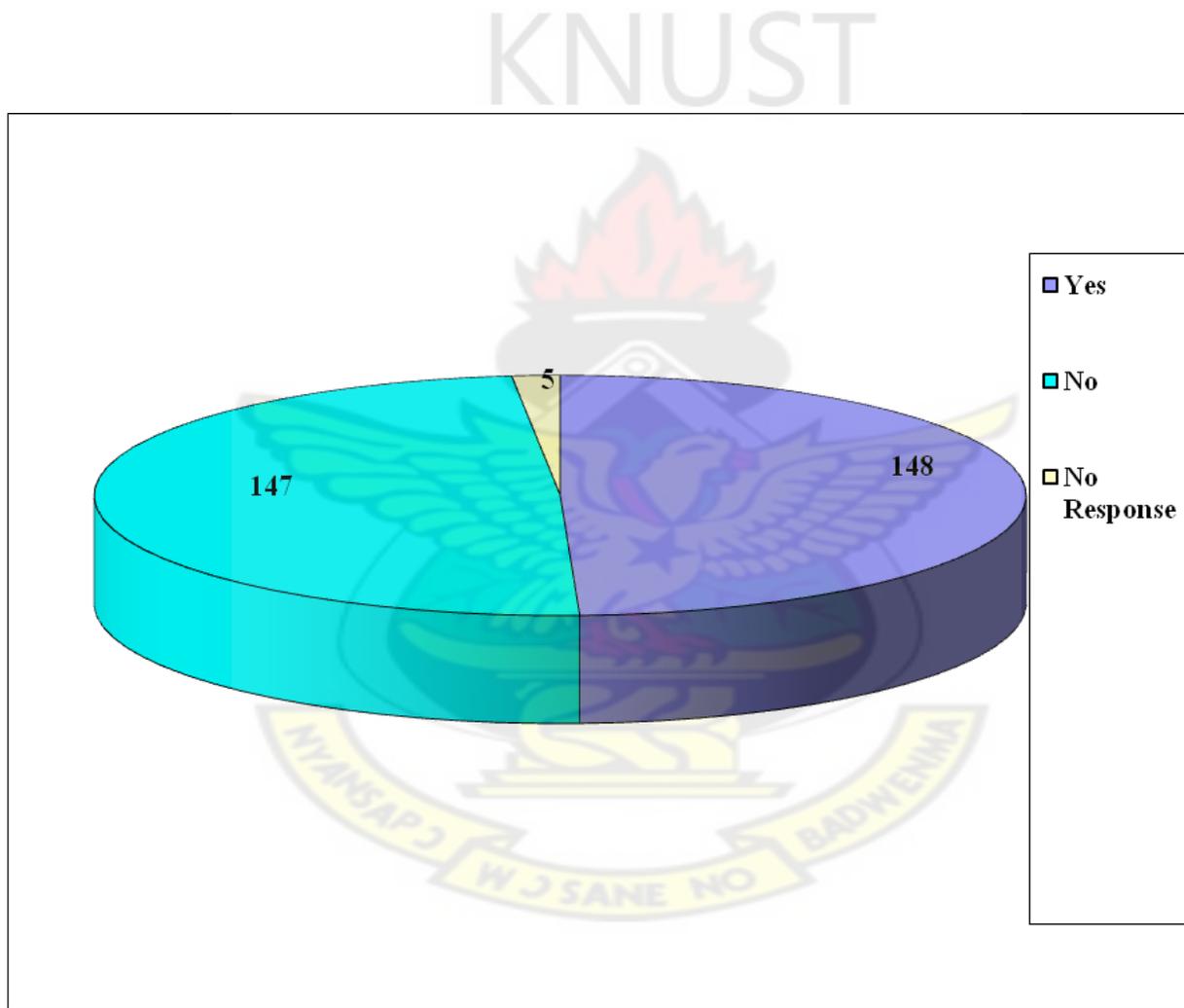


Source: Field Survey, 2007

Figure 4.1 shows the duration nursing mothers breast fed their babies. Majority 178 (59.3%) of the respondents gave varied responses ranging from 19 months to 24 months, 50 (16.6%) breastfed for between 7 and 12 months, another 50 (16.6%) of them breastfed for between 13 and 18 months and 22 (7.3%) mentioned that they breast fed their babies for less than 6 months.

4.2.2 Giving of Artificial Foods to Children

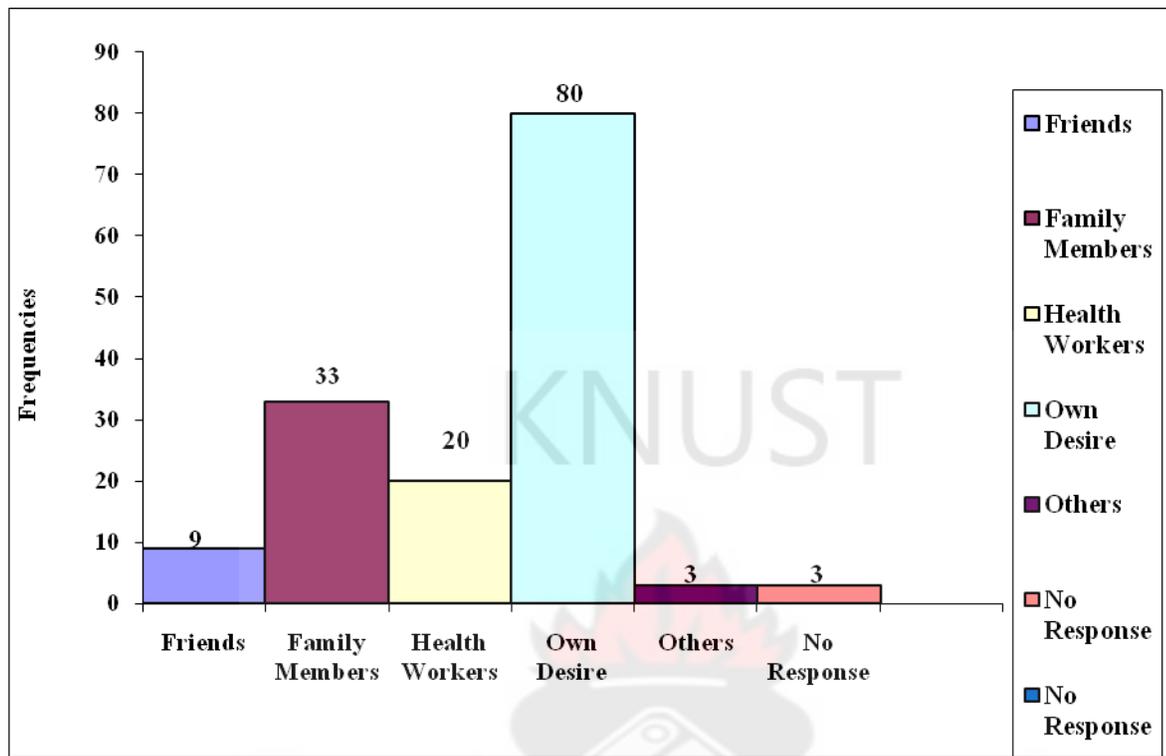
Figure 4.2: Artificial feeding of children under five years



Source: Field Survey, 2007

Figure 4.2 revealed that 148 (49.3%) had given artificial feed and 147 (49.0%) never gave artificial feed and 5 (1.7%) gave no response.

Figure 4.3: Persons who influence respondents to use artificial foods



Source: Field Survey, 2007

The Figure 4.3 is showing persons who encouraged the respondents to give artificial foods to their children. 80 (54.1%) of the respondents said it was their own desire, 33 (22.3%) were encouraged by family members, 20 (13.5%) mentioned health workers, 9 (6.1%) mentioned friends, 3 (2.0%) mentioned others such as TBA's and another 3 (2.0%) gave no response.

Table 4.6: Respondents' reason for giving artificial foods

| Reason | Frequency | Percentage |
|-----------------------------|------------------|-------------------|
| As supplementary food | 114 | 38.0 |
| Insufficient breast milk | 45 | 15.0 |
| Advice from friends | 45 | 15.0 |
| Own desire | 28 | 9.3 |
| Career profession | 12 | 4.0 |
| Advice from health workers | 12 | 4.0 |
| Child refuse to suck | 11 | 3.6 |
| Disease of the breast | 10 | 3.3 |
| No reason | 10 | 3.3 |
| Mothers' trading activities | 8 | 2.6 |
| Difficulty in sucking | 5 | 1.6 |
| Total | N=300 | 99.7 |

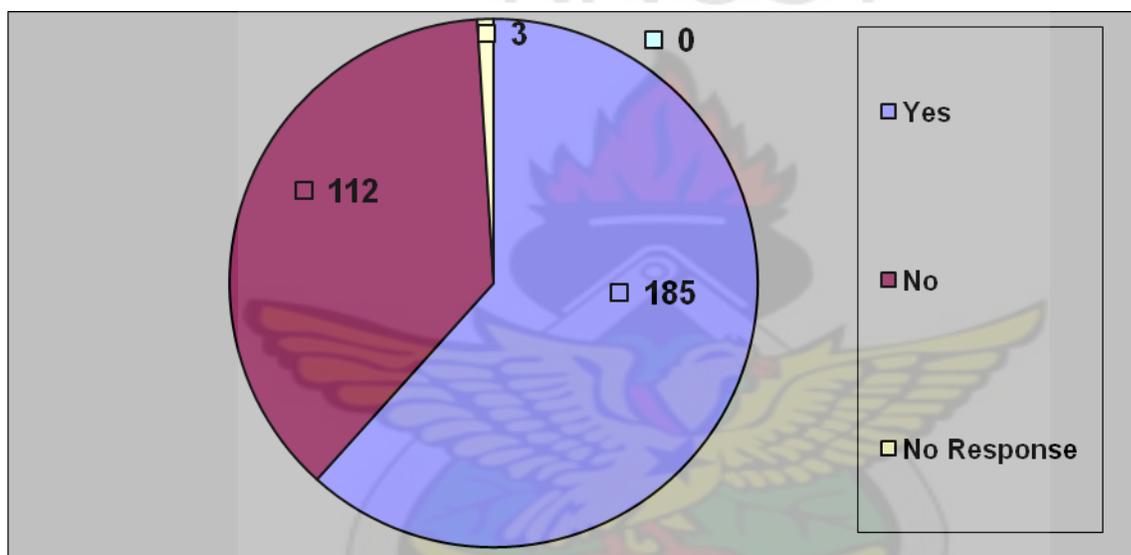
Source: Field Survey, 2007

Table 4.7 shows the reason the respondents gave regarding the use of artificial foods to feed their children. From the report, 25 (16.9%) of the respondents said they gave the artificial feed as supplementary food, 22 (14.9%) said their breast milk was not sufficient for their children, 18 (12.2%) received advise from their neighbours, 15 (10.1%) indicated that it was their own desire, 12 (8.1%) assigned the reason to their career profession, another 12 (8.1%)

said they were advised to give artificial feed by health workers, 11 (7.4%) said their children refused breast milk, 10 (6.7%) mentioned disease of the breast as the reason, another 10 (6.7%) did not give any response, 8 (5.4%) indicated that it was due to their trading activities, and 5 (3.4%) said their children could not suck the breast and were finding it difficult to express it.

4.2.3 Weaning of Children

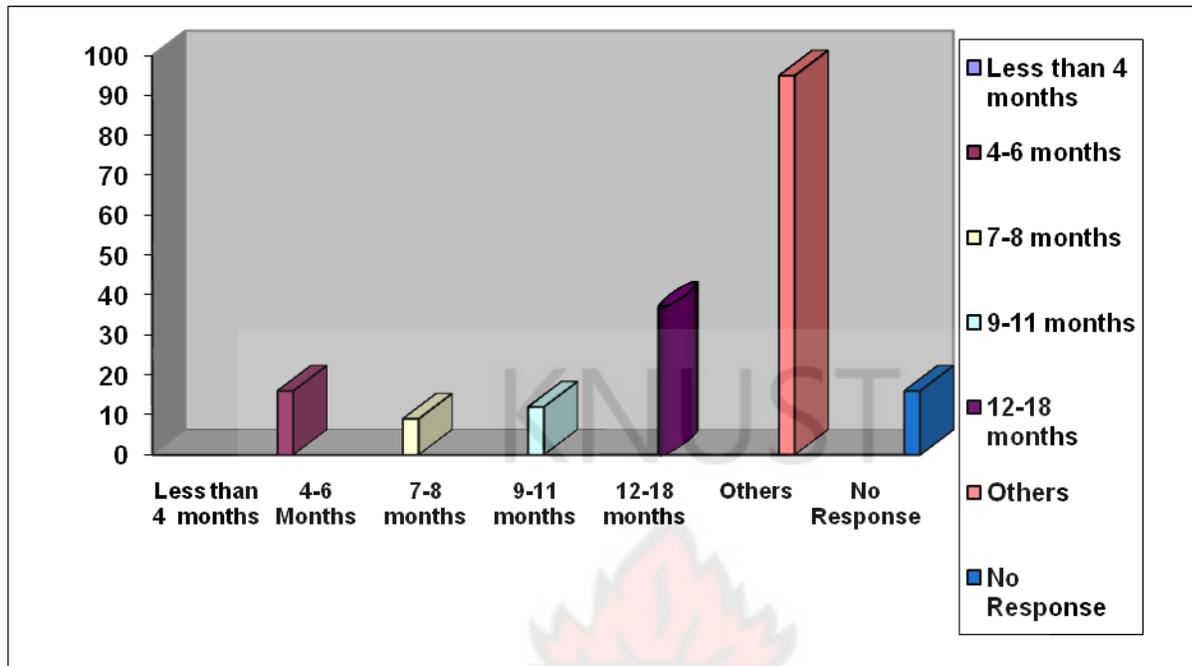
Figure 4.4: Weaning of respondents children



Source: Field Survey, 2007

Figure 4.4 above illustrates whether respondents have weaned their children, 185 (61.7%) said yes, and 112 (37.3%) indicated no.

Figure 4.5: Period weaning started



Source: Field Survey, 2007

Figure 4.5 shows the time the respondents started weaning their children. The majority 95 (51.3%) indicated other periods that included 24 months and 30 months, 37 (20.0%) mentioned 12 to 18 months, 16 (8.6%) indicated between 4 and 6 months, another 16 (8.6%) did not give any response, 12 (6.5%) weaned their children between 9 and 11 months and, 9 (4.9%) indicated between 7 and 8 months. None of the respondents weaned her child under 4 months old.

Table 4.7: Common local foods mothers give to children during weaning

| Variable | Frequency | Percentages |
|------------------|------------------|--------------------|
| Akpele and soup | 21 | 7.0 |
| Rice and soup | 92 | 30.7 |
| Fufu and soup | 41 | 13.7 |
| Artificial feed | 11 | 3.7 |
| Others (specify) | 75 | 25.0 |
| No response | 27 | 9.0 |
| | 33 | 20.0 |

Source: Field Survey, 2007

Table 4.6 shows the answer the respondents gave with regard to the type of local foods they used to wean their children. 92 (30.7%) gave rice and soup, 75 (25.0%) mentioned other foods such as mashed yam and stew, rice and stew, yam or cocoyam porridge, coconut water, cooked yam with stew and *tuo zaafi* okro soup, 41 (13.7%) used *fufu* and soup, 21 (7.0%) gave *akpele* and soup, 11 gave artificial foods and 27 (9.0%) did not give any response.

4.3 HYGIENE PRACTICES

4.3.1 Hand Washing Practices and Storage of Food

Table 4.8: Hygiene practices by respondents

| Variable | Frequency | Percentage |
|--|------------|------------|
| A. Hand washing by mothers before breastfeeding | | |
| Always | 152 | 50.7 |
| Sometimes | 143 | 47.7 |
| No response | 5 | 1.7 |
| Storage of Child's Food | | |
| B. Do you store child's left- over food | | |
| Yes | 154 | 51.3 |
| No | 131 | 43.7 |
| No response | 15 | 5.0 |
| Total | 300 | 100 |
| C. If yes where do you keep it | | |
| Refrigerator | 20 | 13.0 |
| Bowl with cover | 61 | 39.6 |
| Cooking pot | 29 | 18.8 |
| Food flask | 42 | 27.3 |
| Uncovered utensils | 1 | 0.6 |
| Others | 1 | 0.6 |
| Total | 154 | 100 |

Source: Field Survey, 2007

Table 4.8A shows that 152 (50.7%) of the respondents wash their hands always before they breastfeed their babies, 143 (47.7%) wash their hands sometimes and 5 (1.7%) gave no response.

The Table 4.8B illustrates whether respondents store the left over foods for their children in the house. Majority 154 (51.3%) of the respondents said yes, 131 (43.7%) indicated no and 15 (5.0%) did not respond to the question.

Table 4.8C also illustrates how mothers keep their children's left-over food. 61 (39.6%) keep the left-over food in bowls with covers, 42 (27.3%) keep it in food flask, 29 (18.6%) keep it in cooking pots, 20 (13.0%) keep it in refrigerators, 1 (0.6%) of the mothers keeps it in uncovered utensil and another 1 (0.6%) indicated others but could not describe it.



Table 4.9: The relationship between respondents' level of education, occupation and age on hand washing before breastfeeding

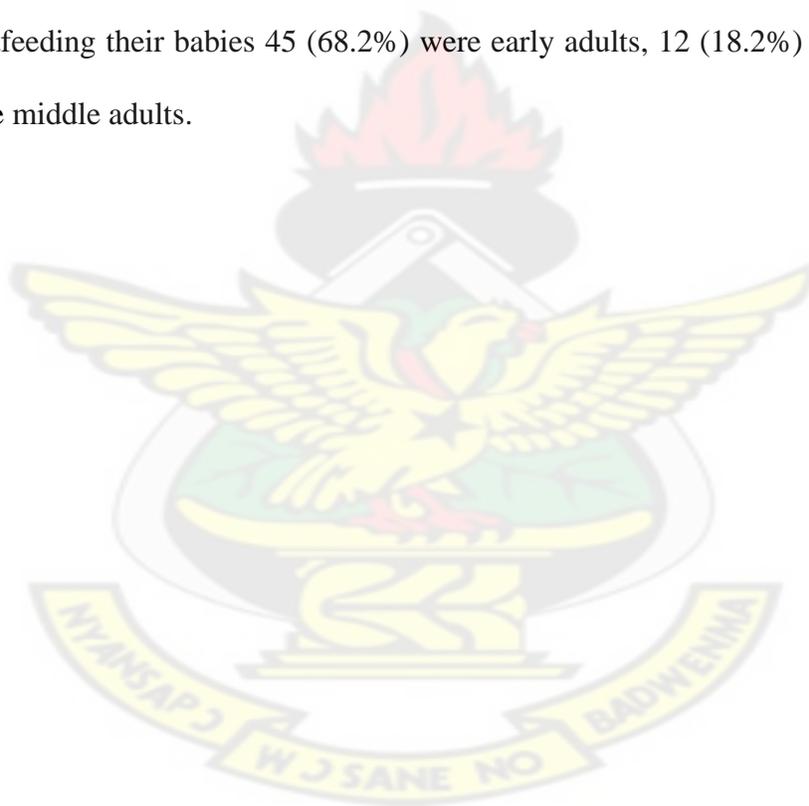
| A. Level of education | | | |
|--|--|---|------------------|
| Education | Do not wash hands With soap and water (%) | Wash hands with soap and water | Total (%) |
| No formal education | 31(45.6) | 117(66.8) | 148(56.3) |
| Formal education | 37(54.4) | 78(44.5) | 115(43.7) |
| Total | 68(100) | 175(100) | 263(100) |
| Odds Ratio: 0.5586 Relative Risk: 0.6510 χ^2 :3.6902 | | | |
| B. Respondents occupation | | | |
| Occupation | Do not wash hands (%) | Wash hands with soap and water (%) | Total (%) |
| Self Employed | 155(79.9) | 58(85.3) | 213(81.3) |
| Public Service Employee | 39(20.1) | 10(14.7) | 49(18.7) |
| Total | 194(100) | 68(100) | 262(100) |
| X ² = 4.4, df=2, P=0.11 Odds Ratio: 1.4594 Relative Risk: 1.3343 χ^2 :0.6423 | | | |
| C. Respondents' age | | | |
| Age | Do not wash hands (%) | Wash hands with soap and water (%) | Total (%) |
| Adolescents | 60 (31.7) | 12(18.2) | 72(28.2) |
| Early Adults | 108(57.1) | 45(68.2) | 153(60.0) |
| Middle Adults | 21(11.1) | 9(13.6) | 30(11.8) |
| Total | 189(100) | 66(100) | 255(100) |

Source: Field Survey, 2007

Table 4.9A is showing how education had influenced the practice of hand washing before breastfeeding. Out of 68 respondents who said they do not wash their hands before they breastfeed their babies 37 (54.4%) had obtained formal education and 31 (45.6%) had no formal education. On the other hand, out of 175 respondents who wash their hands before breastfeeding their babies, 78 (44.6%) had obtained formal education 117 (66.8%) of them had no formal education.

Table 4.9B also illustrates that with a total of 194 respondents who do not wash their hands before breastfeeding of babies 155 (79.9%) were self-employed and 39 (20.1%) were public service employees. From the same table a total of 68 respondents said they wash their hands before they breastfeed their babies. Out of this 58 (85.3%) were self-employed and 10 (14.7%) were public service employees.

Table 4.9C is showing that a total of 189 respondents do not wash their hands before feeding their babies. Out of this 108 (57.1%) were early adults, 60 (31.7%) were adolescents and 21 (11.1%) were middle adults. On the other hand, out of the 66 (68.2%) who wash their hands with soap and water before breastfeeding their babies 45 (68.2%) were early adults, 12 (18.2%) were adolescents and 9 (13.6%) were middle adults.



4.3.2 Sources and Storage of Drinking Water

Table 4.10: Sources and storage of drinking water

| Variable | Frequency=300 | Percentage |
|--|---------------|------------|
| A. Source of domestic water | | |
| Hand dug well | 134 | 44.7 |
| Harvested rain water | 7 | 2.3 |
| River or stream | 3 | 1.0 |
| Treated piped water | 144 | 48.0 |
| Others | 4 | 1.3 |
| No response | 8 | 2.6 |
| B. Storage of drinking water in the house | | |
| Pot with cover | 118 | 39.3 |
| Bucket with cover | 88 | 29.3 |
| Bottles and put them in refrigerator | 61 | 20.3 |
| Bottles with covers | 15 | 5.0 |
| Others | 12 | 4.0 |
| No response | 6 | 2.0 |
| C. Storage of water for other domestic purposes | | |
| In buckets/containers without covers | 46 | 15.3 |
| In barrel with a cover | 190 | 63.3 |
| In barrel /containers without covers | 44 | 14.7 |
| In washing basins | 9 | 3.0 |
| Others | 7 | 2.3 |
| No response | 4 | 1.3 |
| D. Source of water obtained during shortages | | |
| Borehole | 97 | 32.3 |
| Hand Dug well | 103 | 34.3 |
| Stream/River | 43 | 14.3 |
| Poly-tank | 20 | 6.6 |
| Others | 2 | 0.6 |
| No response | 35 | 11.8 |

Source: Field Survey, 2007

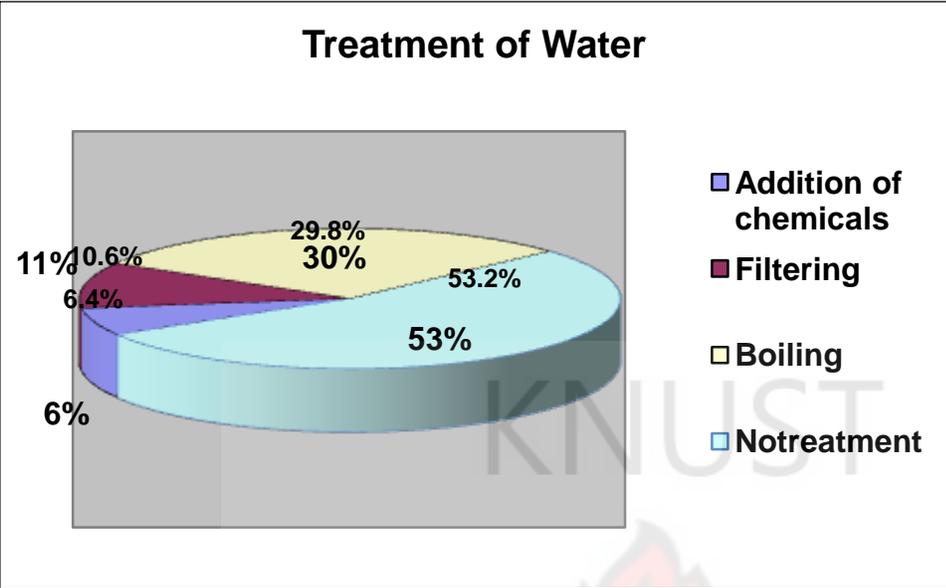
Table 4.10A is showing respondents sources of domestic water. Out of the 300 respondents 144 (48.0%) obtain domestic water from treated piped water, 134 (44.7%) from hand dug well, 8 (2.6%) gave no response, 7 (2.3%) from harvested rain water, 4 (1.3%) from others such as buying from commercial water tanker, and 3 (1.0%) from rivers or streams.

Table 4.10B is also showing how respondents store drinking water in the house. From the study, 118 (39.3%) mentioned pot with cover, 88 (29.3%) indicated bucket with cover, 61 (20.3%) store water in bottles and put them in a refrigerator, 15 (5.0%) store it in bottles with covers alone, 12 (5.0%) mentioned other that included plastic cans and 6 (2.0%) gave no response.

From Table 4.10C, respondents indicated where they store water for domestic purposes. Out of the 300 respondents, 190 (63.3%) mentioned barrel with cover, 46 (15.3%) store it in buckets or containers without covers, 44 (14.7%) store it in barrel or containers without covers, 9 (3.0%) store it in washing basins, 7 (2.3%) mentioned others such as cooking utensils and 4 (1.3%) gave no response.

In Table 4.10D, respondents indicated other sources they obtain water during water shortages. With this, 103 (34.3%) mentioned hand dug wells, 97 (32.3%) mentioned boreholes, 43 (14.3%) indicated streams, 20 (6.6%) mentioned poly-tanks, 2 (0.6%) mentioned others such as buying sachet or bottle water and 35 (11.8%) gave no response.

Figure 4.6: Treatment of water

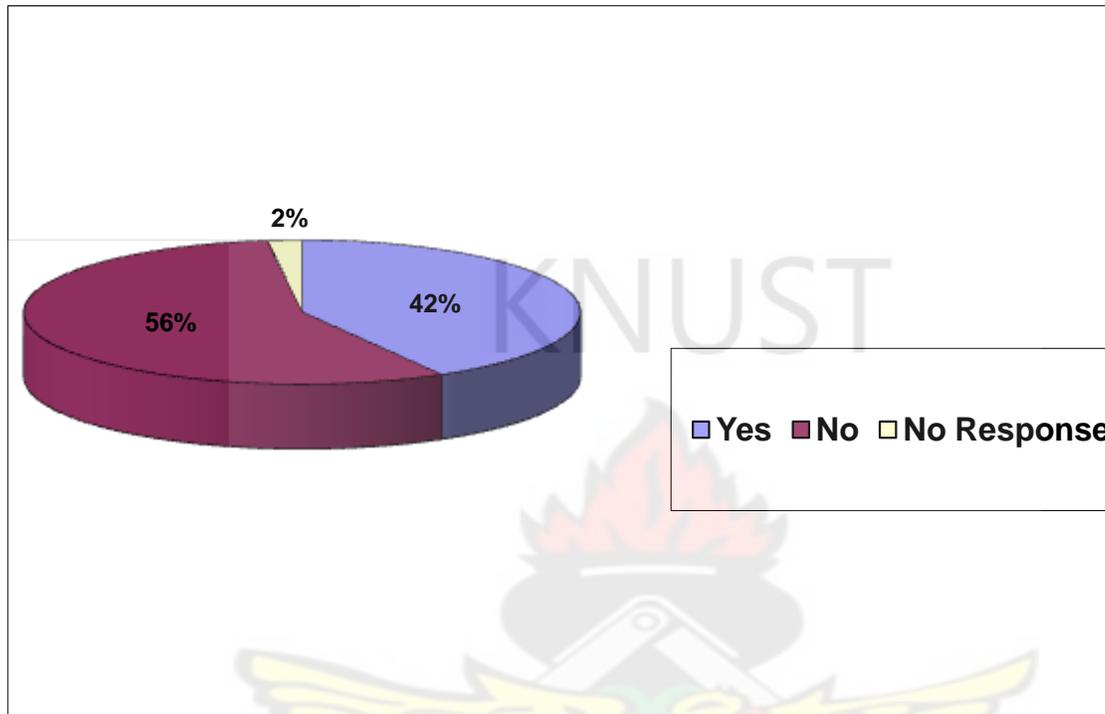


Source: Field Survey, 2007

The above pie chart in Figure 4.6 shows how respondents treat water in the house. Majority 50 (53.2%) of the respondents do not treat their water, 28 (29.8%) boil their water, 10 (10.6%) use filters, and 6 (6.4%) add chemicals

4.3.4 Toilet facilities and how they are kept clean

Figure 4.7: Availability of toilet (latrine) in respondents' homes



Source: Field Survey, 2007

Figure 4.7 illustrates the number of respondents who have or do not have a toilet in their house. The majority of the respondents 169 (56.3%) have no toilet in their house, and 125 (41.7%) of them have toilets in their house.

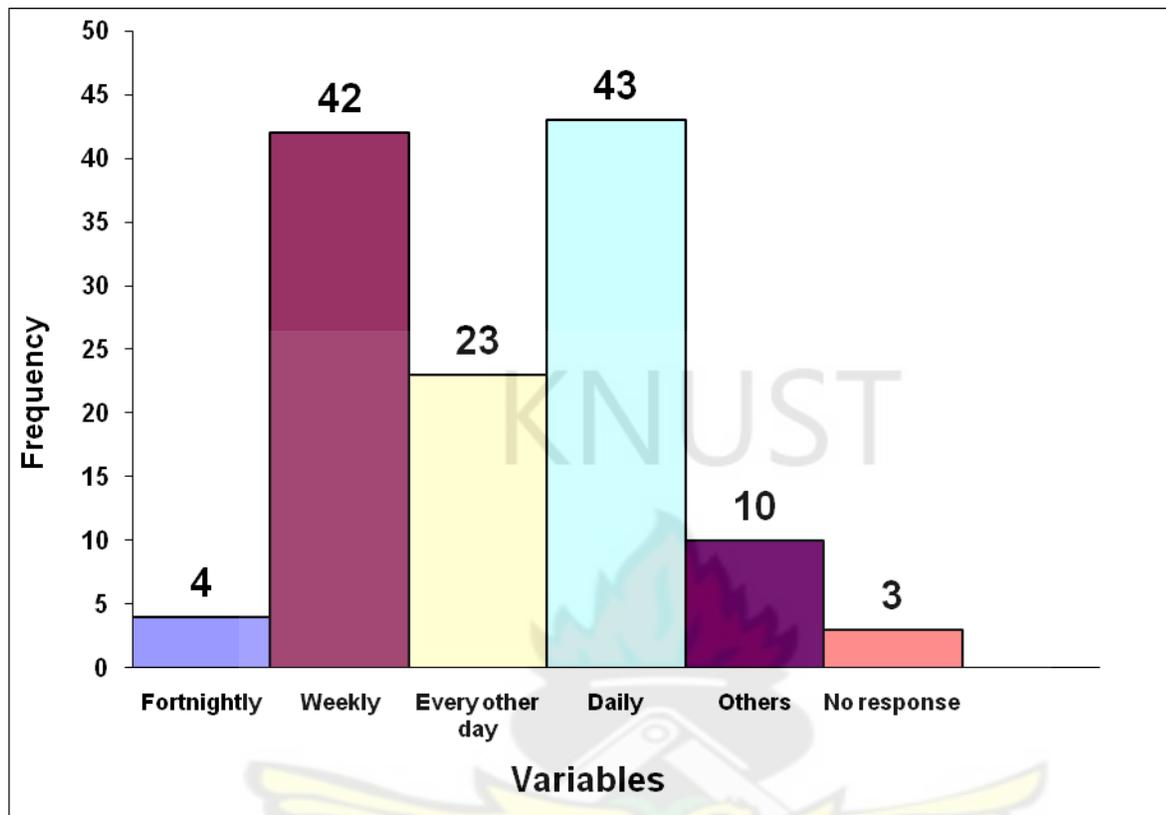
Table 4.11: Places where respondents defecate

| Variable | Frequency | Percentage |
|-----------------------------------|------------------|-------------------|
| Dig and cover faeces | 3 | 1.8 |
| Use possible Latrine | 144 | 85.2 |
| Do it in a nearby Bush | 8 | 4.7 |
| Put in gutter and wash with water | 1 | 0.6 |
| Defecate in a neighbour toilet | 9 | 5.3 |
| Others | 4 | 2.4 |

Source: Field Survey, 2007

The bar graph in Table 4.11 above shows where respondents who do not have toilets defecate. The majority of the respondents 144 (85.2%) use public toilet, 9 (5.3%) defecate in neighbours house, 8 (4.7%) defecate in a nearby bush, 4 (2.4%) use other means such as water closet or defecate at the dumping ground, 3 (1.8%) dig the ground and cover it with soil and, 1 (0.6%) put it in a gutter and wash it with water.

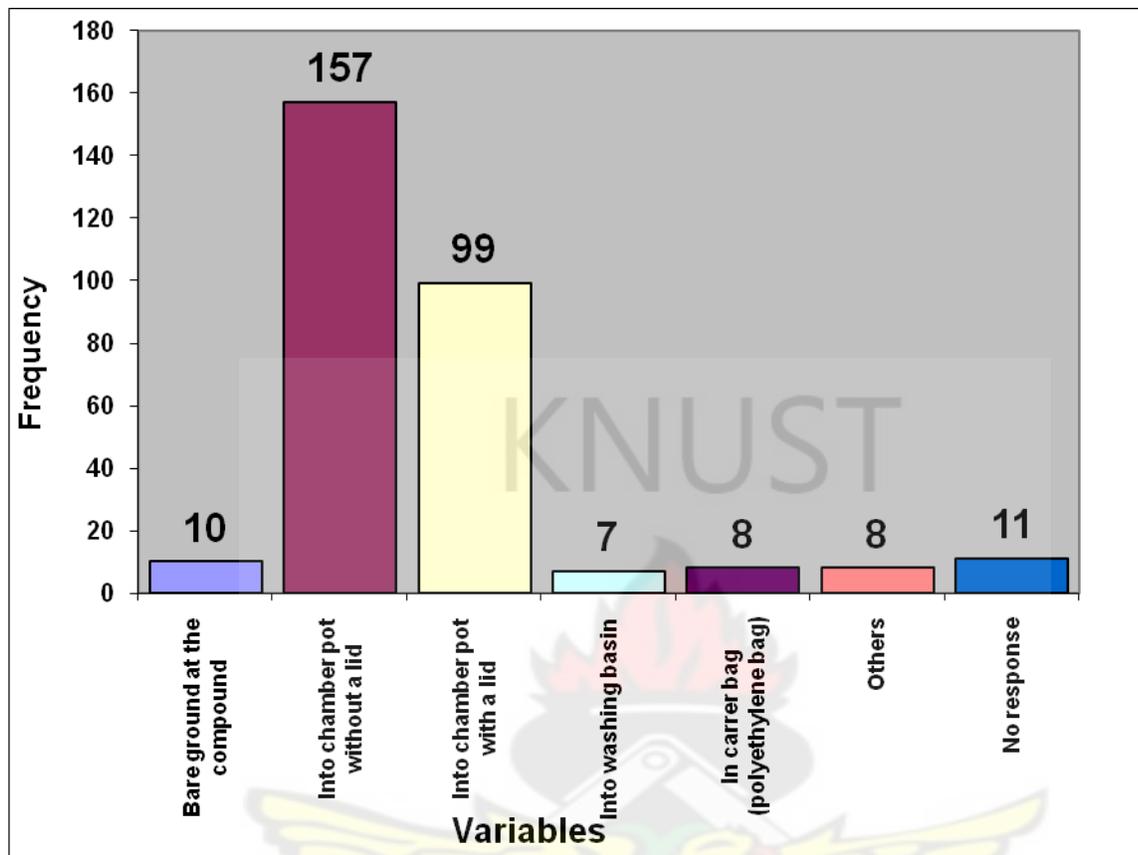
Figure 4.8: How respondents keep toilets in the house



Source: Field Survey, 2007

Figure 4.8 shows how the respondents keep their toilets. 43 (34.7%) of respondents keep their toilets clean daily, 42 (33.9%) keep their toilets weekly, 23 (18.5%) of them clean the toilets every other day, 10 (8.1%) stated others such as monthly, 4 (3.2%) clean toilets fortnightly and 3 (2.4%) gave no response.

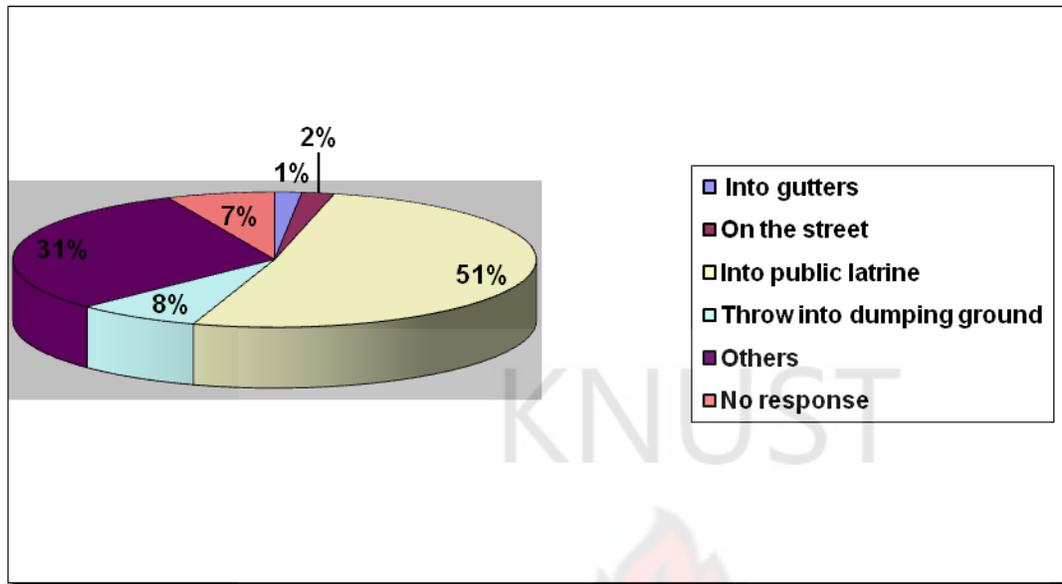
Figure 4.9: Where respondents' children defecate



Source: Field Survey, 2007

Figure 4.9 showing where children of respondents defecate. Out of the 300 respondents, the majority 157 (52.3%) of their children defecated in a chamber pot without a lid, 99 (33.0) of the children defecated in a chamber pot with a lid, 11 (3.6%) gave no response, 10 (3.3%) of the children of the mothers defecated on a bare ground, 8 (2.7%) have their children defecating into a carrier bag, another 8 (2.7%) use other means such as water closet and nearby bush, while 7 (2.4%) defecate into a washing basin

Figure 4.10: How respondents dispose the faeces of their children



Source: Field Survey, 2007

The Figure 4.10 shows how the respondents dispose their children's faeces. The majority of them, 154 (51.3%) dispose faeces into public toilets, 92 (30.7%) stated others such as water closet and into the nearby bush, 23 (7.7%) throw it unto dumping ground, 20 (6.7%) gave no response, 6 (2.0%) pour it into the street and, 5 (1.7%) dispose it into gutters.

Table 4.12: How respondents care for their children after they defecate

| Variable | Frequency (N=300) | Percentage |
|--|------------------------------|-------------------|
| Clean the child/children with tissue paper | 79 | 26.3 |
| Use any harmless object | 35 | 11.7 |
| Use tissue paper and wash the area with soap and water | 79 | 26.3 |
| Use mother's cloth to wipe the anal region | 50 | 16.7 |
| Others (specify) | 44 | 14.7 |
| No response | 13 | 4.3 |

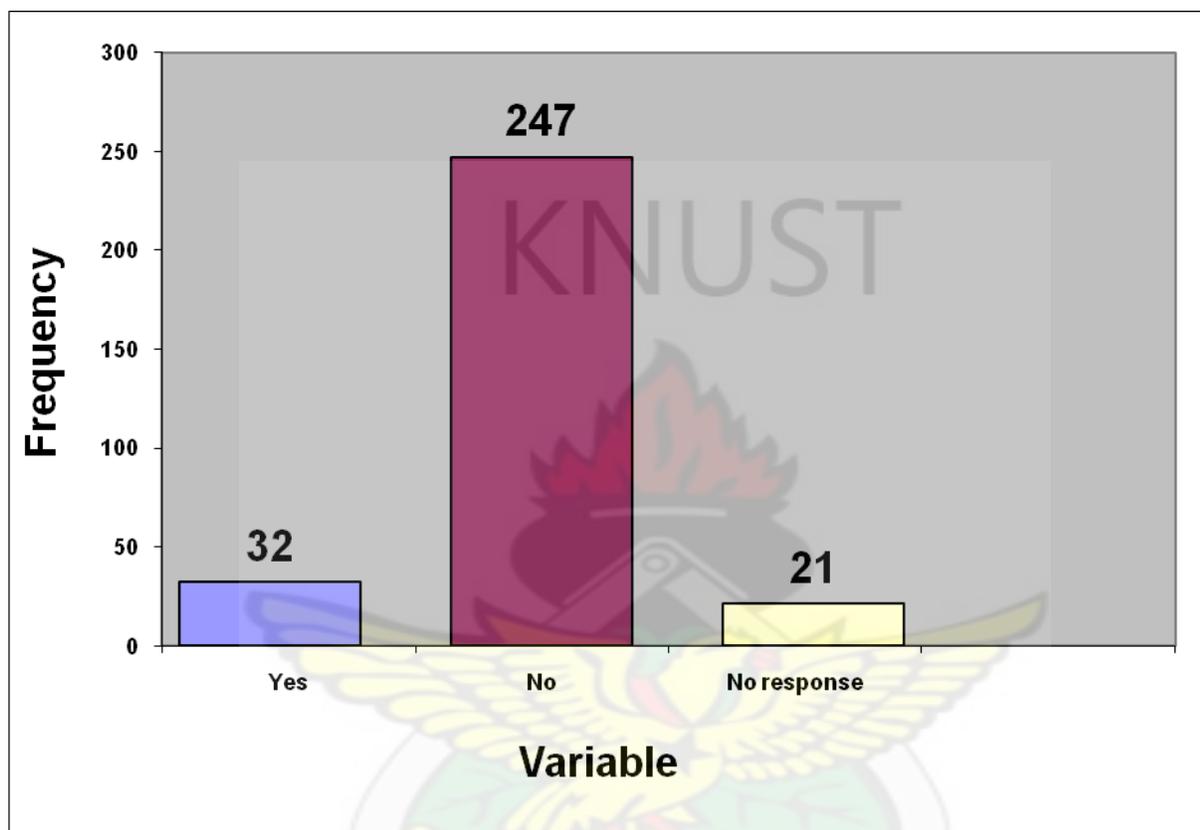
Source: Field Survey, 2007

Table 4.12 shows how mothers care for their children after they have defecated. Seventy-nine (26.3%) clean their children with tissue paper, another 79 (26.3%) clean with tissue paper and wash the area with soap and water, 50 (16.7%) of the respondents wash the children and wipe the anal region with their cloth, 44 (14.7%) use other means such as washing the children under running water and clean the anal region with pieces of rags, 35 (11.7%) clean their children with any harmless object and, 13 (4.3%) gave no response.

4.4 SOCIO-CULTURAL BARRIERS TO THE USE OF IEC

4.4.1 What Respondents Consider as Socio-cultural Barriers

Figure 4.11: Existence of socio-cultural barriers



Source: Field Survey, 2007

Figure 4.11 is showing the existence of socio-cultural barriers to the use of health information. The majority 247 (82.3%) of the mothers said no, and 32 (10.7%) said yes with 21 (7.0%) of them refusing to respond to the question.

Table 4.13: Issues respondents listed as socio-cultural barriers

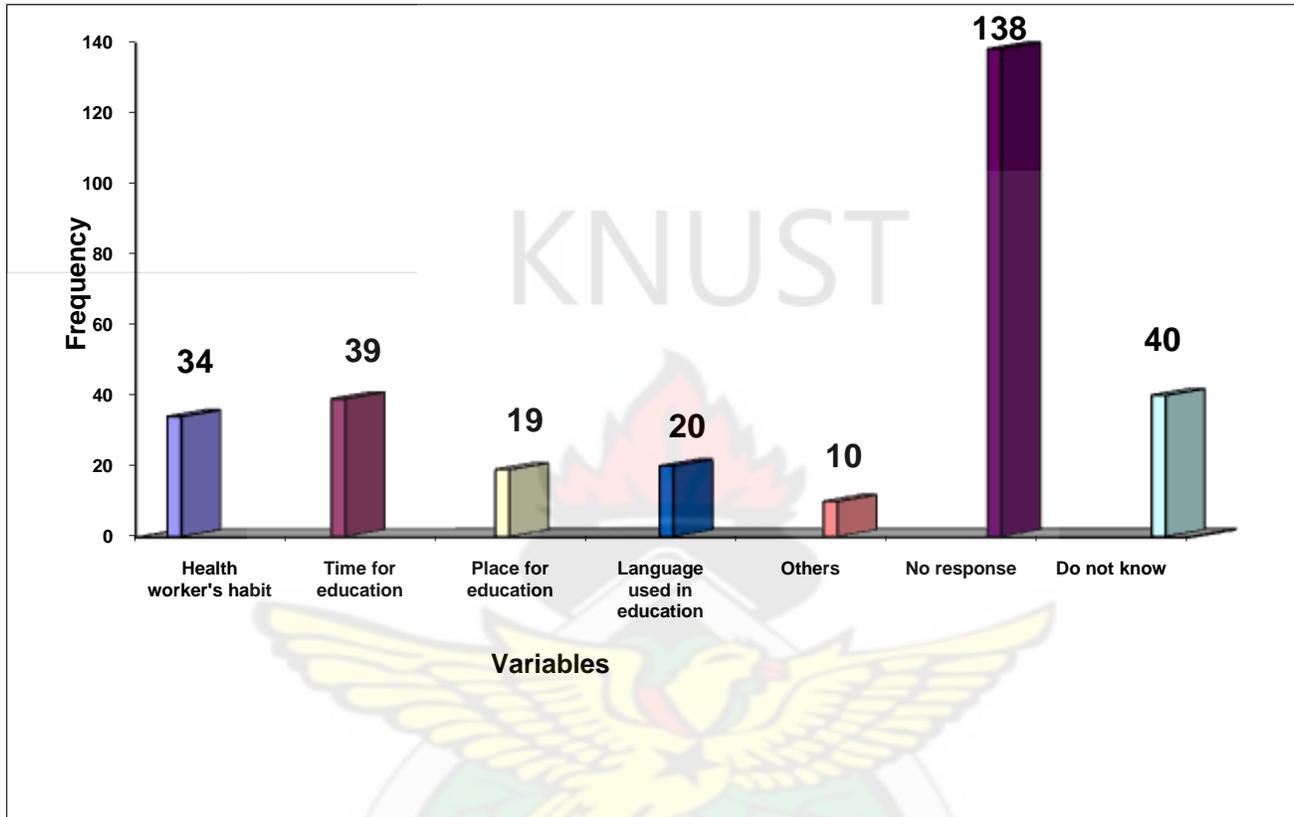
| Variables | Frequency | Percentage |
|---------------------------|------------------|-------------------|
| Religious doctrines | 5 | 15.6 |
| Farming activities | 5 | 15.6 |
| Trading activities | 3 | 9.4 |
| Numerous household chores | 3 | 9.4 |
| Poverty | 5 | 15.6 |
| As a career professional | 4 | 12.5 |
| language barrier | 2 | 6.2 |
| No response | 5 | 15.6 |
| Total | 32 | 100 |

Source: Field Survey, 2000

The Table 4.13 shows the reasons respondents gave as barriers to the use of health information. 5 (15.6%) mentioned religious doctrines, another 5 (15.6%) of the respondents said it due to their farming activities, yet another 5 (15.6%) assigned the reason to poverty, 5 (15.%) did not respond, 4 (12.5%) said it was due to their professional career, 3 (9.4%) said it was due to trading activities, another 3 (9.4%) of the respondents said it was due to their numerous house hold chores and, 2 (6.2%) indicated language as a barrier.

4.4.2 Shortfalls of Health Workers in the Dissemination of Information

Figure 4.12: The major shortfalls of health workers in the dissemination of health information.



Source: Field Survey, 2007

Figure 4.12 shows the major shortfalls of health workers in the dissemination of health information. The majority 138 (46.0%) of the respondents did not give any response, 40 (13.3%) said they do not know any shortfall among health workers, 39 (13.0%) mentioned time for education, 20 (6.7%) mentioned language used by health workers, 19 (6.3%) were not happy about the place where health education are held and, 10 (3.3%) gave varied responses that included appearance and attitude of health workers.

4.5 MANAGEMENT OF DIARRHOEA DISEASES

4.5.1 Facilities in which Respondents Delivered their Babies

Table 4.14: Type of facility respondents delivered their babies

| Facility | Frequency | Percentage (%) |
|------------------------|------------------|-----------------------|
| Public hospital | 190 | 63.3 |
| Private hospitals | 19 | 6.3 |
| Private maternity home | 10 | 3.3 |
| Trained TBA | 17 | 5.7 |
| Home delivery | 59 | 19.7 |
| Others | 2 | 0.7 |
| No response | 3 | 1.0 |
| Total | N= 300 | 100 |

Source: Field Survey, 2007

Table 4.14 indicates that the majority, 190 (63.3%) of the respondents delivered their babies at public hospitals, 59 (19.7%) did home delivery, 19 (6.3%) delivered at private hospitals, 17 (5.7%) were delivered by trained TBA's, 10 (3.3%) delivered at private maternity homes, 3 (1.0%) giving no response, with 2 (0.7) mentioned that they delivered at other places such as farms and in vehicles.

4.5.2 Children who have Passed Diarrhoea

Table 4.15: Age respondents' children passed first diarrhoea stools

| Age | Frequency | Percentage |
|-----------------|------------------|-------------------|
| 3-6 months | 30 | 10.0 |
| 6-12 months | 135 | 45.0 |
| 12-18 months | 60 | 20.0 |
| 18-24 months | 43 | 14.3 |
| After 24 months | 22 | 7.3 |
| No response | 10 | 3.3 |
| Total | 300 | 100 |

Source: Field Survey, 2007

Table 4.15 is showing the age at which children under five passed the first watery stools more than twice a day. Out of the 300 respondents, the majority 135(45.0%) of the respondents mentioned 6-12 months, 60 (20.0%) mentioned between 12 and 18 months, 43 (14.3%) indicated between 18 and 24 months, 30 (10.0%) indicated 3-6 months, 22(7.3%) indicated that their children first passed watery stools after 24 months, but 10 (3.3%) indicated no response.

4.5.3 Health Seeking Behaviour

Table 4.16: Where respondents treat their children when they pass watery stools

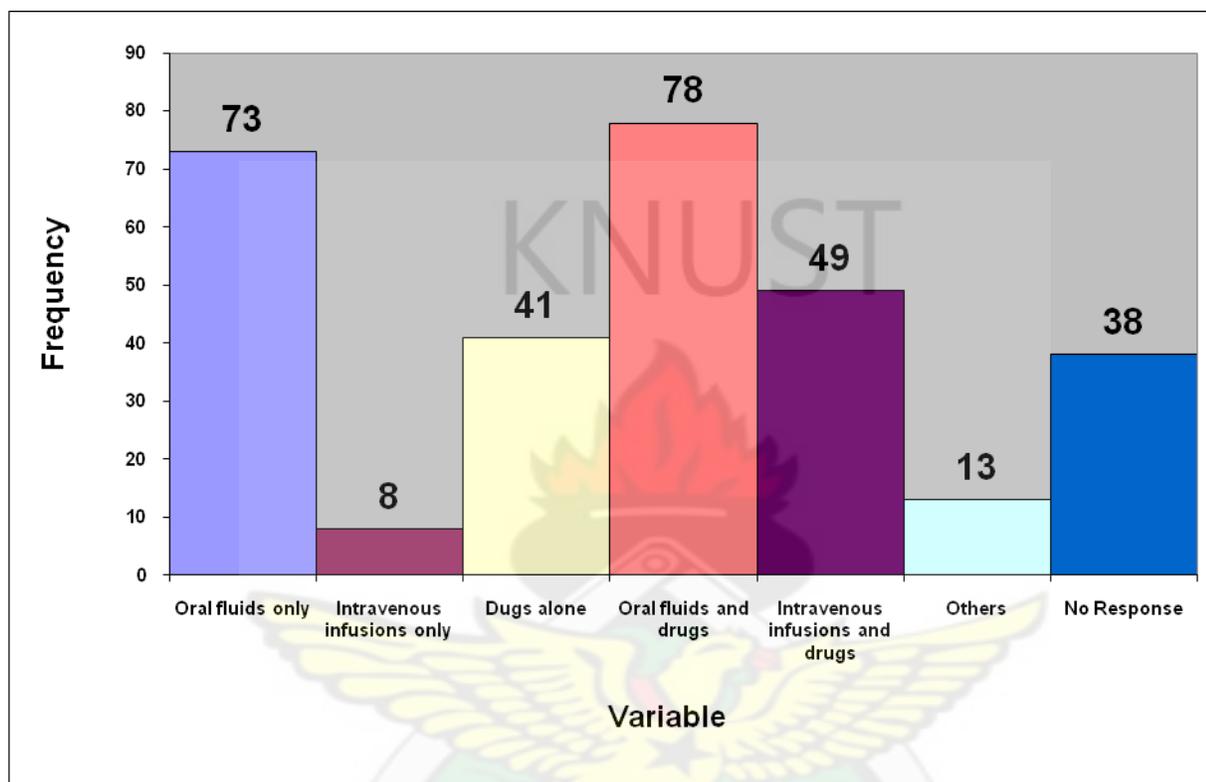
| Variable | Frequency (N=300) | Percentage |
|-------------------------------|-------------------|------------|
| Herbalists | 12 | 4.0 |
| Family members and or friends | 18 | 6.0 |
| From hospital or clinic | 146 | 48.7 |
| From a drug store | 58 | 19.3 |
| Others (specify) | 7 | 2.3 |
| Self | 21 | 7.0 |
| No response | 38 | 12.7 |

Source: Field Survey, 2007

Table 4.1 represents respondents' health seeking behaviour when their children pass frequent watery stools. The majority 146 (48.7%) mentioned that they seek care from hospitals or clinics, 58 (19.3%) of the mothers said they purchase drugs from drug stores, 38 (12.7%) gave no response, 21 (7.0%) of them do self-medication, 18 (6.0%) seek care from family members and or friends, 12 (4.0%) chose care from herbalist and, 7 (2.3%) mentioned others that included pastors and fetish priests.

4.5.4 Knowledge about treatment of diarrhoea

Figure 4.13: Respondents' knowledge about treatment of diarrhoea

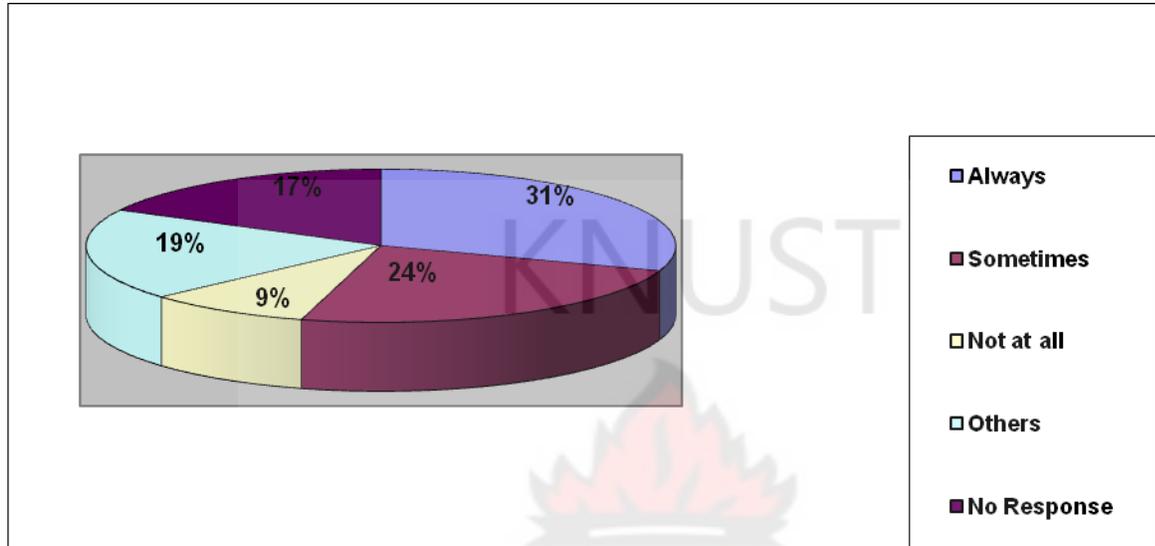


Source: Field Survey, 2007

Figure 4.13 shows how respondents treated their children when they pass diarrhoea stools. 78 (26.0) mentioned oral fluids and drugs, 73 (24.3%) said they used oral fluids alone, 49 (16.3%) indicated intravenous infusion and drugs given to their children at hospitals or clinics, 41 (13.7%) mentioned drugs alone, 13 (4.3%) of the mothers gave other forms of treatments that included the use of locally prepared suppository and enema at home and, 8 (2.7%) said intravenous infusion alone was used to treat their children.

4.5.5 Feeding of children who have diarrhoea

Figure 4.14: How often respondents feed their children when they passed watery stools

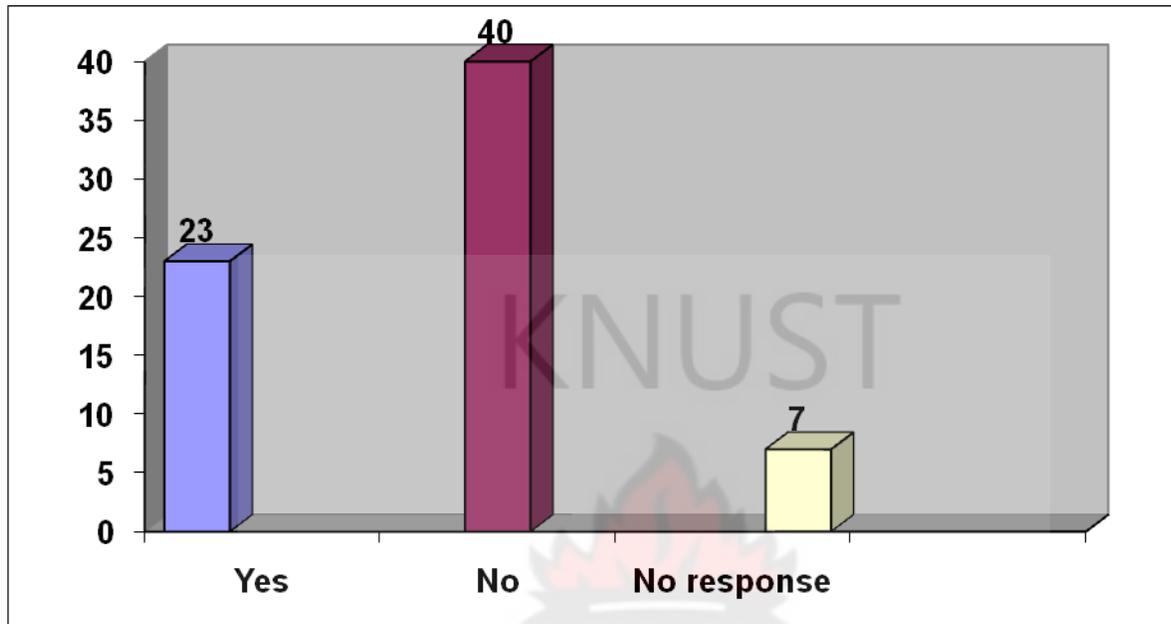


Source: Field Survey, 2007

Figure 4.14 illustrates how often respondents fed their children when they passed watery stools more than twice a day. 91 (30.3%) said they fed their sick children always, 72 (24.0%) said they fed their sick children sometimes, 58 (19.3%) mentioned that they fed their children only when they were instructed to do so by health workers and 27 (9.0%) did not feed their children at all.

4.5.6 Health Education on Diarrhoea

Figure 4.15: Education of respondents about diarrhoea



Source: Field Survey, 2007

Figure 4.15 is a showing whether respondents were educated about diarrhoea by health workers.

The majority 253 (84. 3%) said No, 40 (13.3%) said Yes and, 7 (2.3%) of the respondents gave no response.

4.6 INFORMATION, EDUCATION AND COMMUNICATION (IEC) STRATEGIES

4.6.1 Use of IEC by Respondents

Table 4.17: The relationship between level of respondents' education, occupation and age on the use IEC

| A. Respondents' level of education and the use of IEC | | | |
|--|-----------------|-----------------|-----------------|
| Educational level | Always (%) | Sometimes (%) | Total (%) |
| No formal education | 49(33.2) | 81(56.6) | 130(44.1) |
| Formal Education | 103(67.8) | 62(43.3) | 165(55.9) |
| Total | 152(100) | 143(100) | 295(100) |
| Odds Ratio: 2.7462 Relative Ratio: 1.6562 χ^2 :16.8304 | | | |
| B. Respondents' occupation and the use of IEC | | | |
| Occupation | Always (%) | Sometimes (%) | Total (%) |
| Self Employed | 144(75.5) | 121(84.6) | 255(79.9) |
| Public Service Employee | 37(24.5) | 22(15.4) | 59(20.1) |
| Total | 151(100) | 143(100) | 294(100) |
| Odds Ratio: 0.5602 Relative Risk: 0.7735 χ^2 :3.2600 | | | |
| C. Respondents' age and the use of IEC | | | |
| Age | Always (%) | Sometimes (%) | Total (%) |
| Adolescents | 41 (35.0) | 37(21.6) | 78(27.2) |
| Early Adults | 92(78.6) | 82(47.9) | 174(60.6) |
| Middle Adults | 15(12.8) | 20(11.7) | 35(12.2) |
| Total | 117(100) | 171(100) | 287(100) |
| X ² = 1.2, df=2, P=0.54 | | | |

Source: Field Survey, 2007

Table 4.19A shows how education influences the use IEC about health issues. With a total of 152 respondents who mentioned that they use IEC always 103 (67.8%) had obtained formal education and 49 (32.2%) had no formal education. Similarly, out of 143 respondents who mentioned that they use IEC sometimes 81 (56.6%) had no formal education and 62 (43.3%) had obtained formal education.

In Table 4.19B, it is showing that a total of 151 respondents said they use IEC on health issues always. Out of this number, 144 (75.5%) were self-employed and 37 (24.5%) were public service

employees. On the other hand, out of 143 respondents who indicated that they use IEC sometimes 121 (84.6%) were self-employed and 22 (15.4%) were public service employees.

Table 4.19C illustrates that a total of 117 of the respondents who said they use IEC about health issues always 92 (78.6%) were early adults, 41 (35.0%) were adolescents and 15 (12.8%) were middle adults. For a total of 171 who indicated that they use IEC sometimes 82 (47.9%) were early adults, 37 (21.6%) were adolescents and 20 (11.7%) were middle adults.

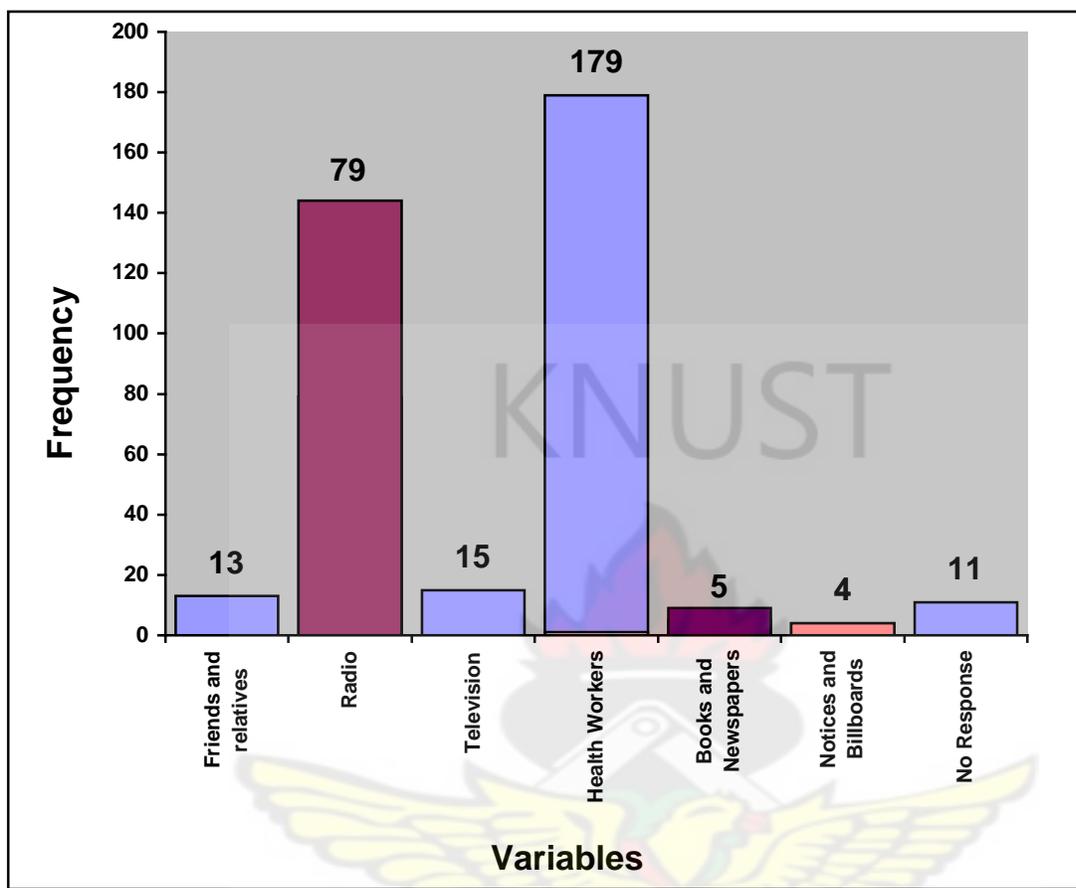
Table 4.18: Methods health workers use to educate respondents

| | | |
|--------------------|-----|------|
| Health talks alone | 200 | 79.0 |
| Use of posters | 28 | 11.1 |
| Flip chart | 1 | 0.4 |
| Audio visual | 1 | 0.4 |
| All of the above | 14 | 5.5 |
| Others (specify) | 3 | 1.2 |
| No response | 6 | 2.4 |
| Total | 253 | 100 |

Source: Field Survey, 2007

Table 4.18 illustrates how the respondents were educated by health workers. The majority 200 (79.0%) mentioned the use of health talks alone, 28 (11.1%) said health workers used posters, 14 (5.5%) indicated that health workers combined health talks, use of posters, flip charts and audio visual aids, 6 (2.4%) did not give any response, 3 (1.2%) mentioned others such as the use of placards and banners, 1 (0.4%) mentioned flip chart and, another 1 (0.4%) also indicated audio visual aid.

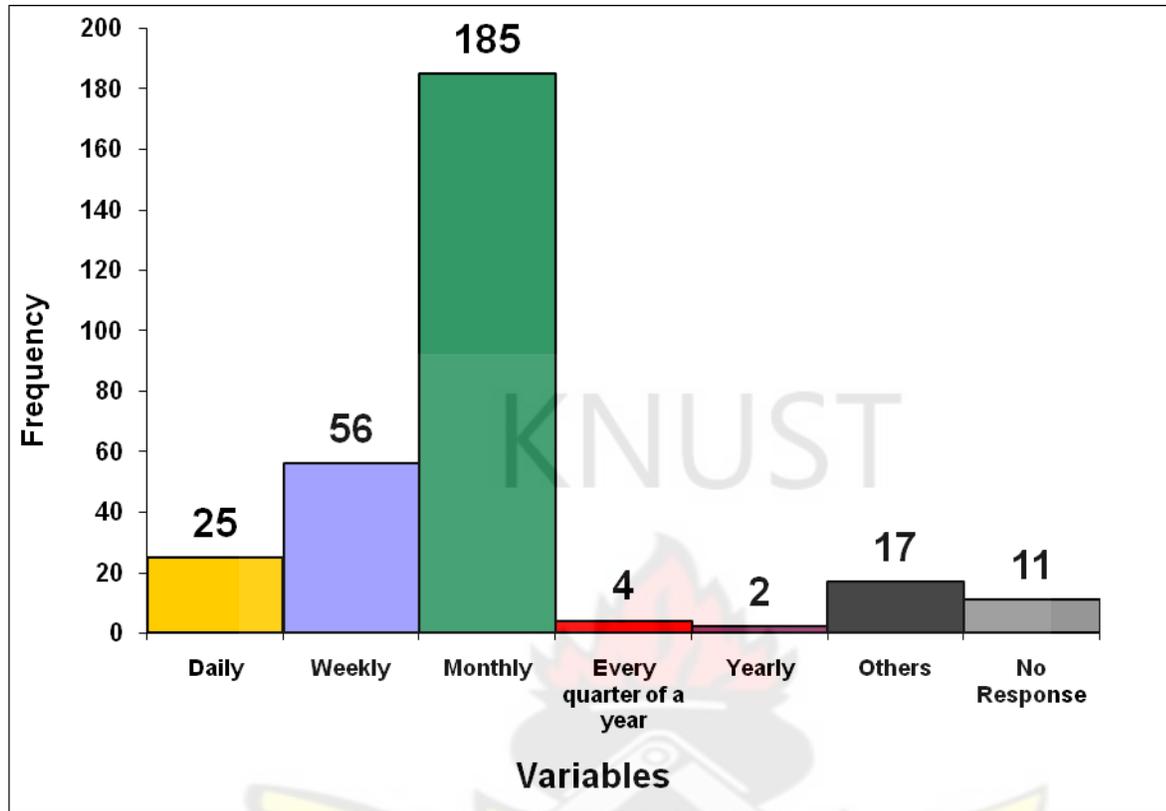
Figure 4.16: Where do respondents often get health information



Source: Field Survey, 2007

Figure 4.16 is showing respondents' source of health information. Majority 176 (58.7%) mentioned health workers, 79 (26.3%) indicated radio, 15 (5.0%) mentioned television, 13 (4.3%) indicated friends and relatives, 11 (3.7%) gave no response, 5 (1.7%) said they obtain it from books and news papers and, 4 (1.3%) indicated notices and bill boards.

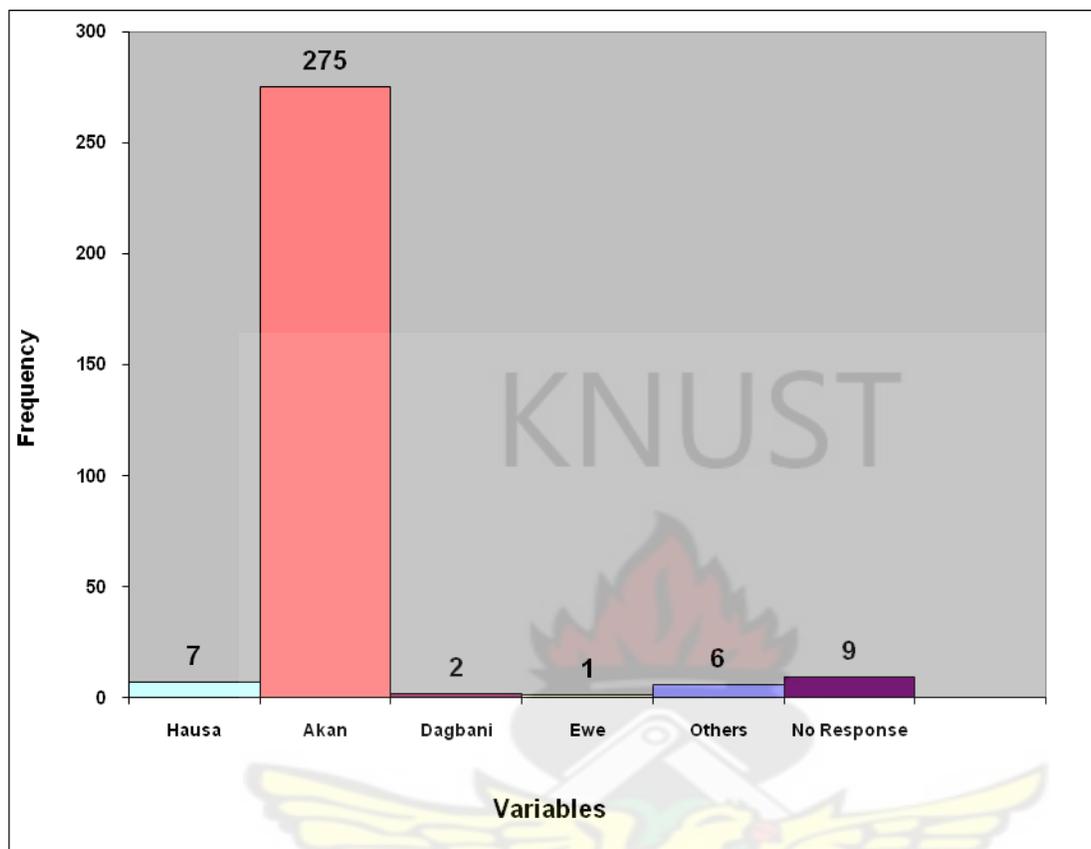
Figure 4.17: How often respondents were educated on health matters



Source: Field Survey, 2007

Figure 4.17 shows how often respondents were educated on health matters. 185 (61.7%) mentioned that they obtain health information every month, 56 (18.7%) said they obtain it on weekly basis, 25 (8.3%) mentioned daily, 17 (5.7%) indicated other periods such as every six and eight months, 4 (1.3%) mentioned every quarter of a year and, 2 (0.7%) indicated yearly.

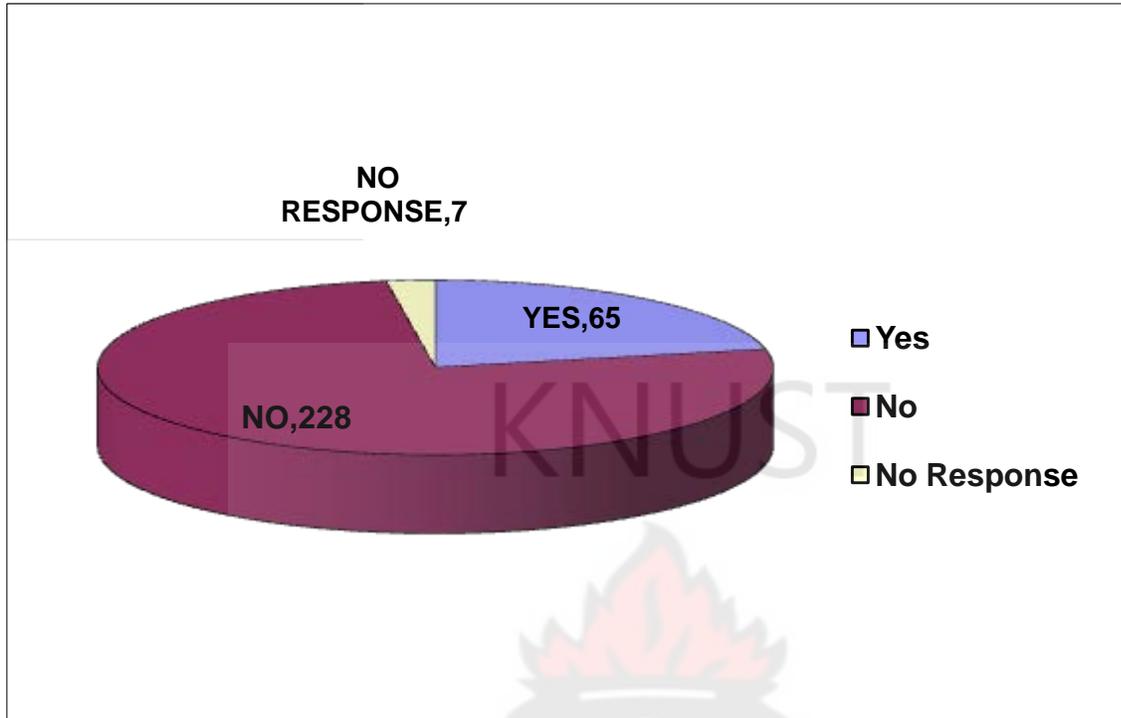
Figure 4.18: Common language used to educate mothers



Source: Field Survey, 2007

Figure 4.18 illustrates the common language that used to educate mothers and this represented in a histogram. The majority 275 (91.7%) of the respondents mentioned Akan, 9 (3.0%) could not provide a response, 7 (2.3%) indicated Hausa, 6 (2.0%) mentioned other languages that included Baasare, and Builsa, 2 (0.7%) mentioned Dagbani and, 1 (0.3%) indicated Ewe.

Figure 4.19: Difficulty of understanding the language used

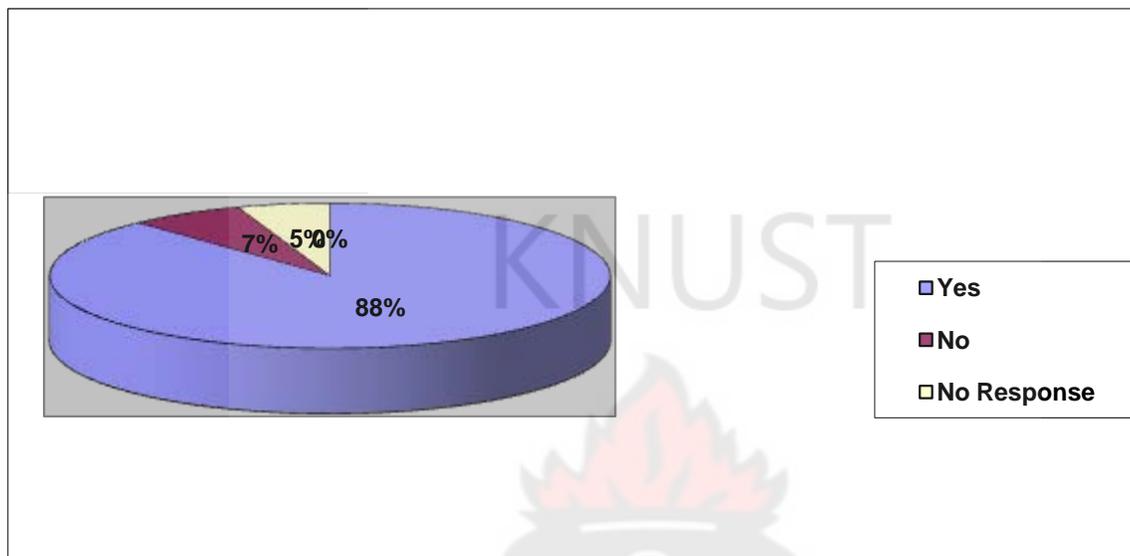


Source: Field Survey, 2007

Figure 4.19 above illustrates whether the language used makes it difficult for respondents to understand health information. The majority 228 (76.0%) of the mothers said no, and 65 (21.7%) said yes with 7 (2.3%) of them refusing to respond to the question.

4.7 RESPONDENTS SUGGESTION TO AUTHORITIES ON HEALTH EDUCATION AND PROMOTION

Figure 4.20: Respondents' need for more health education



Source: Author's construct from field study

Figure 4.20 shows whether the respondents need more health education in the prevention of diarrhoea diseases. Out of the 300 respondents, 264 (88.0%) said yes, 20 (6.7%) indicated no and, 16 (5.3%) gave no response.

Table 4.19: Language respondents prefer to be used in health education

| | | |
|-------------|-----|------|
| Hausa | 34 | 11.3 |
| Akan | 209 | 69.7 |
| Dagbani | 8 | 2.7 |
| Ewe | 10 | 3.3 |
| Ga | 8 | 2.7 |
| Others | 16 | 5.3 |
| No response | 15 | 5.0 |

Source: Author's construct from field study

Table 4.19 illustrates the language respondents prefer to be used during health education sessions. The majority 209 (69.7%) mentioned Akan, 34 (11.3%) indicated Hausa, 16 (5.3%) prefer other language that included Baasare and Builsa, 10 (3.3%) mentioned Ewe, 8 (2.7%) chose Dagbani and, another 8 (2.7%) said they prefer it to be in Ga.

Figure 4.21: Respondents preferred method for health education

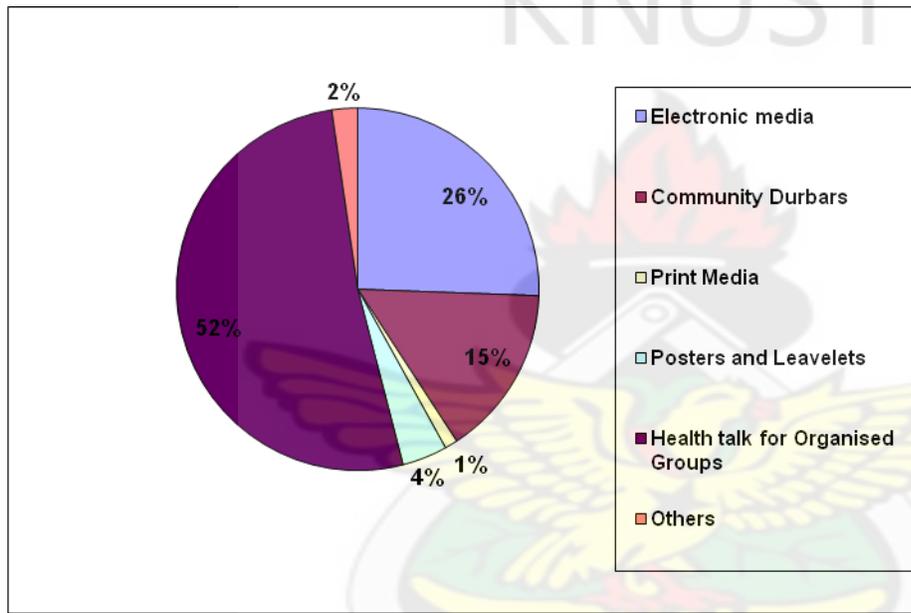


Figure 4.21 shows the respondents preferred method for health education. 180 (51.7%) forming the majority of the respondents said they prefer health talks for organized groups, 89 (25.6%) preferred electronic media, 53 (15.2%) chose community durbars as the preferred method, 14 (4.0%) mentioned posters and leaflets, 8 (2.3%) mentioned other methods such as banners and bill boards and, 4 (1.1%) indicated print media.

CHAPTER FIVE: DISCUSSION

5.0 INTRODUCTION

The study was conducted in the Mankranso sub-district of the Ahafo Ano South District in the Ashanti Region of Ghana to assess the effectiveness of Information, Education and Communication in the prevention of diarrhoeal diseases.

The socio-demographic data indicates that majority of the respondents 165 (55.0%) of the respondents had obtained formal education and were between 26 and 30 years. The majority, 239 (79.7%) were self-employed and mostly farmers.

5.1 FEEDING PRACTICES BY RESPONDENTS

5.1.1 Respondents' Level of Education and Initiation of Breastfeeding

Looking at the respondents who started breastfeeding their babies within 24 hours after delivery, the study revealed 43.9% of respondents who had no formal education and 56.1% of those with formal education (Odds ratio=0.7270). With the odds ratio less than 1, it is an indication that there is no association between the level of education and initiation of breastfeeding among the respondents. This finding is similar to the study by Perera et al (1999) who revealed that there was no significant difference in the numbers of infants who developed diarrhoeal illness during the period of exclusive breastfeeding, irrespective of the period of exclusive breastfeeding. The finding also supports the results from the work of James (2005) that the rate of breastfeeding reduces the occurrence of diarrhoea diseases and it is an indication to meet Millennium Development Goal 4 that seeks to reduce child mortality rate by two-thirds by 2015. The finding is however different from that of Misra et al (2000) that stated that mothers who have less education and lower income were least likely to breast their children.

5.1.2 Respondents' Age and Initiation of Breastfeeding

Again, from this study a greater proportion (60.4%) of the respondents were early adults who initiated breastfeeding within 24 hours after delivery. Significantly, 27.2% of the respondents were adolescents (p value=0.71). This shows that there is no association between age and breastfeeding; hence, age does not influence initiation of breastfeeding. The finding is however in agreement with the work by Misra et al (2000) who stated that there was longer duration of breastfeeding among older adolescents between 20 and 29 years than younger ones below 20 years. This finding generally supports UNICEF Report (2004) that mentioned that initiation of breast feeding of within an hour of delivery improves the immunity of the child and reduces the occurrence of diarrhoea diseases.

5.1.3 Effect of Employment on Initiation of Breastfeeding

From the study, 81.1% of the respondents were self-employed initiated breastfeeding within 24 hours after delivery (Odds ratio=0.5531) that showed no significant association. The researcher's impression any occurrence of diarrhoea may be due to other factors that include poor hygienic practices.

Predominantly, most of the respondents 76.4% who were self-employed (mainly farmers) served water to their babies after 6 months (Odds ratio=0.5531), this indicates that there is no association between occupation of respondents and the time they start giving water to their babies. This revelation is comparable with the UNICEF Report in 2004 about a programme in the Upper East Region of Ghana which recommended exclusive breastfeeding of infants for six months after delivery.

5.1.4 Introduction of First water to Babies

Relating the respondents' level of education to the time they first introduced water to their children, the study revealed that 52.8% of the mothers who had no formal education as compared to 47.1% of those with formal education gave water to their babies within the 6 months after delivery (Odds ratio=1.7668). This revelation shows that there is a positive association between the level of education of respondents and the time they gave water to their babies. The result from this study supports the work by Misra et al (2000) that stated how negatively low maternal education has on exclusive breastfeeding. The finding however opposes that of Maxwell et al (2000) who revealed that among the caregiver only 12% had no formal education.

From this research, 60.2% of the respondents were early adults mothers and introduced water to their babies before 6 months (p value=0.02). This was less than 0.05, hence, showing a significant association. The findings from the study directly oppose that of Misra (2000) who stated that 95% of mothers who are between 20-29 years were more likely to breastfeed their babies.

Evidence from the study showed that 91.7% of the respondents who were self-employed (mainly farmers) gave colostrum to their children. This confirms that respondents have a positive attitude toward breast feeding and, unlike the outcome of the study conducted by Ergenekon-Ozelci (2001), The impression of the researcher is that since colostrum contains antibodies and nutrients, it is good to be given to children.

5.1.5 Giving of Artificial Foods to Children

It was also established that 49.3% of the respondents gave artificial foods to their children before six months. This finding is in line with the work by Misra (2000) who stated that 95% of mothers started artificial feeding by the second week of the year.

In assigning reasons to duration or length of time for which mothers breast fed babies, many of the respondents mentioned use of artificial foods as food supplement, insufficient breast milk production, advice from health workers and respondents' own desire. The findings differ from that of Ergenegen-Ozelci (2001) that outlined major reasons or factors as urban residence and socio-economic status.

5.1.6 Storage of Children's Food

It became evident in the study that 39.6% respondents stored their children's food in bowls with cover or in the cooking pots. This revelation is similar to the report by WHO (2008), which indicated that food safety is protecting food supply from microbial, chemical and physical hazards that may occur during all stages of production, storage and consumption

5.2 SOURCES, STORAGE AND TREATMENT OF WATER

5.2.1 Sources and Storage of Domestic and Drinking Water

With regard to the sources of water for domestic use, 44.7% of the respondents obtain water from hand-dug wells and 1.3% of them fetch water from rivers and streams. The finding collaborated with that of Nanan et al (2003) who reported in their research that inadequate water and sanitation services adversely affect the health and socioeconomic development of communities. The impression was that the design of the hand-dug wells and mothers who collect water from either streams or rivers stand the chance of not only getting diarrhoea infection but spreading it to others. The finding could also be related to WHO Report (2005) on household water treatment and storage that showed more than 1 billion people worldwide are without access to safe drinking water.

5.2.2 Treatment of Water

Evidence from the study also showed that 53.2% of the respondents do not treat water meant for drinking. The finding is in contradiction with the work conducted by Wright et al (2004) showing that safer household water storage and treatment can prevent post-collection contamination and reduce occurrence diarrhoea diseases.

5.3 HYGIENE PRACTICES

5.3.1 Hand Washing Practices

The findings from the study showed that 45.6% respondents who had no formal education and 54.4% who obtain formal education do not wash hands (Odds ratio=0.5586). The finding therefore does not show any association between education and hand washing. The researcher had the impression that other factors such as feeding of children during weaning can equally affect the health status of the children. The finding can collaborate that of Curtis et al (2003) who affirmed that washing hands with soap and water reduces the risk of diarrhoeal diseases by 47% and hand washing promotion could save millions of lives. Again, the results from the study can be related to the release by World Bank (2008) in Kenya that improper hand washing behaviour can result in the occurrence of cholera and other infectious diseases.

The study also revealed 79.9% of those who do not wash their hands are self-employed (mainly farmers). This differ from 20.1% who were public service employees (Odds ratio=1.4594). The finding shows a positive association between occupation and hand washing practices. Poor hand washing practices was cited by Mensah and his colleagues' (2002) study about street foods in Accra as a cause of cholera and other diarrhoea diseases.

The study also showed that 57.1% of early adults do not wash hands with soap and water before breastfeeding their babies ($p=0.54$). The finding however does not show any significant association between mother's age and hand washing practice. But the result is comparable to the report from WHO (2008) Newsletter about management of acute diarrhoea where hand washing alone can reduce the incidence of diarrhoea between 30-50%.

5.3.2 Toilet Facilities and how they are kept

With regard to toilet facilities, 56.3% of the respondents do not have toilets facilities in their homes and 85.2% use public toilets. These findings were different from what exist in a study by Tumwine (2005) who mentioned that 88% of diarrhoea disease is attributed to inadequate sanitation and hygiene.

On how they keep the toilets, it was found in the study that a small proportion, 34.7% of the respondents keep their toilets clean on daily basis. A majority (52.3%) of the respondents' children also defaecate in chamber pots without a lid. Acra et al (1984) noted that improvements in sanitation reduce the transmission of pathogens that cause diarrhoea by preventing human faecal matter from contaminating environments.

5.3.3 Care for Hygiene needs of Children

Looking at how mothers care for their children after they have defecated, it was noted that 16.7% of them wash their children and wipe the anal region with their cloth. The use of cloth can act as a vehicle in the transmission of diarrhoeal diseases. This confirms the finding from Kauffmann (2007) who related occurrence of diarrhoea to poor sanitation practices.

5.4 SOCIAL-CULTURAL BARRIERS TO THE USE OF HEALTH INFORMATION, EDUCATION AND COMMUNICATION

Out of the 300 respondents, 82.3% of them indicated that there are no socio-cultural barriers that have direct effect on their acceptance of health information and education. However, with the few who identified cultural barriers, 15% mentioned religious doctrines, 15% mentioned farming activities and another 15% mentioned poverty. Such findings are not similar to those found by Ergenekon-Ozelci (2001) where women of Diyarbakir believe that pregnant women's breast milk is spoilt and it is forbidden to feed a baby with it. Such a belief can grossly affect the feeding practices and nutritional status of the babies negatively.

5.5 MANAGEMENT OF DIARRHOEA DISEASES

5.5.1 Health seeking Behaviour of Respondents

The study assessed the health seeking behaviours of the respondents, 48.7% of them seek care from hospitals and clinics. This finding meets the requirements set by WHO/UNICEF Report (2008) that recommend the need to seek care and use ORS formula for effective treatment of victims of diarrhoea.

5.5.2 Passage Diarrhoea Stools

The findings from this research also revealed that 35.5% of the children have passed diarrhoea stools before and passed diarrhoea stools between six and twelve months. It depicted what existed in the findings by WHO Report (2004) which stated among others that diarrhoea episodes occur in children aged between three and twenty-four months with a peak incidence between seven and fifteen months.

5.5.3 Treatment of Children with Diarrhoea Diseases

Respondents were also asked about how they treat their children when they passed diarrhoeal stools. 26.0% of them mentioned the use of ORS and drugs and 24.3% said they use ORS alone. The result from the study is related to WHO/UNICEF (2008) recommendation of the use of ORS and recently the addition of oral zinc supplementation that offer much improved outcomes for treatment of childhood diarrhoea.

5.5.4 Feeding of Children when they Pass Diarrhoea stools

In the study, only 30% of the respondents said they feed their children when they pass diarrhoeal stools. This is contrarily to what was outlined the report by Rao and colleagues (2007) who indicated that food should not be withheld from infants with acute diarrhoea. Failure to feed especially children can lead them to become malnourished and can pave the way for persistent diarrhoea to occur.

5.5.5 Health Education in the Management of Diarrhoea

In management of diarrhoea, 84.3% of the respondents said they receive health education from health workers. In the same vein, 79.0% of them mentioned educational talk as the method used by health workers to educate them. The researcher's finding's confirms the work by Piwoz and others (2005) indicated that health educational intervention is a significant determinant of acquiring knowledge.

5.5.6 Preferred Language to be used in Health Education

In the study 91.7% of the respondents showed that they prefer health education to be delivered in Akan, a local language. The study also showed that 76.0% of the respondents do not find it difficult to understand the language used to deliver health information to them. Inability to use health information adequately may not emanate from the language used but may be due the method of education and frequency of educating the people. The finding from the study can however be related to the work of Hitchcock and Appelt (2007) who reiterated the need to provide information to clients in their preferred language and at their preferred reading level.

5.6 USE OF IEC ON HEALTH ISSUES

58.7% of respondents indicated that health workers are their main source of health information and they obtain health information on monthly basis. The researcher's impression is that a month-long interval may cause them to forget most of the information they receive. The problem might stem from lack of personnel and logistics.

From the study, 32.2% of the respondents who use information always had no formal education and 67.8% had formal education (Odds ratio=2.7462). This revelation is an indication that there is positive association between level of education and use of IEC. This finding differs from the report by Elfituri et al (1999) who stated that the level of knowledge does not necessarily help to translate information into practical application. One possible explanation for this discrepancy is that knowledge can be held by an individual who does not know how best to express it in behavioural terms. This supports WHO Report (2005) that showed that the low-educated is less likely to change behaviour than people with high education.

Relating age to the use of IEC, the findings indicated that 78.6% were early adults who said they use IEC on health issues always. This findings showed that 35% were adolescent mothers who always use IEC (p value=0.54). This shows that there is no significant association between age of mothers and the use of IEC. The low proportion among adolescents may be due to lack of health literacy with low-aged mothers as stated in WHO Report (2005).

With regard to respondents who use IEC always, the studied revealed that 75.5% of the respondents were self-employed and 24.5 were public service employees (Odds ratio=0.5602). Such revelation does not show any significant association between occupation of mothers and use of IEC. However, WHO/IOMEH Report (2003) stated that IEC is used to change knowledge and behaviour. With effective IEC the target audience becomes involved in policy change because they are empowered to gather or acquire political support.

5.7 RESPONDENTS' SUGGESTIONS TO HEALTH AUTHORITIES ON HEALTH EDUCATION AND PROMOTION

88.0% of the respondents suggested that health workers should intensify health education in the prevention of diarrhoeal diseases. Also, 51.7% recommended the use of local language to educate or inform the people about health issues. They could not however indicate the medium which the health education should be presented. Their recommendation may stem from frequency at which the people are educated.

Finally, in the study, a total of about 59.0% of the respondents indicated that there are shortfalls on the part of health workers in the dissemination of health information in the area. Thus, the researcher believes that persistence of out-break of diarrhoeal diseases may be due to other factors apart from the perceived efforts from health workers.

CHAPTER SIX - CONCLUSIONS AND RECOMMENDATIONS

6:0 CONCLUSION

Three hundred mothers were interviewed on feeding of their children, sources of water and methods of storage of drinking water, hygiene practices, socio-cultural barriers against the use of IEC and how their children who develop diarrhoea are managed at health facilities.

The results showed that the majority of the people practise exclusive breastfeeding. Again, most of the children were weaned between 12 and 18 months and fed with rice and soup. With such improvement in feeding practices, it is expected that there would be reduction in malnutrition which is a determinant of occurrence of diarrhoea diseases. Timing for weaning was good but weaning foods may be poor in nutrients or poorly prepared.

It was also found from the study that water was introduced to some of the babies before six months. Domestic and drinking water was obtained from hand-dug well and in some cases from rivers. Such sources of water are often exposed to contamination during collection. To aggravate the situation, food and water were stored under poor conditions. Storage of water in buckets and wide-mouth pots render water to be easily polluted.

This study also revealed that mothers were not adhering to practices of good personal and environmental hygiene. Such a practice can facilitate the spread of communicable diseases including diarrhoea diseases. Lack or inadequate toilet facilities in homes coupled with poor maintenance also act as source of infection. Hand washing with soap and water before a mother breastfeed her child was not satisfactorily and such a practice creates the avenue for the spread of diarrhoea diseases.

Even though this study showed that there are no socio-cultural barriers that have direct effect on their acceptance of health information, identified cultural barriers like religious doctrines, farming activities and poverty are factors that militate against the acceptance and practice of health information.

With regard to management of diarrhoea diseases, many of the respondents were seeking treatment from places other than hospitals and clinics. The impression of the researcher is that early detection and proper management of diarrhoea diseases can save many lives in children under five years.

Finally, based on findings from the study, feeding practices, especially exclusive breastfeeding was good, sources and storage of water and food were unsatisfactory, hand washing practices needs to be improved and strategies must be improved to enable mothers adopt healthy lifestyles.. However, respondents' suggestion that they should be involved in the planning and implementation of health programmes is much appreciated.

It is recommended that further studies should be conducted in the following areas:

- Preparation and storage of weaning foods
- Hand washing practices before breastfeeding

6:1 RECOMMENDATIONS

Water supply, sanitation and health are closely related. Poor feeding and hygiene practices, inadequate quantities and quality of drinking water and lack of sanitation facilities cause millions of the world's poorest people to die from diarrhoeal diseases each year. Women and children are the main victims.

The public health sector can do several things to reverse the recurrence of diarrhoeal diseases by collaborating with other sectors, to help ensure that investments in water supply and sanitation result in greater health impact. Public health promotion and education strategies are to be strengthened to change behaviours so as to realize the health benefits from good nutrition and improved water supplies. The following measures are recommended to be adopted to manage and prevent the occurrence of diarrhoea diseases:

6.1.1 Mothers and Caregivers

- Importantly mothers and caregivers should adhere to nutrition and hygiene promotions programmes and give priority to exclusive breastfeeding, safe disposal of faecal material and the adequate washing of hands before breastfeeding, and after contact with adult and child stools.
- It would be much worthy for mothers to form support groups to share information about breast feeding and use of health information especially on the practice of hygiene behaviours.
- During an attack, mothers who visit health facilities should be taught about the preparation and use of ORS or its substitutes like coconut water, butter-milk, rice kanji with salt, lemon-sugar-salt beverage, weak tea etc. at home as a way treating children having diarrhoea.

- Recognize the signs of dehydration and take the child to a health-care provider for ORS or intravenous electrolyte solution, as well as familiarize themselves with other symptoms requiring medical treatment (e.g., bloody diarrhoea).

6.1.2 The District Health Management Team (DHMT)

Hygiene education programmes in the district must be intensified and make use of posters and flip charts as well as a wide range of audio-visuals, printed illustrations and photographs, fliers, newspaper articles, radio talks, drama, songs and games. Health educators must incorporate both micro and macro media successfully only after a careful assessment to make health education effective.

Other IEC approaches must be used to reach target groups. Social mobilisation uses all available and potential communication approaches, resources, techniques, channels, methods, and tools. The health education units must not merely embark on information campaign or communication project as a stop-gap approach, but establish a long-term programme to be built into communities programmes that will ensure acceptance and use of health information.

The DHMT must place premium on the following activities:

a. Training and re-training of programme implementers

Training enables personnel to acquire the necessary skills for the delivery of services. The implementers must assist to improve people's knowledge, appreciation, and mobilisation, of community resources to achieve the desired outcome, usually for local and individual empowerment.

b. Community organisation

Community organisation is to empower parents, families, groups, and the whole community, is used to build their capacity for problem solving, decision making, and collective action, thus developing and strengthening their networks in the area of nutrition and hygiene. Community organisation and participation allow community members to recognise their problems and needs, decide on what they can do and how they can act collectively, that is, pool ideas as well as human and physical resources, and together benefit from all available resources and services.

School health programs should be improved to offer a good entry point for improved water supply, feeding of children and provision of sanitation facilities and for community hygiene promotion. It is a realistic goal in most countries to ensure that all schools have good sources and storage of food, clean water supply and good sanitation. This enables schools to reinforce health and hygiene messages, ensure they translate into action, and set an example to others including their parents in the community.

c. Monitoring and evaluation

The DHMT should establish health education unit and strengthened monitoring and evaluation activities to determine the efficiency of implementation of health programmes. The health education unit shall make concerted efforts to assess feeding practices, sanitation and hygiene beliefs and practices. The unit must involve community members/beneficiaries in planning and implementing health education interventions. It should continuously identify practices to be changed, targeting the four most critical: hand washing with soap (or ash or other aid) before food preparation and after dealing with faeces; latrine use and safe disposal of children's faeces; safe weaning food preparation; and safe water handling and storage.

Additionally, the DHMT must focus on the following:

- work with other agencies (governmental and private) to plan, develop and manage water resources and basic water and sanitation services, to advocate and promote these investments, and ensure that activities to promote hand washing, safe disposal of faeces and continuous use and cleanliness of sanitation facilities are included;
- work with the agency responsible for monitoring water quality and sanitation to help ensure that this monitoring is carried out;
- provide other sectors with reliable data on water-associated diseases and effectiveness of interventions to facilitate better decisions with respect to water and sanitation projects;
- provide leadership for action in hygiene education, safe nutrition including building coalitions with private sector agencies to achieve better results;
- advocate for adequate food and water supply, sanitation and hygiene interventions in poverty reduction strategies and plans;
- Health personnel must also ensure traditional way of treatment and storage of drinking water; for point-of-use water treatment interventions have beneficial health effects. It is recommended that drinking water is treated and stored in narrow-mouthed pots or spigot plastic vessels designed to reduce re-contamination.

6.1.3 The District Assembly

The government policies about health should offer a range of technology options (e.g., different kinds of latrines such as KVIP and explain associated costs, maintenance requirements, advantages and disadvantages. Public funds should be better spent on promotional campaigns about health promotion and maintenance strategies and offer subsidies for production of food and provision of infrastructure that enhance the health of the people. Furthermore, policies must incorporate programs to change

feeding and hygiene practices, regular water supply, maintenance of environmental sanitation and other health projects. Health sector involvement can contribute to the success of water and sanitation projects.

The District Assembly should not provide hardware (water pipes and latrines) without the software (hygiene promotion) and community training and organization to sustain/maintain services. The policies should also include education and information to increase community demand for improved sanitation facilities.

6.1.4 The Regional Health Directorate

At the regional level, Health promotion units must be established or strengthened to intensify health promotion which remains as a viable approach and a tool for comprehensive and equitable health development. The shift of focus from health education to health promotion was catalyzed by the Ottawa Conference in 1996 and sustained by the outcomes of the subsequent international conferences on health promotion.

Health promotion strategies have been integrated into many health and development programmes. The Regional Health Administration must intensify its focus on the “healthy settings approach” that could pave the way for partnerships with government sectors including NGOs and the private sector. However, gaps exist in Health Promotion knowledge, skills and concept application even among health personnel and decision makers in most countries. There is need for concerted efforts to integrate health promotion activities across sectors in order to close the gaps in the area of child health and domestic hygiene.

Furthermore, they need to develop policies and strategies that advocate for health promotion to be a part of the public health development agenda. There is need to establish functional partnerships,

strong networks and alliances for promoting health that include private and public sectors, and civil society groups other than those traditionally engaged in health in order to build a critical mass for health promotion in various settings.

6.1.5 Ministry of Health/Ghana Health Service

The Ministry of Health and Ghana Health Service can do several things, in collaboration with other sectors, to help ensure that investments in water supply and sanitation result in greater health impact.

Public health promotion and education strategies are needed to change behaviours so as to realize the health benefits of improved waste supplies and good sanitary environment. Programs to improve hand washing behaviour appear to be feasible and sustainable especially when they incorporate traditional hygiene practices and beliefs. There is less experience with interventions that focus on changing faeces disposal behaviour. New, better approaches to behaviour change must be developed, including a project that shall persuade the private sector (soap manufacturers and the media) to transmit health information by advertising soap and its appropriate use to prevent diarrhoea.

The Ministry of Health/Ghana Health Service must establish a unit that will encourage formation of support groups in every locality to complement the concept of baby friendly hospitals. There should be crèche and day care centres attached to larger institutions in the country to enable nursing mothers to continue breast feeding their babies whilst working.

6.1.6 Ministry of Local Government/Government of Ghana

The ministry should put in effective mechanisms to monitor and evaluate health interventions, and collect baseline data to measure and document the impact of water and sanitation activities. The environmental health division must be restored to the Ministry of Health so that there will be closer relationship among the public health division and the environmental health division. This will enable a common strategy to be developed and implemented effectively to reduce the upsurge of diarrhoea and other communicable diseases.

The ministry must also encourage persons to research or carry out pilot projects to test new technologies or mechanisms such as cost-recovery to ensure maintenance and sustainability of health and other social projects.

6.1.7 Development Partners

Communities, District Assemblies and the Central Government must make concerted efforts to forge partnership with UNICEF, WHO and other partners, both international and local non-governmental organizations to:

- Rapidly disseminate health information especially about breast feeding, supply of wholesome water to households and good hygiene practices such as regular hand washing at homes and working places.
- Supply and educate mothers of children less than five years on the use of ORS and zinc supplements to countries that cannot manufacture them to meet quality standards
- Help with communication efforts aimed at enhancing prevention and management of diarrhoea at health facilities.
- vaccination against all vaccine-preventable diseases, including measles

REFERENCES

- Ahafo Ano South District Health Directorate (2006). Annual Report.
- Acra, A; Raffoul,Z; and Karahagopian,Y (1984). Solar Disinfection of Drinking Water and ORS: Guidelines for Household Application in Developing Countries. American University of Beirut.
- Curtis, V; Caimcross, S; Yonli, R. (2000). Domestic hygiene and diarrhea: Tropical Medicine & International Health. (5)1. 22-32.
- Elfituri, AA; Elmahaishi, MS; and MacDonald, TH (1999). Role of Health Education Programmes within the Libyan Community. Eastern Mediterranean Health Journal. Vol (5) 2. 268-276.
- Ellis, A.A; Winch, P; Daou. Z; Gilroy, K.E; and Swedberg, E (2006). Home Management of Childhood Diarrhoea in Southern Mali: Implications for the Introduction of Zinc Treatment: Social Science and Medicine. John Hopkins School of Public Health. Baltimore, USA. 64(3) pp 701-712.
- Ergenekon-Ozelci P; Elmaci, N; Ertem, M; and Saka, G., (2001). Breastfeeding beliefs and Practices Among Migrant Mothers in Slums of Diyarbakir. Health Publishing Unit, Turkey. (2) 98-102.
- Ghana Health Service (2005). Ashanti Regional Health Directorate Annual Report, RHA, Kumasi.
- Hitchcock, K and Appelt, K (2007). Sustainable Collaboration for Community Outreach: Lessons from Spanish Access to Literature/Usa Directo (SALAUD Project. J Med Libr Assoc. 96 (1) www.ncbi.nlm.nih.gov > ... > *J Med Libr Assoc* > v.96(1);
- National Population and Housing Census.(2000). Ghana Statistical and Survey Department, Accra-Ghana.

Jahan, R.A (2000). Promoting Health Literacy: A case study in the Prevention of Diarrhoeal Disease from Bangladesh. Health Promotion International, Oxford University Press. (15) 4. 285-291.

James, C (2005). The Importance of Breastfeeding in Reducing Child Mortality. Published in Harrambee. <http://www.micahchallenge.org.au/resource/breastfeedingarticle%5B1%5D.pdf>.

Kauffman, C (2007). Access to Drinking Water and Sanitation in Africa. Policy Insights (41). <http://www.oecd.org/dev/aeo>

Kimmons, J.E; Brown, K.H; Lartey, A; Collins, E; Mensah, P.P; Dewey, K.G (1999). The Effects of Fermentation and/or Vacuum Flask Storage on the Presence of Coliforms in Complementary Foods Prepared in Ghana. International Journal of Food Science. 50 (3) pp 195-201.

Mensah, P; Yebo-Manu, D; Owusu-Darko, K; and Ablordey, A (2002). Street Foods in Accra: How Safe Are They? Bulletin of the World Health Organization. Vol. 80 (7). <http://www.scielosp.org/scielo>

Ministry of Health-Ghana. (2000). Drug Treatment Guidelines. Pg. 12

Misra, R; James, S; and Delores C. (2000). Breast-feeding Practices Among Adolescent and Adult Mothers in the Missouri WIC Population. Dept. of Health Science Education, University of Florida, Gainesville. 100(9): 1071-1073.

Maxwell, D; Levin, C; Armar-Klemesu, M; Ruel, M; Morris, S and Ahiadeke, C (2000). Urban Livelihoods and Food and Nutrition Security in Greater Accra, Ghana. International Food Policy Research Institute. Washington, D.C. <http://www.ifpri.org> and <http://www.cgiar.org/ifpri/pubs/pubs.htm>

Nanan, D; White, F; I. Azam, I; Afsar, H; Hozhabri, S. (2003). Evaluation of a water, sanitation, and hygiene education intervention on diarrhoea in northern Pakistan. Bulletin of the World Health Organization. (81)3. 1-57.

Olagun, A A E; Adebayo, A A; Ayandiran, O E; Olasode, O A (2006). Effects of Mothers Socio-Economic Status on the Management of Febrile Conditions their Under Five Children in a Reserve Limited Setting. Biomedcentral. <http://biomedcentral.com/1472-698x-6-1>

Perera, BJC; Ganesan, S; Jayarasa, J and Ranaweera, S (1999). The impact of breastfeeding practices on respiratory and diarrhoeal disease in infancy: A study from Sri Lanka. Journal of Tropical Pediatrics 1999 45(2):115-118; doi:10.1093/tropej/45.2.115 . Oxford University Press

Rao, G.M. S; Sudershan, R.V; Pratima Rao, Vardhana Rao, M. V; and Polasa, K. (2007). Food safety knowledge, attitudes and practices of mothers—Findings from focus group studies in South India: Appetite. (49) 2. 441-449.

Rao, KV; Mishra, VK; Retherford, RD (2007). Mass Media can help improve Treatment of Childhood Diarrhoea: National Family Health Survey Bulletin. (11):1-4.

Strina, M. (2003) Childhood Diarrhoea and Observed Hygiene Behaviour in Salvador: AM Paediatric Journal, Brazil. (87) 1032-1038.

Tully J, Viner RM, Coen PG, Stuart JM, Zambon M, Peckham C, Booth C, Klein N, Kaczmarek E, Booy R (2006). Risk and Protective Factors for Meningococcal Disease in Adolescents: Matched Cohort Study. BM Journal. (332): 445-450.

WHO Report (2003) Global Strategy for Infant and Young Child Feeding. WHO Library Cataloguing-in-Publication Data. Geneva. <http://www.waba.org.my/pdf/gs-lycf.pdf>.

Tumwine, J K (2005). Clean Drinking Water for Homes In Africa and Other Less Developed Countries. Biomedical Journal(BMJ). 331: pp 448-469.

World Bank Release (2008). World Bank Lunch Handwashing With Soap Campaign in Kenya. <http://washafrika.wordpress.com>.

UNICEF Report (2004). Report of the Review of Accelerated Child Survival and Development (ACSD) programme in the Upper East Region of Ghana. Page 42-55.

WHO Report (2008). Africans Meet to Improve Food Safety in the Continent.
<http://who.int/mediacentre/news/releases>

WHO Report (2008). Sixty-First World Health Assembly: Monitoring Achievement of the Health Related Millennium Development Goals. http://www.who.int/gb/ebwha/pdf_files/A61/A61_15-en.pdf.

WHO Report (2007). Water Sanitation and Hygiene: Environmental Burden of Diseases (15).
<http://whqlibdoc.who.int/>.

WHO Reproductive Health Library (2007). Pregnancy and Childbirth and Breastfeeding.
http://www.who.int/rhl/pregnancy_childbirth

WHO/UNICEF (2008) Joint Statement on Clinical Management of Acute Diarrhoea.
<http://www.who.int> and <http://www.unicef.org/>

WHO Newsletter (2008). Management of Acute Diarrhoea and Respiratory Diseases: neglected and forgotten health problems? Communicable Newsletter. WHO Office for South-East Asia. Vol. 5 (2) pp1-3.

WHO Report (2004). Initiative for Vaccine Research.
http://www.who.int/vaccine_research/disease/diarrhoea/en/index.html

WHO Report (2003). Global Strategy for Infant and Young Child Feeding. WHO Library Cataloguing-in-Publication Data. Geneva.

Wright et al (2004). Household Drinking Water in Developing Countries: A Systematic Review of Microbial Contamination Between Source and point-of-use. Tropical Medical and International Health. University of Southampton. Vol.9 (1) pp 106-117.
<http://www.blackwellsynergy.com/links/doi>

WHO Report (2005). Household Water Treatment and Storage.
http://www.who.int/household_water/en/

WHO/IOMEH Report (2003). Joint Workshop on: 'Advocacy and IEC for Children's Environmental Health'. WHO Regional Office for Europe. <http://www.euro.who.int>

APPENDIX 1

QUESTIONNAIRE

Dear respondent,

I am a student of Kwame Nkrumah University of Science and Technology pursuing masters degree in Health Education and Promotion. I am conducting a study to assess the effectiveness of Information, Education and Communication in the prevention diarrhoeal diseases among children under 5 years. The study will enable me assist in the designing of health education strategies for the district in particular and Ghana in general. Please you are not required to disclose your identity.

A. Socio-demographic data

1. What is your educational level?

- a. No formal education
- b. Formal education
- c. No response

2. What is your occupation?

- a. Self-employed
- b. Public service employee
- c. No response

3. Which religion do you belong to?

- a. Christian
- b. Islam
- c. Traditional

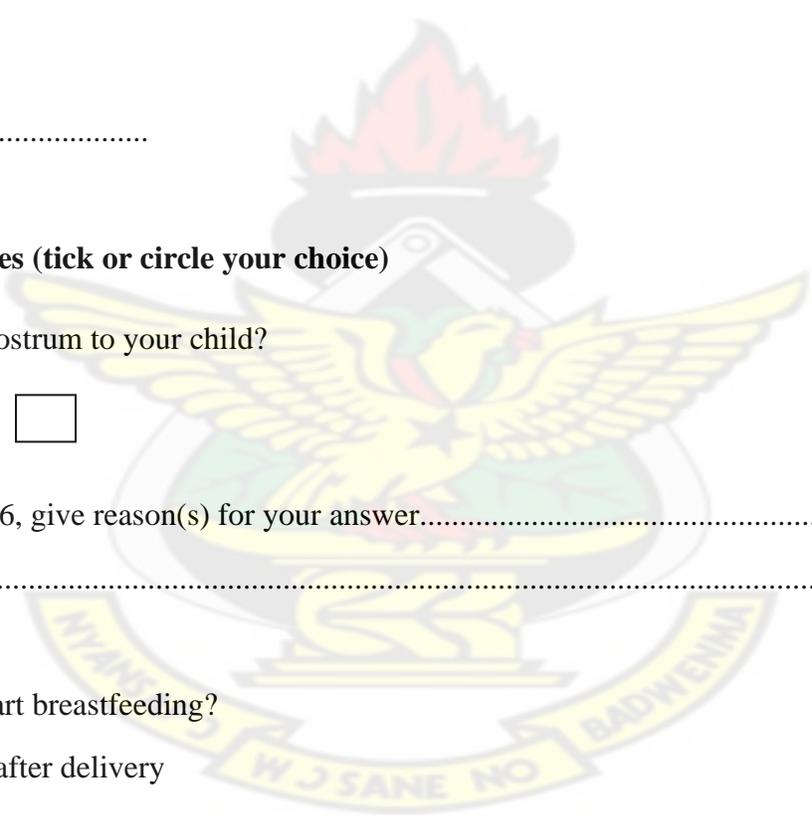
- d. Others (specify).....
- e. No response

4. Age of respondent.....

5. Which tribe do you belong to?

- a. Hausa
- b. Akan
- c. Dagbani
- d. Ewe
- e. Ga
- f. Others (specify).....
- g. No response

KNUST



B. Feeding practices (tick or circle your choice)

6. Did you give colostrum to your child?

Yes No

7. If no to question 6, give reason(s) for your answer.....
.....

8. When did you start breastfeeding?

- a. Within 24 hours after delivery
- b. After 24 hours
- c. No response

9. When did you give your child first water?

- a. Before 6 months
- b. After 6 months

c. No response

10. How long did you breastfeed your child?

a. 0-5 months

b. 6 to 11 months

c. 12 to 17 months

d. After 18 months

11. Did you give artificial feed to your child under 5 years?

Yes No

12. Who encouraged you to give artificial food to your child?

a. Friends

b. Family members

c. Health workers

d. Own desire

e. Others (specify).....

f. No response

13. If yes to question 11, give reason(s).....

14. Have you weaned your child?

Yes No

15. What common local foods do/did you give to your child/children during weaning?

a. Akpele and soup

b. Rice and stew

c. Fufu and soup

d. Artificial food

e. Others (specify).....

f. No response

16. Do you store your child's left-over food?

Yes

No

17. If yes to question 16, where do you keep the food?

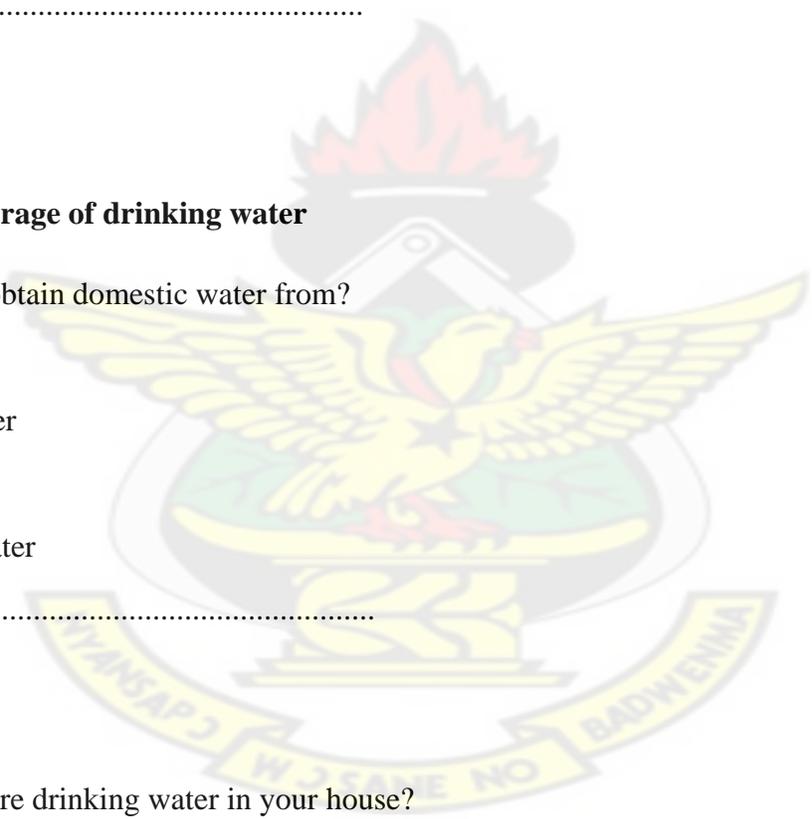
- a. Refrigerator
- b. Bowl with cover
- c. Cooking
- d. Food flask
- e. Uncovered cooking utensil
- f. Others (specify).....
- g. No response

KNUST

C. Sources and storage of drinking water

18. Where do you obtain domestic water from?

- a. Hand dug well
- b. Harvest rain water
- c. River or stream
- d. Treated piped water
- e. Others (specify).....
- f. No response



19. How do you store drinking water in your house?

- a. Pot with cover
- b. Bucket with cover
- c. Bottles and put them in refrigerator
- d. Bottles with cover
- e. Others (specify).....
- f. No response

20. Where do you obtain water in time of shortage (**describe it below**)

.....

D. Personal hygiene practices

21. When do you wash your hands? (tick as many as possible)

- a. Before eating
- b. Before feeding my child
- c. Before breastfeeding my baby
- d. Before cooking
- e. After attending social gathering
- f. After visiting toilet
- g. After caring for a child who has defecated
- h. Others (specify).....
- i. No response

22. How do you wash your hands before breastfeeding your child?

- a. With soap and water
- b. Do not wash hands with soap and water
- b. always with water alone
- c. sometimes with water alone
- d. No response

23. Do you have a toilet in your house?

Yes No

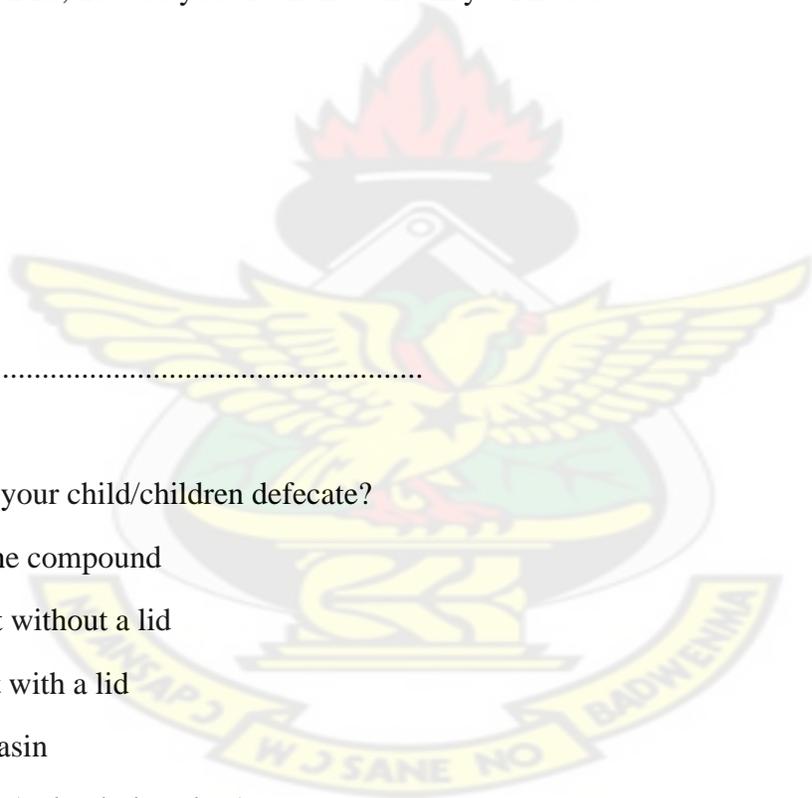
24. If no to question to question 23, where do you defecate?

- a. Dig the ground and cover faeces with earth or soil
- b. Put faeces in plastic bag and throw away
- c. Use public latrine
- d. Do it in a nearby bush
- e. Put it into a gutter
- f. defecate in neighbour's toilet
- g. Others (specify).....

KNUST

25. If yes to question 23, how do you clean the toilet in your house?

- a. Monthly
- b. Fortnightly
- c. Weekly
- d. Every other day
- e. Daily
- f. Others (specify).....
- g. No response



26. Where do/does your child/children defecate?

- a. Bare ground at the compound
- b. Into chamber pot without a lid
- c. Into chamber pot with a lid
- d. Into a washing basin
- e. Into a carrier bag (polyethylene bag)
- f. No response

27. How do you dispose the faeces of your child/children?

- a. Into gutters
- b. Unto the street
- c. Into public latrine

- d. At dumping ground
- e. Others (specify).....
- f. No response

28. How do you clean child/children who has/have defecated?

- a. Use tissue paper
- b. Use any harmless object
- c. Use tissue paper and wash anal area with soap and water
- d. Wash anal area and use mother's cloth to dry
- e. Others (specify).....
- f. No response

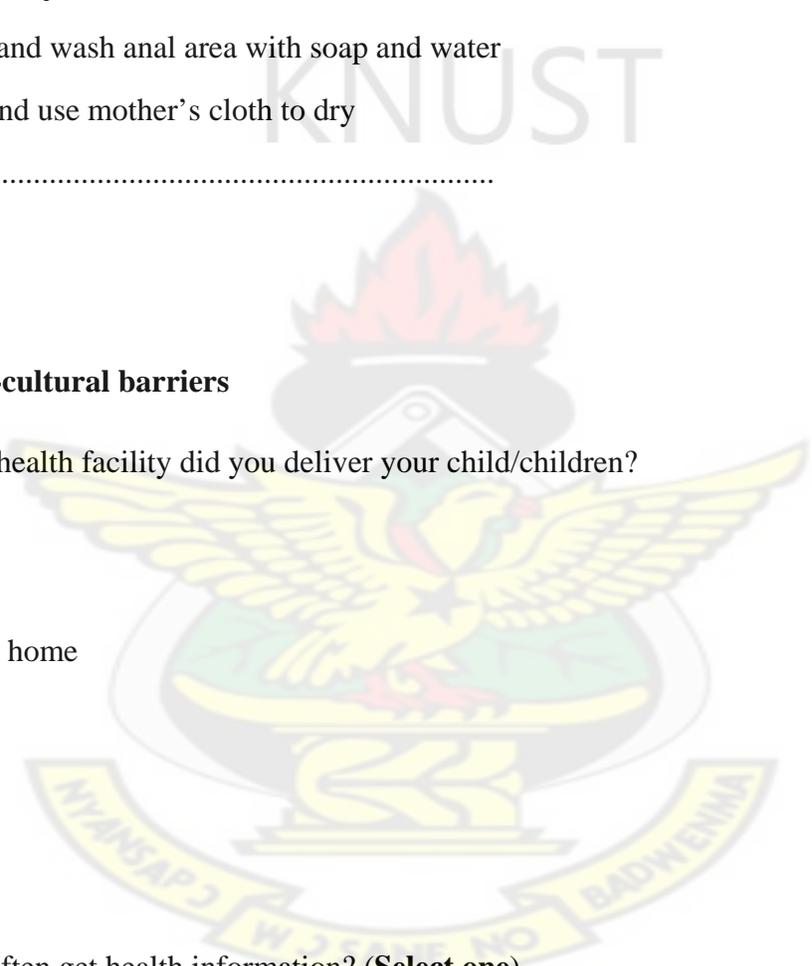
E. IEC and Social-cultural barriers

29. In which type health facility did you deliver your child/children?

- a. Public hospital
- b. Private hospital
- c. Private maternity home
- d. Trained TBA
- e. Home delivery
- f. Others
- g. No response

30. Where do you often get health information? (**Select one**)

- a. A friend or relative
- b. Radio
- c. Television
- d. Health workers
- e. Books and newspapers
- f. Notice and Billboards



g. Others (specify).....

h. No response

31. How often are you educated on health matters or do you obtain health information?

a. Daily

b. Weekly

c. Monthly

d. Quarterly

e. Yearly

f. Others (specify).....

g. No response

32. Do you put the information into practice?

a. Always

b. Sometimes

c. No response

33. What is the common language used during health education?

a. Hausa

b. Akan

c. Dagbani

d. Ewe

e. Ga

f. Others (specify).....

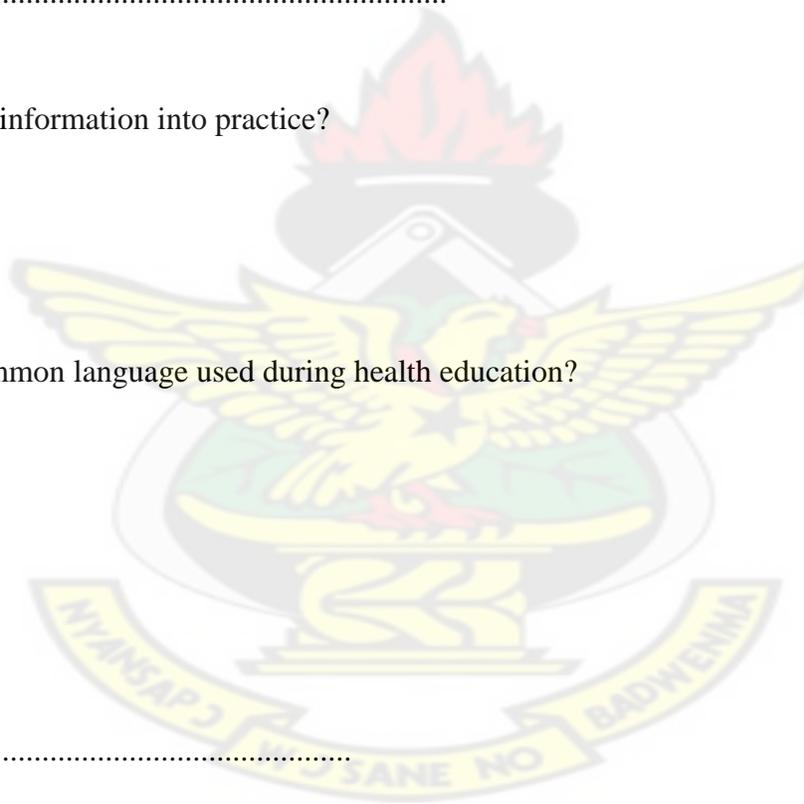
g. No response

34. Does the language you chose in question 37 makes it difficult to understand health information?

Yes No

35. Are there any socio-cultural barrier(s) to the use of health information?

KNUST



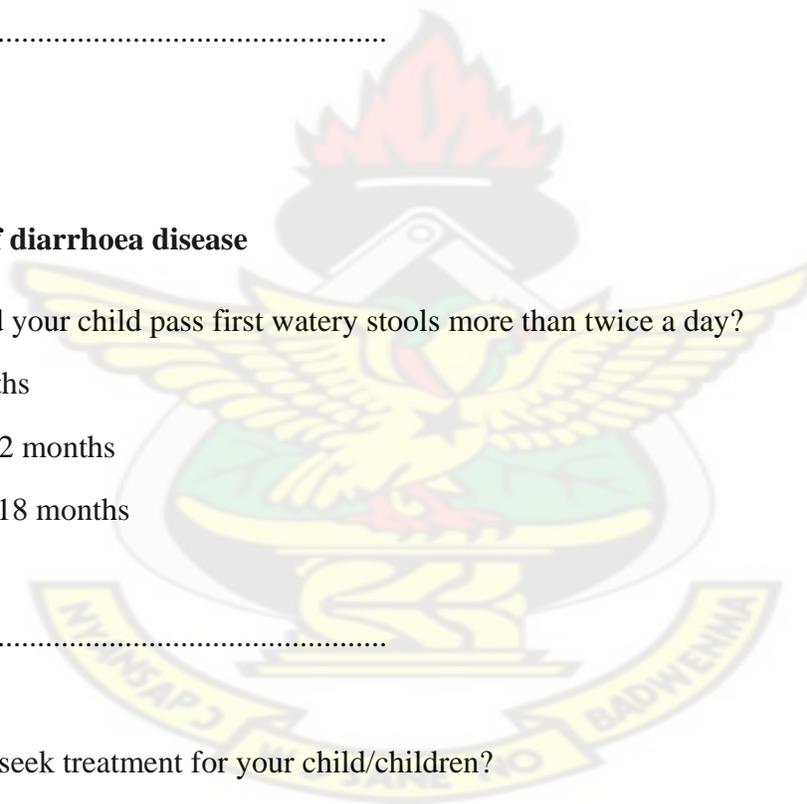
Yes No

36. If yes to question 36, please give reason(s).....

37. What do you consider more as a shortfall on the part of health workers in the dissemination of health information?

- a. Health workers' habit
- b. Time for education
- c. Place for education
- d. Language used in education
- e. Others (specify).....
- f. No response

KNUST



F. Management of diarrhoea disease

38. At what age did your child pass first watery stools more than twice a day?

- a. Less than 6 months
- b. Between 7 and 12 months
- c. Between 13 and 18 months
- d. After 18 months
- e. Others (specify).....
- f. No response#

39. Where did you seek treatment for your child/children?

- a. From herbalist
- b. From family members or friends
- c. From hospital or clinic
- d. From drug store
- e. Others (specify)
- f. No response

40. How was your child/children diarrhoea treated? Using.....

- a. Oral fluids alone
- b. Intravenous infusion alone
- c. Drugs alone
- d. Oral fluids and drugs
- e. Others (specify).....
- f. No response

41. Did you get enough education from health workers?

Yes No

42. If yes to question 45, how did health workers educate you? Use of.....

- a. Health talk alone
- b. Posters
- c. Flip chart
- d. Audio-visual
- e. All of the above
- g. No response

G. Suggestions

43. Do you need more education in the prevention of diarrhoea diseases?

Yes No

44. What language would prefer to be used in educating you on health issues?

- a. Hausa
- b. Akan
- c. Dagbani
- d. Ewe
- e. Ga

f. Others (specify).....

g. No response

45. Which category of persons do you prefer to be your source of health information?

a. Health workers

b. Radio

c. Teachers

d. Opinion leaders

e. Others (specify).....

f. No response

46. What is the preferred method of health education?

a. Electronic media

b. Community durbars

c. Print media

d. Posters and leaflets

e. Health talks for organised groups

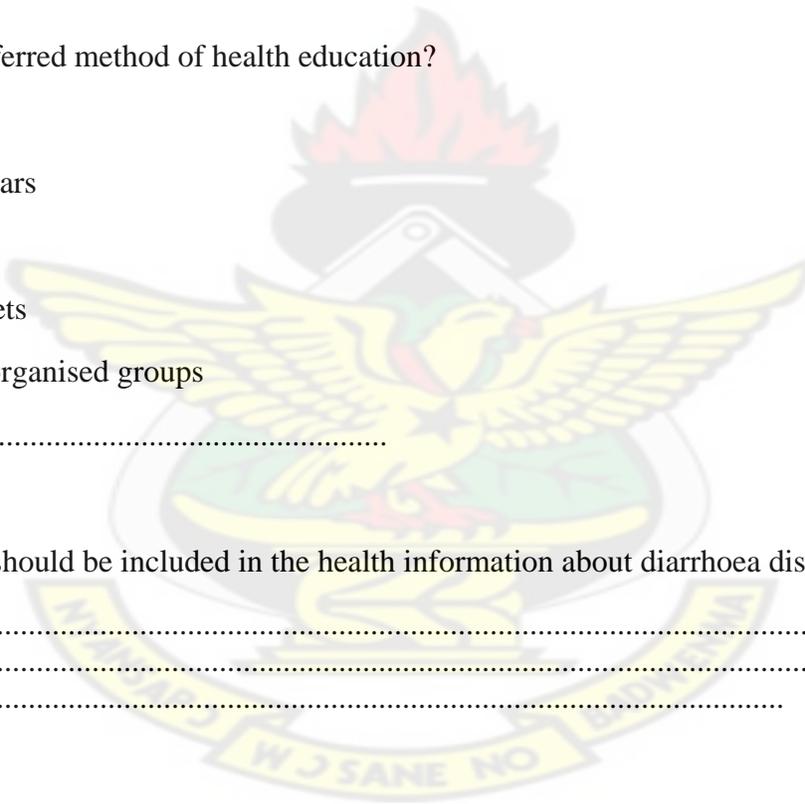
f. Others (specify).....

g. No response

47. What message should be included in the health information about diarrhoea diseases?

.....
.....
.....

KNUST

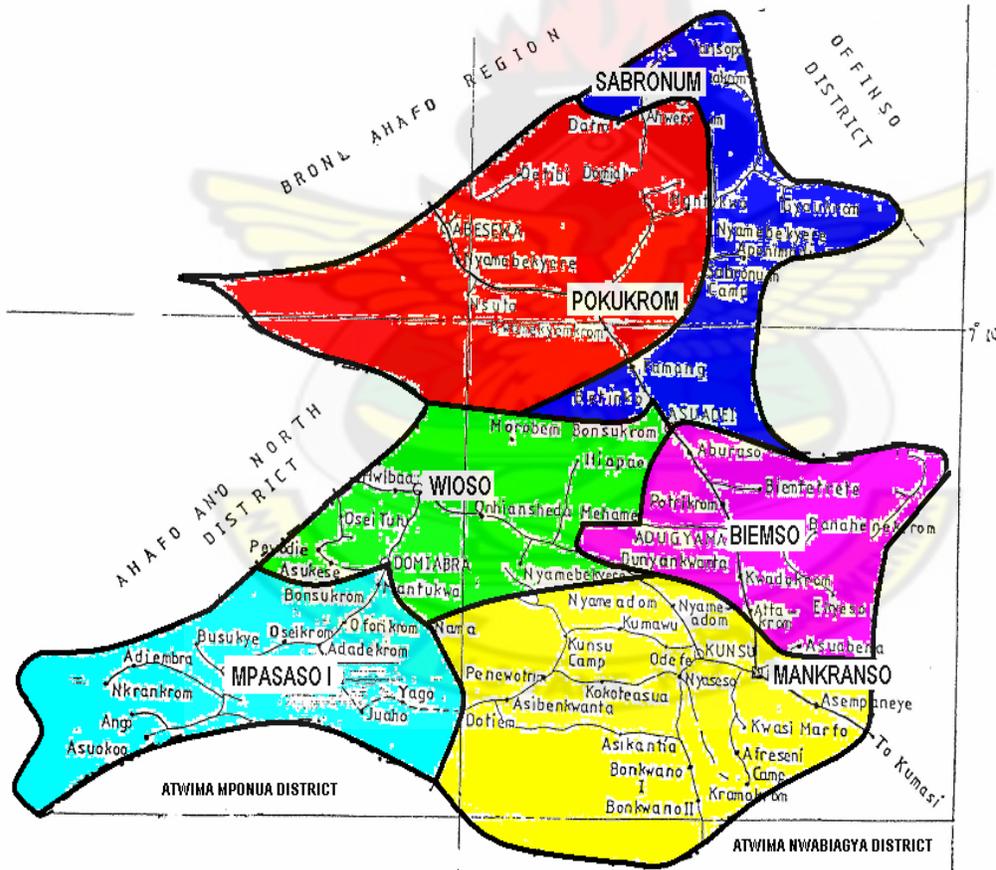


APPENDIX 2

MAP OF AHAFO ANO SOUTH DISTRICT IN THE ASHANTI REGION

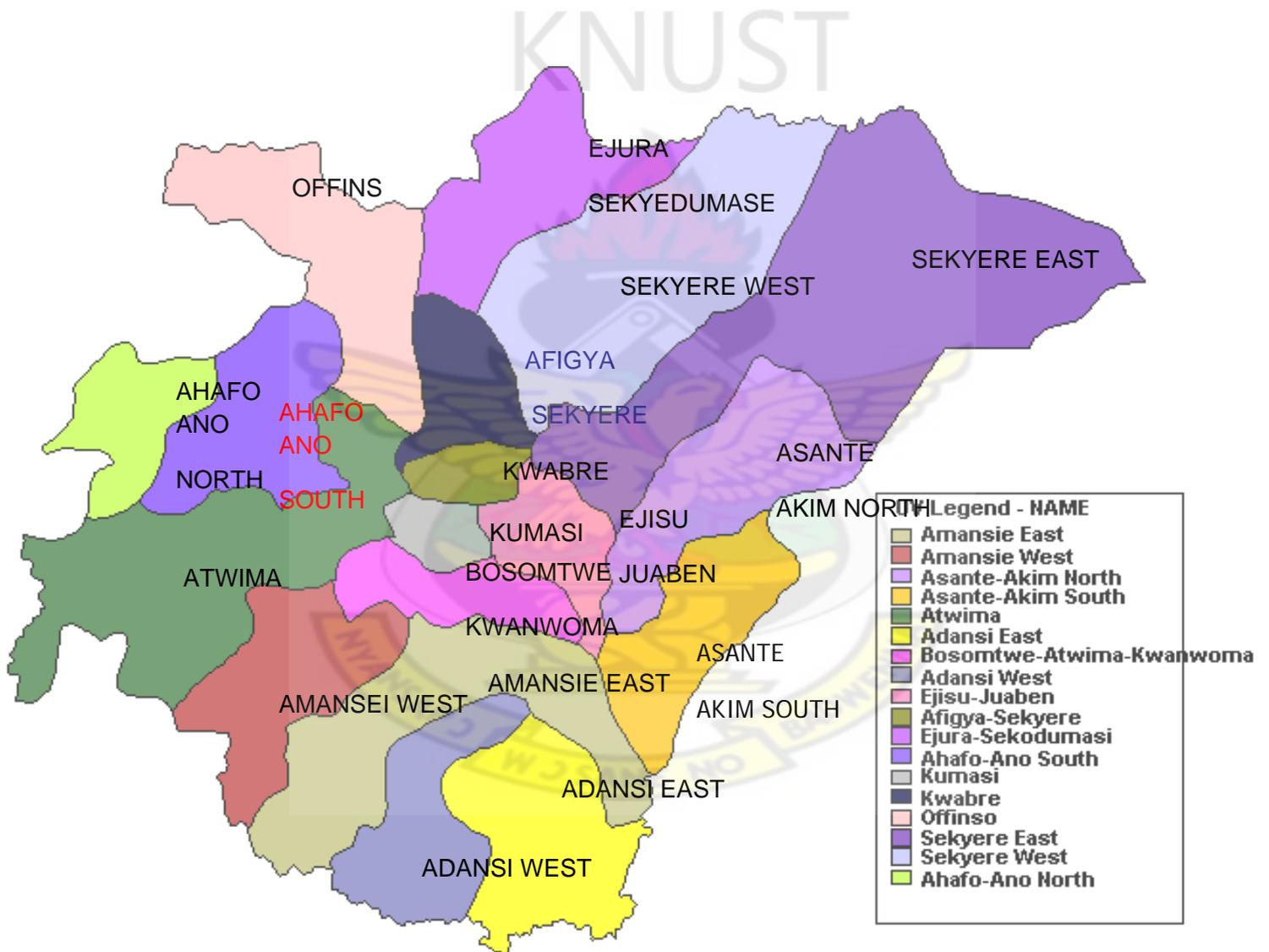
KNUST

AHAFO ANO SOUTH DISTRICT MAP



APPENDIX 3

MAP OF ASHANTI REGION



APPENDIX 4

A WOMAN AND A BOY COLLECTING WATER IN A STREAM IN THE AASD

KNUST



KNUST

