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HEALTH EDUCATION ON MOTHER'S PERCEPTION AND CARE-SEEKING BEHAVIOUR TOWARDS ACUTE RESPIRATORY INFECTION (ARI) IN RIVERS STATE

BY

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MASTER IN PUBLIC HEALTH (MPH)
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DECLARATION

I, Dr. Margaret-Mary Ifeoma Mezie-Okoye hereby declare, that this research work was done by me under the supervision of Dr. C. N. Obionu in Partial fulfilment of the requirements for the Award of the Degree of Master of Public Health (MPH) of the University of Nigeria, Nsukka.

Dr. Margaret-Mary Ifeoma Mezie-Okoye
(Declarant)

Dr. C. N. Obionu
(Supervisor)

External Examiner

Signature and Date
DEDICATION

This work is dedicated to my dear husband

Engr. J. J. Mezie-Okoye

and

My lovely Children

Dunobi, Uche, Seanto, Chiluozor and Rauchukwu
ACKNOWLEDGEMENT

This work would have been abandoned but for the encouragement and support of my supervisor, the gentle and soft spoken Dr. C. N. Obionu. He patiently and meticulously supervised this work. I am indeed very grateful to him.

I wish to express my indebtedness to the University of Port Harcourt for their financial assistance during the course of my study.

My unreserved gratitude also goes to Dr. Seye Babatunde whose technical advice, statistical support and critique gave me confidence to plod on and complete this work.

To Miss Eunice Ulonnamdi who painstakingly typed and retyped the manuscript, I say a big thank you.

This acknowledgement will be incomplete without mentioning the love and understanding lavished on me by my family who had to manage without mom for several months. To them I owe the determination to go on. Most especially I thank my darling husband who sometimes had to stay awake to assist me and keep me company.

Finally, I thank the Almighty God without whom nothing is possible. To Him be the glory, great things He has done!

DR. M. M. MEZIE-OKOYE
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1: Prevalence of ARI Amongst under-five Children (From Table II)
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A non-randomised controlled intervention study was carried out in Aluu Community in Rivers State to determine the impact of health education on maternal perception and care-seeking behaviour towards ARI in children. A total of three hundred and twenty (320) mothers from intervention area and two hundred and fifty one (251) from control area were interviewed using a structured questionnaire. Health education was given to only the mothers in the intervention area (Aluu). Two hundred and five (205) of them who met the requirements were re-interviewed six weeks after the health education.

Results of the study showed that maternal knowledge about signs and symptoms of pneumonia (fast breathing and chest in-drawing) improved significantly: for fast breathing — from 70% to 81.4%, with $X^2 = 8.26$ and $P<0.005$ and for chest indrawing — from 26.2% to 41.0%, with $X^2 = 11.91$ and $P<0.005$. Their attitudes and behaviour towards ARI/Pneumonia did not improve significantly, $P>0.1$.

There is need for a more comprehensive study on maternal perception and care-seeking behaviour for mothers in Rivers State. Also a following study needs to be carried out in this community to detect actual behaviour change.
CHAPTER ONE
INTRODUCTION

Acute Respiratory Infection (ARI) constitutes a major public health problem in children in developing countries.\(^1\) It is a prevalent condition that results in substantial morbidity and mortality in children and consumes a large proportion of health care resources in developing countries. Together with malnutrition and diarrhoea ARI kills millions of children each year in developing countries.\(^2\) This has led to setting up of specific ARI control programmes in many developing countries. These programmes are aimed at the prevention and early treatment of life threatening acute lower respiratory infections mainly pneumonia.

World Health Organization (WHO) defines ARI as "any infection of acute onset affecting the ear, nose, throat, larynx, trachea, bronchi, bronchioles or lungs".\(^3\) It ranges from common cold, ear infections, sore throat, bronchitis, bronchiolitis and pneumonia. Pneumonia, bronchiolitis and acute laryngitis are the most serious forms of ARI. Common micro-organisms associated with ARI include respiratory viruses, measles virus, pertussis, streptococcus, pneumonia and haemophilus influenza.

WHO estimates that one third of all deaths in children below the age of five (that is, 4.3 million deaths in real terms in 1993) are due to ARI\(^4\). 95% of these 4.3 million deaths occur in developing countries where 90% of all
ARI deaths in children are caused by pneumonia. ARI is the leading cause of use of health service in many countries accounting for huge expenditure on medicines, hospitalization and other services. Up to 60% of all pediatric outpatient visits and 20% to 40% of pediatric hospitalizations in low-income countries are due to ARI. 

In Nigeria, as in other developing countries, ARI is a leading cause of morbidity and mortality. The average incidence of ARI in Nigeria ranges from 6.1 to 8.1 episodes per child per year. (Globally an average of 4-9 per child annually). A child dies from pneumonia every seven seconds, many of these deaths can be prevented and the key to their prevention is education of mothers and health workers at all levels of health care.

In Nigeria, ARI is one of the commonest causes of hospital admission and deaths among children. ARI contributed 18.4% of all pediatric outpatient visits in Aluu Primary Health Centre between June 1995 and May 1996. ARI is second only to malaria as a cause of morbidity in Primary Health Centre Aluu. It topped the list of mortality in post-neonatal age (27.5%) in University of Port Harcourt Teaching Hospital in 1993.

There is paucity of information needed for effective programme planning for the control of ARI in Rivers State. In Nigeria, only a few studies have...
been done in this area and most of them in the South-Western part of the country. The only study in the South East was done in Enugu. The success of the management strategy depends to a large extent on the understanding of the local community's health-seeking behaviour towards ARI. Also no study as yet has been done on the impact of health education on maternal health-seeking behaviour towards ARI in Port Harcourt. Thus, this study will provide useful baseline information for the planning and implementation of the ARI control programme in Rivers State, for the training of health workers in the case management of ARI, and for estimation of the degree of unmet needs. It will also help in the development of appropriate and effective health education programme for the communities in the area of study.

The World Health Assembly (WHA) in 1976 agreed on initiatives to fight ARI. It later approved a comprehensive ARI control programme services and research under the aegis of the WHO seventh general programme of work for 1984 – 1989. The WHO Technical Advisory Group proposed that Immunization, Health Education and case management of ARI would have an immediate effect on mortality from ARI. The leading cause of death from ARI is pneumonia. In 1984 WHO instituted a global programme for the control of ARI whose principal objective is to reduce mortality from pneumonia. The WHO ARI programme target is to reduce the deaths due to pneumonia in children under five years by one third between 1990 and
the year 2000. The cornerstone of the programme is the standard case management strategy which involves:

1. Early recognition of pneumonia by health workers using signs of fast breathing and chest indrawing.
2. Prompt referral to hospital for injectable antibiotic treatment and other intensive care, for severe and very severe cases.
3. Antibiotic treatment at home with recommended drugs, for cases of pneumonia which are not severe.
4. Supportive home care for the vast majority of acute respiratory infections which do not require antibiotics.

This strategy combined with immunization and appropriate education for families and health workers have been shown to have a significant impact on ARI mortality rates in infants and young children.

Nigeria joined other nations in launching a National ARI Control programme (NARIP) in 1996. The programme is still in its infancy, as yet not much is going on except the training of health workers in different states. In the University of Port Harcourt Teaching Hospital, all resident doctors, nurses and medical students in the Department of Paediatrics undergo a training course in standard case management for ARI in the ARI Unit of the Department. The Ministry of Health is expected to have initiated its own training programme for State health facilities.
The former 'action based' classification of ARI\(^2\) is summarised as follows:

a. **Mild ARI** — Nasal congestion, cough, fever, etc.

b. **Moderate ARI** — Cough and a respiratory rate greater than 50 per minute, that is, fast breathing.

c. **Severe ARI** — Cough and chest indrawing

d. **Very severe ARI** — Cough and cyanosis or not able to feed.

Severe and very severe ARI require referral to hospital. For fast breathing, the count also depends on the age of the child.

- **< 2 months of age** — 60 breaths per minute
- **2 – 12 months of age** — 50 breaths per minute
- **12 – 60 months of age** — 40 breaths per minute

The revised classification\(^3\) is as follows

a. Coughs and cold (that is, no pneumonia)

b. Pneumonia (mild to moderate)

c. Severe Pneumonia.

This latter classification aims at differentiating ordinary upper respiratory infection from pneumonia. Management guidelines for both classifications remain the same.

Health Education has been defined by different people in different ways viz:
1. A process of providing teaching, learning experiences and activities for the purpose of favourably influencing knowledge, attitude, practices and conducts with regard to individual, family and community's health, (class notes by Dr. SGM Eze, 1999).

2. Green (1980) defines Health Education as "any combination of learning experience designed to facilitate voluntary adaptations of behaviour conducive to health."  

The aim of Health Education is to change the health behaviour of the individual in a way that will lead to protection, promotion and maintenance of his health. Health Education focuses on what an individual thinks (knowledge) how he feels (attitude) and what he does (practice) with respect to health or that of the family or community.

Health Education has been shown to be a major activity in the case management strategy of the ARI control programme.  However, before Health Education is started, it is essential to understand the local knowledge, attitude and practices of the people. If the health education does not fit into their perception, families will be less willing either to trust or act on the health workers' advice. Also important are their beliefs which delay care seeking for ARI in their children. This delay in care-seeking is thought to be a major factor contributing to high pneumonia mortality in many developing countries. This is because death from pneumonia may occur within three days of onset of illness. Thus the need for early
recognition and treatment of pneumonia in children. Studies have shown that it is possible to educate mothers to identify lower respiratory infections like pneumonia and to seek early treatment. Therefore, community education should play a major role in national ARI programmes. In fact, community education may be a critical determinant of the success of case management strategies in preventing ARI-related mortality in children.

Education of families especially mothers (who should be seen as important members of the health team) to enable them recognise signs and symptoms of pneumonia remains the main method of improving case detection and reducing mortality. Therefore, national ARI control programmes led by health education will ensure effectiveness of the standard case management strategy.
Study Objectives

The general objective of this study is to evaluate the impact of health education on maternal perception and care-seeking behaviour towards ARI in children.

The specific objectives of the study are as follows:

1. To determine the prevalence of ARI in under-five children in Aluu Community in Rivers State.
2. To ascertain the knowledge, attitude and behaviour of mothers towards ARI especially pneumonia in their children.
3. To give health education on ARI based on the findings of objective 2 above.
4. To assess the effectiveness of the health education.
CHAPTER TWO:
LITERATURE REVIEW

Acute Respiratory Infection in Children

The term 'Acute Respiratory Infections' (ARI) covers a complex variety of diseases in children. The priority ARI problem in most developing countries is pneumonia mortality. Community-based studies done in some low-income countries showed ARI mortalities of 14/1000 in Gambia, Tanzania, and Pakistan, 12.7/1000 in Guatemala and 13/1000 in Papua New Guinea. In India, ARI deaths accounted for approximately 8.8/1000 in 1987. Standard cases management strategy has reduced deaths from pneumonia by 25-67%.

The standard case management is the main strategy for the ARI control programme, which has seven key components. These are training, supervision and logistics, communication or health education, monitoring, evaluation and surveillance of drug resistance. Nigeria is still at the stage of training, thus the paucity of literature on health education as an intervention.

Health Education

Health Education is the fourth key component of WHO Programme for ARI control. Health Education has been receiving a great deal of emphasis. It is a very cost-effective, cost-beneficial and sustainable strategy for any...
programme though the effects and benefit are difficult to quantify. It is difficult to define the cost savings of Health Education. Health Education empowers people to make informed decisions about their health. Thus Health Education should be a resource to help people achieve their health-related goals and objectives. The primary objective of Health Education has been to effect behavioural change. However health behaviour depends on several other variables like knowledge, attitudes, intentions and skills. Health knowledge and skills are relatively easy to change, but it is somewhat more difficult to effect changes in health attitudes and behaviours. When changes in health behaviours have occurred, it is not unusual to find that people revert to past behaviours shortly after the programme's completion. Thus to sustain behaviour changes, reinforcement is necessary.

**Health-Secning Behaviour**

David Mechanic (1978) identified ten determinants of health seeking behaviour. He opined that health-seeking behaviour depends on the individual's ability to recognise the signs and symptoms of the disease. With this recognition he now determines how serious the illness is. Most times, if he is able to carry out his normal functions, he ignores the illness. If he views the illness serious enough but has other pressing needs, he might delay seeking help, for instance, if he has no money to pay for his hospital bills. Other factors may also determine the way he acts after recognising the seriousness or otherwise of the disease. For instance, if
the clinic is far from his home or he does not have any means of transportation, these might delay or prevent his seeking care.

**People's Perception of Illness**

Human attitudes, beliefs and values play an important role in the utilization of health services. Illness and disease have social and cultural dimensions. Man sought within the framework of his knowledge solutions to problems of ill health. The disease theory has been used to explain the perception of disease in societies. It is usually the inability to function adequately not necessarily the presence of disease pathogens that makes people seek treatment.

Thus Illness Behaviour was defined by Mechanic and Wolkhart (1961) as the way in which illness is perceived, evaluated and acted upon by the sick person.

**Maternal Perception of ARI**

Though some data on ARI in children are available in Nigeria, most of these data are hospital-based and not community-based. A few studies have been done on maternal perception of ARI in children in Nigeria. This is quite understandable since the control programme in the country is still in the rudimentary stage.
Akpala and Okwke\textsuperscript{30} studying maternal perception of ARI in infants in Enugu showed that 40\% of the mothers had no knowledge of the causes of ARI and 64\% recognised ARI as a very serious disease. Fast breathing was the symptom most commonly associated with severe ARI by mothers. More serious symptoms like cyanosis and chest indrawing were rarely identified by mothers.

An ARI focused ethnographic study was conducted in Ile-Ife, Nigeria\textsuperscript{31} in this study fast breathing was not recognised by mothers unlike the Enugu study where fast breathing was recognised by mothers. Also signs and symptoms of ARI (for example fever, cough, etc) were regarded as part of normal child development. Home treatment for cough included traditional herbal tea called 'Agbo' and other home made remedies. Sometimes they buy antipyretics and antibiotics from pharmacy or local drug sellers. Lyun and Thompson\textsuperscript{32} in Oyo State, found that most mothers regard ARI episodes as ordinary coughs and colds. They believe that ARI is caused by exposure to cold but were unaware that it can be caused by viral or bacterial agents. The dominant practice among the women was either the use of irritants to get rid of the cause of the disease through vomiting or by forcing the child to swallow bitter remedies like cow urine. They sometimes use remedies with warming and soothing effect like 'ROBB', a methyl salicylate ointment which is often applied topically or dissolved in hot water to drink.
In other parts of Africa, Campbell et al. studying maternal perceptions of Acute Lower Respiratory Infections (ALRI) in Gambia children showed that mothers recognised ALRI as severe disease. They were also able to differentiate it from upper respiratory infections. Chest in-drawing was not specifically recognised and some mothers sought treatment unnecessarily for less serious symptoms. The study also showed that it is possible to educate mothers even in poorly educated populations to identify pneumonia.

In Kumasi, Ghana, Denno et al. found poor maternal understanding of the aetiology of ARI. They could reasonably differentiate mild from severe ARI. Some, however, indicated that they would delay seeking help in a health care facility even in the presence of symptoms of severe disease.

Also a Focused Ethnographic Study (FES) done in Egypt, showed that mothers could distinguish between mild and more serious respiratory infections like pneumonia. Though Egyptian mothers recognised fast breathing, they did not believe it was a sign of serious illness or a reason for seeking care or help. This is in contrast to Gambian mothers who recognised it as a sign of serious illness which prompted many of them to seek care. In Bolivia and Bangladesh, mothers believed serious illnesses like pneumonia to be caused by supernatural forces. In these cases traditional and spiritual healers were consulted and allopathic treatment avoided or delayed.
There is as yet no intervention study in Nigeria. In some other countries, intervention involved both health education of mothers and case management strategy. In Tari, Papua New Guinea, it was found that a mother would treat a child with cough at home and only if the child developed fever or breathlessness would she seek help.

A study to find out the best way to health-educate rural Turkish mothers showed that mothers who received simple education recognised pneumonia better than those who had detailed account of how to recognise pneumonia. Of those who received detailed information, 46% correctly identified pneumonia in their children while 69% did in the group that received simple education.

Rosin, in a yearly survey carried out to monitor the impact of health education on mothers in Kediri, Indonesia found out that attendance rate at the local health centres increased steadily in comparison with centres outside the intervention area.

The number of referrals of ARI cases also increased. Maternal recognition of pneumonia improved.

In the Philippines, Tupasi et al. showed that mothers who did not have the benefit of health education brought their children late to hospital when the
illness was severe. Mothers who had health education knew about the signs and symptoms of severe illness which prompted them to seek help. A community-based intervention trial in Kelantan, Malaysia\(^4\) which involved health education of mothers on pneumonia in childhood, showed a reduction in the incidence of severe ARI in the intervention area which was significantly greater than in the control area (\(P<0.05\)).

Mtango and Nauvians\(^4\) carried out a control project on ARI in under-five children in Tanzania. During the project health education was given to mothers on recognition and prevention of ARI. Also children with pneumonia were treated. Within a two-year period, under-five's mortality rate reduced by 27.2% from 40.1 to 29.2 per 1000. The disease specific mortality rate for pneumonia reduced by 30.1% from 14.3 to 10 per 1000 per year, contributing 40% to the overall mortality reduction.

In a rural district of Northern Pakistan, Khan et al.\(^4^4\) (between 1985 and 1987), conducted a community-based care management programme. The programme included instruction on signs of severe illness like inability to drink, fast breathing and the importance of simple supportive measures for children with mild ARI. Within one year of intervention being extended to the control villages in 1987, the acute lower respiratory infection – specific mortality rate in the control villages dropped by 55% from 14.4 to 6.5 per 1000 children per year. Maternal education appeared to result in improved
health-seeking behaviour and knowledge of ARI. Similar declines in mortality rates have been reported in ARI intervention studies in India and Nepal. 


CHAPTER THREE:
MATERIALS AND METHODS

Study Area

The study was conducted in the Rivers State. Rivers State has a population of 3,813,857 (≈ 4 million) made up of 52.2% males and 47.8% females. Port Harcourt, the capital city of Rivers State is a major industrial centre in Nigeria. The State is comprised of an upland and a riverine area. The study was conducted in the upland area.

Rivers State is made up of twenty-two (22) local government areas – Ikwerre and Emohua were selected for the study. Both are similar in many aspects including geographical location, culture, language and occupation. Ikwerre Local Government Area has a population of 125,385 and Emohua Local Government Area has a population of 154,923 (1991 census). These have been projected to 148,389 and 183,347 for 1996. The natives speak Ikwerre language and are predominantly farmers and traders.

Ikwerre Local Government Area forms the Northern boundary of the university of Port Harcourt while Emohua Local Government Area forms the western boundary. Some staff of the University from other tribes reside among the natives of the two local government areas. The tribes include
Ogonis, Ijaws, Ibibios and Ibos. The ogonis and Ibibios outnumber the Ijaws and Ibos.

For convenience Aluu and Emohua Communities were chosen for study. Aluu and Emohua have populations of 8,346 and 15,657 respectively (1996 projection from 1991 census). Aluu Community is made up of nine villages while Emohua has six villages and they share boundaries. Aluu is served by a primary Health Centre run by the staff of the Department of Community Medicine with another health centre placed centrally. In the same way Emohua has a General Hospital and a Health Centre serving the people. There is poor utilization of these health facilities even by nearby villages in both communities.

Water supply to both communities is from boreholes (monopumps) and shallow wells. Most of the boreholes are non-functional. Roads are not easily accessible during the rains. The inhabitants prefer health facilities run by medical doctors i.e. the General hospital and the Primary Health Centre.

Study Design

The study involved a non-randomised controlled intervention in which Aluu Community was purposefully selected as the intervention area and Emohua became the control area. Mothers of under-five children formed the sampling units and were recruited through a multistage sampling
technique. To be more precise, instead of using the prevalence of ARI obtained from the pilot study, the number of mothers needed to detect a 15% (chosen arbitrarily) difference between pre and post-intervention status of mothers in the intervention group was used. Using Stat. Calc. in Epi info version 6.02, a sample size of one hundred and sixty-five (165) was obtained. To allow for attrition, the pre-intervention sample size was three hundred and twenty (320) mothers of under-five children.

The actual selection of the sampling units was done as follows:

Two villages Omuigwe and Omuoko were selected through simple random sampling in the intervention area. Omuigwe has a population of seven hundred and fourteen (714) people with about two hundred and ninety one females. Omuoko has a population of one thousand and eighty eight (1088) people.

Also two villages Mgbueto and Isiodu were selected in the control area through simple random sampling technique. These villages have populations of nine hundred and fifty (950) and one thousand and twenty one (1021) people respectively.

A house to house visit was conducted starting from the first house in the selected villages. All mothers with under-fives children were included in the study until the sample size was obtained. In the intervention area a sample size of three hundred and twenty (320) was obtained and in the control...
area two hundred and fifty one (251). A sample size of three hundred and twenty (320) was not obtained in the control area because of communal clashes at the time of survey.

Method of Data Collection

Pre-intervention Stage

A pilot study was conducted in another community in Ikwerre Local Government Area to determine the prevalence of Acute Respiratory Infection in the study area and also test the questionnaire.

Prior to this permission was obtained from the chairman of the two Local Government Areas involved and the village heads (Paramount Chiefs). The team (the investigator and the field staff) met with the Chiefs, women leaders and some village health committee members of the communities. The purpose and benefits of the study were explained to them and then appointments were fixed to meet the women in their various homes in the evenings after farm work.

Four field staff were recruited from the two health facilities in Aluu community (two from each facility), two Senior Community Health Extension Workers (SCHEWS) and two Junior Community Health Extension Workers (JCHEWS) - three of them from Aluu community and
one from Ogoni. They were trained to administer the questionnaires and give health talks.

The survey tool was a structured questionnaire which was administered by the field staff to the mothers. Information collected included age, tribe, occupation, educational level, number of children, number of under five children. Also included were questions on recognition of signs and symptoms of pneumonia, causes/risk factors, mothers' attitude and behaviour towards ARI. Throughout the period of data collection mothers and children who were sick received treatment with drugs like cotrimoxazole, paracetamol, chloroquine multivitamins, Katran, fersolate and folic acid. Baseline data were collected using the slightly modified questionnaire (modification followed pilot study).

The Intervention: The Health Education Programme

The health education programme was designed based on the pre-intervention results.

Health education was given in groups of forty (40) based on their fortnightly age-grade social club meetings. This was the easiest and most convenient method of getting mothers to attend because it was difficult to meet them as a group ordinarily. So the health education was given fortnightly, three sessions to each group that is a period of six weeks for each village in the intervention area only. The talks were held on their meeting days -
Wednesday's, Thursdays and Saturday's for one village and Mondays and Fridays in the other village.

The health education was initially given by the researcher in pidgin English and interpreted by one of the field staff in the local language, for uniformity the same team visited both villages each session.

The method of education used was exchange of views and ideas that is, interactive, demonstration of chest indrawing using a child and during the second and third sessions a song on ARI (Composed by the researcher see appendix).

Defaulters were visited in their homes, such visits were not always successful because most times they had travelled outside the community for up to two weeks, thus missing one or two sessions of the talk. Those who attended at least two sessions were deemed to have participated. Sixty-one (61) attended all sessions, one hundred and forty four (144) attended two sessions and one hundred and fifteen (115) only one session. Thus only 205 attended at least two sessions.
Plate 1: The Researcher talking to the women in Omuluke Village (intervention village).

Plate 2: The Researcher demonstrating to the women.

Plate 3: The Senior Community Health Extension Worker interpreting the message to the women.
Contents of Health Education Programme

Health Education was based on those questions for which the proportion of mothers who answered correctly was <75%. Thus from analysis of the baseline studies the following areas were covered during the health education.

1. Recognition of pneumonia
2. Prevention of pneumonia
3. What to do when child has ARI especially pneumonia.

Post-Intervention

After six weeks of intervention, another six weeks was allowed before the post-intervention data were collected. The same women as for the pre-intervention period were visited and the same questionnaire used to obtain data. Treatment was given to those found sick in the households.

This time the control group who did not receive any health education was given general education on prevention of childhood diseases.

Method of Analysis

The data were analysed manually using chi-square test to ascertain if there was any association between health education, perception and care-seeking behaviour of mothers of under fives in Aluu Community.
Null hypothesis
Health Education has no effect on maternal perception and care-seeking behaviour towards ARI in under-five children.

The questions used for evaluation were:
1. Question (19) Maternal recognition of fast-breathing and chest in-drawing
2. (Question 23 and 25) Knowledge about causes/risk factors and prevention of ARI.
3. (Question 31) Maternal attitudes towards ARI
4. (Questions 26 and 34) Maternal behaviour towards ARI

Basis for inclusion of variable in Post-intervention Analysis
The baseline study showed that mothers in both intervention and control areas had been exposed to some form of health education ARI (73% and 71% of them respectively). Based on this it was assumed that the women might have fairly good knowledge about ARI. 75% was then taken as cut-off for good knowledge, attitude or behaviour for which no intervention was necessary because of the likelihood that there may not be any measurable change in knowledge, attitude or behaviour. Thus,

\[
75 - 100\% = \text{Good knowledge, attitude or behaviour (variable not analysed)}
\]

\[
50 - 74\% = \text{Fair knowledge, attitude or behaviour (variable analysed)}
\]

\[
<50\% = \text{Poor knowledge, attitude or behaviour (variable analysed)}
\]
Limitation of the Study

1. More reliable information would have been obtained if both quantitative and qualitative (focus group discussions) data were used.

2. A more comprehensive survey using large samples would have given a better picture of the communities.

3. Community disruptions – clashes in the control area delayed post-intervention data collection while travels away from and events in the intervention disrupted data collection.

4. Inability of researcher to speak the native language though there was an interpreter (a senior community Health Extension worker) who is a native of the village. There is a possibility of not interpreting exactly the message.

5. Few (19%) of the women attended all three sessions of health education.

6. Finally, the quasi-experimental nature of a community intervention study.
CHAPTER FOUR

RESULTS

Baseline Study
Three hundred and twenty (320) mothers were studied in the intervention area while two hundred and fifty one (251) mothers were studied in the control area.

Percentages are shown in brackets

Table 1 Age Distribution of Mothers

<table>
<thead>
<tr>
<th>Age</th>
<th>Intervention (I) n = 320</th>
<th>Control (C) n = 251</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 – 19</td>
<td>14 (4.4)</td>
<td>13 (5.3)</td>
</tr>
<tr>
<td>20 – 29</td>
<td>134 (41.9)</td>
<td>123 (48.8)</td>
</tr>
<tr>
<td>30 – 39</td>
<td>122 (38.1)</td>
<td>97 (38.8)</td>
</tr>
<tr>
<td>40 – 40</td>
<td>50 (15.6)</td>
<td>18 (7.1)</td>
</tr>
<tr>
<td>Total</td>
<td>320 (100)</td>
<td>251 (100)</td>
</tr>
</tbody>
</table>

$X^2 = 1.73, \ P < 0.5$ (for ages 15 – 39)
<table>
<thead>
<tr>
<th>Table II: Educational attainment of Mothers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational Level</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>With ARI</td>
</tr>
<tr>
<td>Without ARI</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table III: Prevalence of ARI</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Under fives</td>
</tr>
<tr>
<td>--------------------</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>With ARI</td>
</tr>
<tr>
<td>Without ARI</td>
</tr>
</tbody>
</table>

\[
X^2 = 3.123, \ p > 0.05
\]

Educational Level | Non formal | Formal |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>320</td>
<td>251</td>
</tr>
<tr>
<td>With ARI</td>
<td>156</td>
<td>128</td>
</tr>
<tr>
<td>Without ARI</td>
<td>164</td>
<td>128</td>
</tr>
<tr>
<td>Total</td>
<td>320</td>
<td>251</td>
</tr>
</tbody>
</table>
### Table IV Previous Exposure to Health Education about ARI

<table>
<thead>
<tr>
<th>Health Education</th>
<th>$I_n = 320$</th>
<th>$C_n = 251$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>234 (73.1)</td>
<td>179 (71.4)</td>
</tr>
<tr>
<td>No</td>
<td>86 (26.9)</td>
<td>72 (28.6)</td>
</tr>
<tr>
<td>Total</td>
<td>320 (100)</td>
<td>251 (100)</td>
</tr>
</tbody>
</table>

$\chi^2 = 15.5, \; P<0.001$

### Table V Baseline knowledge of Mothers about signs and symptoms of Pneumonia

<table>
<thead>
<tr>
<th>Signs and symptoms of Pneumonia</th>
<th>$I_n = 320$</th>
<th>$C_n = 251$</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Cough and catarrh</td>
<td>46 (14.4)</td>
<td>-</td>
</tr>
<tr>
<td>b. Catarrh and fever</td>
<td>60 (18.8)</td>
<td>15 (6.1)</td>
</tr>
<tr>
<td>c. Cough and vomiting</td>
<td>26 (8.1)</td>
<td>41 (16.3)</td>
</tr>
<tr>
<td>d. Fast breathing, cough, fever</td>
<td>224 (70.0)</td>
<td>183 (72.8)</td>
</tr>
<tr>
<td>e. Chest indrawing, fever and cough</td>
<td>84 (26.2)</td>
<td>83 (33.0)</td>
</tr>
</tbody>
</table>

$\chi^2 = 47.4, \; P<0.001$
Table VI Baseline knowledge of Mothers about causes of ARI (Question 23)

<table>
<thead>
<tr>
<th>Causes of ARI</th>
<th>( I_a = 320 )</th>
<th>( C_a = 251 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Cold water</td>
<td>235 (73.4)</td>
<td>222 (88.4)</td>
</tr>
<tr>
<td>b. Dirty surroundings</td>
<td>132 (41.3)</td>
<td>25 (10)</td>
</tr>
<tr>
<td>c. Not eating well</td>
<td>26 (8.1)</td>
<td>17 (6.8)</td>
</tr>
<tr>
<td>d. Exposing child to cold</td>
<td>246 (76.9)*</td>
<td>218 (86.9)</td>
</tr>
<tr>
<td>e. Indoor pollution (smoke)</td>
<td>191 (59.7)</td>
<td>206 (82.0)</td>
</tr>
<tr>
<td>f. Supernatural forces</td>
<td>7 (2.2)</td>
<td>4 (1.6)</td>
</tr>
<tr>
<td>g. Viruses and bacteria</td>
<td>5 (1.6)</td>
<td>-</td>
</tr>
<tr>
<td>h. Don't know</td>
<td>5 (1.6)</td>
<td>-</td>
</tr>
</tbody>
</table>

\( \chi^2 = 64.4, \ P < 0.001 \)

* Good knowledge
<table>
<thead>
<tr>
<th>Preventive Measure</th>
<th>I₀ = 320</th>
<th>C₀ = 251</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Not exposing child to cold</td>
<td>273 (85.3)</td>
<td>222 (88.4)</td>
</tr>
<tr>
<td>b. Feeding child well</td>
<td>63 (19.7)</td>
<td>24 (9.6)</td>
</tr>
<tr>
<td>c. Breast feeding infants</td>
<td>15 (4.7)</td>
<td>16 (6.4)</td>
</tr>
<tr>
<td>d. Immunizing children</td>
<td>28 (8.8)</td>
<td>12 (4.8)</td>
</tr>
<tr>
<td>e. Not exposing them to smoke</td>
<td>210 (65.7)</td>
<td>218 (86.9)</td>
</tr>
<tr>
<td>f. Don't know</td>
<td>10 (3.1)</td>
<td>4 (1.6)</td>
</tr>
<tr>
<td>g. Others (Giving Palm Kernel oil)</td>
<td>4 (1.3)</td>
<td>-</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 11.87, \quad P < 0.05 \]
### Table VIII Baseline Attitude of Mothers towards ARI (Question 31)

<table>
<thead>
<tr>
<th>Signs and symptoms that will prompt treatment</th>
<th>$I_a = 320$</th>
<th>$C_n = 251$</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Ordinary cough and catarrh</td>
<td>100 (31.3)</td>
<td>17 (6.8)</td>
</tr>
<tr>
<td>b. Fever and fast breathing</td>
<td>229 (71.6)</td>
<td>214 (85.3)</td>
</tr>
<tr>
<td>c. Chest in-drawing and cough</td>
<td>200 (62.5)</td>
<td>193 (77.0)</td>
</tr>
<tr>
<td>d. Weakness and not eating</td>
<td>204 (63.8)</td>
<td>221 (88.0)</td>
</tr>
<tr>
<td>e. Cough and vomiting</td>
<td>117 (36.6)</td>
<td>119 (47.4)</td>
</tr>
<tr>
<td>f. Others – convulsion</td>
<td>3 (0.9)</td>
<td>-</td>
</tr>
</tbody>
</table>

$X^2_5$ = 54.81, P < 0.001

### Table IX Baseline Behaviour of Mothers towards ARI (Question 26)

<table>
<thead>
<tr>
<th>Action taken for ARI</th>
<th>$I_a = 320$</th>
<th>$C_n = 251$</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Home care with herbs/drinks</td>
<td>40 (12.5)</td>
<td>-</td>
</tr>
<tr>
<td>b. Consultation with neighbours</td>
<td>32 (10.0)</td>
<td>8 (3.2)</td>
</tr>
<tr>
<td>c. Drug treatment from chemist</td>
<td>218 (68.0)</td>
<td>185 (73.7)</td>
</tr>
<tr>
<td>d. Traditional healer</td>
<td>16 (5.0)</td>
<td></td>
</tr>
<tr>
<td>e. Treatment from Health Centre/Hospital</td>
<td>211 (66.0)</td>
<td>181 (72.2)</td>
</tr>
<tr>
<td>f. Others (Hot water massage, palm kernel oil etc)</td>
<td>12 (3.8)</td>
<td>4 (1.6)</td>
</tr>
</tbody>
</table>

$X^2_3$ = 10.62, P < 0.05
Table X Baseline Behaviour of Mothers towards Pneumonia

<table>
<thead>
<tr>
<th>Treatment Preference for Pneumonia</th>
<th>Iₜ = 320</th>
<th>Cₜ = 251</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Panadol and cough syrup</td>
<td>60 (18.7)</td>
<td>17 (6.7)</td>
</tr>
<tr>
<td>b. Septrin and cough syrup</td>
<td>26 (8.1)</td>
<td>13 (5.2)</td>
</tr>
<tr>
<td>c. Ampicillin and cough syrup</td>
<td>14 (4.4)</td>
<td>6 (2.4)</td>
</tr>
<tr>
<td>d. Child taken to hospital/clinic</td>
<td>220 (68.8)</td>
<td>190 (75.7)</td>
</tr>
<tr>
<td>e. Child taken to prayer house</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>f. Watch and see</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 17.75, \quad P < 0.001 \]

Table I shows the age distribution of Mothers.

4.4% and 5.3% of mothers in the intervention and control areas respectively were between ages 15-19 years. 41.9% (One hundred and thirty four) in the intervention area and 48.8% (one hundred and twenty-three) mothers in the control area were between 20-29 years. One hundred and twenty two (38.1%) and ninety-seven (38.8%) in I and C areas respectively were between ages 30-39 years. For the 40-49 year age group fifty (15.6%) and eighteen (7.1%) in I and C areas respectively were within this age group. The median ages were 31 years and 21 years for I and C areas respectively.
Table I shows the Educational attainment of mothers. 14.7% (fourteen) and 14.3% (thirty six) of the mothers in I and C areas respectively had no formal education while 53.4% (one hundred and seventy-one) and 51.0% (one hundred and twenty eight) of the mothers in I and C areas respectively had primary education. Ninety seven (30.3%) and eighty seven (34.7%) mothers in the I and C areas respectively had secondary education. Only five (1.6%) mothers in the intervention area had tertiary education. None of the mothers in the control area had tertiary education.

Table III shows the Prevalence of ARI amongst under-five children.

Four hundred and seventy six (476) under-fives were found in the intervention area while four hundred and ninety (490) under fives were found in the control area.

Of the 476 under fives in the intervention area, 156 had ARI at the time of study and of the 490 under fives in the control area 145 had ARI at the time of study. This showed a prevalence of 32.8% and 29.6% in the I and C areas respectively. There was no statistically significant difference in prevalence of ARI.

Table IV shows the pattern of exposure to Health Education on ARI.

Of the three hundred and twenty (320) mothers studied in the intervention area two hundred and thirty four (234) or 73.1% had been exposed to
some form of health education about ARI. In the control area, of the two hundred and fifty one (251) studied, one hundred and seventy nine (179) or 71.4% of them had been exposed to health education about ARI.

Table V shows the mothers’ knowledge of signs and symptoms of pneumonia.

Forty six (14.4%) mothers in the intervention area identified cough and catarrh as symptoms that will make them suspect pneumonia in their child. None of the mothers in the control area thought so. Sixty (18.8%) and fifteen (6.1%) mothers in I and C areas respectively will suspect pneumonia if their child has catarrh and fever. Twenty six (8.1%) and forty one (16.3%) respectively will suspect pneumonia if their child has cough and vomiting. Two hundred and twenty four (70.0%) and one hundred and eighty three (72.8%) mothers in the I and C areas respectively will suspect pneumonia if their child has fast breathing, cough and fever. Only eighty four (26.2%) and eighty three (33.0)% mothers in the I and C areas respectively will suspect pneumonia if their child has chest indrawing, cough and fever.

Table VI shows the mothers’ knowledge of causes of ARI.

Of the three hundred and twenty (320) mothers studied in the intervention area, two hundred and thirty five (73.4%) identified cold weather as a cause of ARI while two hundred and twenty-two (69.4%) mothers (in the control area) identified cold weather as a cause of ARI. Dirty surrounding
was identified by 41.3% and 10% of mothers in the I and C areas respectively. 8.1% and 6.8% respectively identified poor feeding while 76.9% and 86.9% respectively identified exposure of child to cold. Indoor pollution was identified by 59.7% and 82% of mothers in I and C respectively. Viruses and bacteria were identified by only five (5) mothers in the intervention area.

Table VII shows the baseline knowledge of mothers on Prevention of ARI.

Of the three hundred and twenty (320) mothers in the intervention area, two hundred and seventy three (85.3%) mothers will not expose their child to cold. In the control area two hundred and twenty two (88.4%) will not expose their child to cold. 19.7% and 9.6% of the women in I and C areas respectively will feed their child well. 4.7% and 6.4% respectively will breastfeed their infants to prevent ARI. 8.6% and 4.8% in I and C areas respectively will Immunize their child to prevent ARI. 65.7% and 86.9% respectively will not expose their child to smoke. Four (1.3%) mothers in the intervention area will give palm kernel oil to prevent ARI.

Table VIII shows the baseline attitude of mothers towards when to treat.

One hundred (31.3%) and seventeen (6.8%) mothers in the intervention and control areas respectively will take their child to hospital for ordinary cough and catarrh. For fever and fast breathing, 71.6% and 86.3% of mothers in I and C areas respectively will seek care in hospital. For chest in-drawing and
cough, 62.5% and 77% will seek care in hospital. 63.8% and 88% respectively will seek care for weakness and when their child refuses to eat.

For cough and vomiting, 36.6% and 47.4% respectively in I and C areas will seek care in hospital. Three (0.9%) mothers in the intervention area will in addition seek help for convulsion.

Table IX shows the baseline behaviour of mothers regarding treatment of ARI. Forty (12.5%) mothers in the intervention area give herbs and drinks when their child has ARI. 10% and 3.2% in intervention and control areas respectively consult with neighbours first while 68% and 73.7% respectively buy drugs from the chemist. 66% and 72.2% go to the health centre or hospital, some of these after trying the chemist first. 3.8% and 1.6% use other remedies like hot water massage, palm kernel oil.

Table X shows the pattern of behaviour of mothers regarding treatment of pneumonia. For pneumonia specifically, 18.7% and 6.7% of mothers in I and C areas respectively give paracetamol and cough syrup first. 8.1% and 5.2% give septrin and cough syrup, 4.4% and 2.4% respectively give ampicillin. 68.8% and 75.7% respectively take child to hospital, while none of them go to prayer house.
Post Intervention Study

Two hundred and five mothers were studied in the intervention area while one hundred and fifty one mothers were interviewed in the control area.

Table XI Post-Intervention Knowledge of Mothers

<table>
<thead>
<tr>
<th></th>
<th>Intervention Area</th>
<th>Control Area</th>
<th>Difference</th>
<th>$\chi^2$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Knowledge About Fast Breathing</td>
<td>224 (70.0)</td>
<td>183 (72.8)</td>
<td>11.4%</td>
<td>8.26</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td></td>
<td>167 (61.5)</td>
<td>125 (62.5)</td>
<td>9.7%</td>
<td>4.79</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>b. Knowledge About Chest In-Drawing</td>
<td>84 (26.2)</td>
<td>83 (33.0)</td>
<td>14.8%</td>
<td>11.91</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>84 (41.0)</td>
<td>47 (31.1)</td>
<td>-1.9%</td>
<td>0.19</td>
<td>&lt;0.75</td>
</tr>
<tr>
<td>c. Cold Weather as a Cause of ARI</td>
<td>235 (73.4)</td>
<td>222 (88.4)</td>
<td>3.7%</td>
<td>1.05</td>
<td>&lt;0.5</td>
</tr>
<tr>
<td></td>
<td>156 (77.1)</td>
<td>132 (87.6)</td>
<td>-0.8%</td>
<td>0.10</td>
<td>= 0.75</td>
</tr>
<tr>
<td>d. Indoor Pollution As a Cause Of ARI</td>
<td>191 (69.7)</td>
<td>206 (62.0)</td>
<td>10.1%</td>
<td>5.64</td>
<td>&lt;0.025</td>
</tr>
<tr>
<td></td>
<td>143 (69.8)</td>
<td>122 (81.0)</td>
<td>-1.0%</td>
<td>0.07</td>
<td>&lt;0.75</td>
</tr>
</tbody>
</table>
### Table XII Post-Intervention Attitude of Mothers

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
<th>Difference</th>
<th>( \chi^2 )</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Attitude Towards Fast Breathing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention Area</td>
<td>229(71.6)</td>
<td>152(74.1)</td>
<td>2.5%</td>
<td>0.36</td>
<td>P&gt;0.75</td>
</tr>
<tr>
<td>Control Area</td>
<td>214(65.3)</td>
<td>125(80.1)</td>
<td>-5.2%</td>
<td>1.92</td>
<td>P&lt;0.25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Attitude Towards Chest In-Drawing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention Area</td>
<td>200(62.5)</td>
<td>130(63.6)</td>
<td>1.1%</td>
<td>0.04</td>
<td>P&gt;0.75</td>
</tr>
<tr>
<td>Control Area</td>
<td>193(77.0)</td>
<td>117(77.5)</td>
<td>0.5%</td>
<td>0.06</td>
<td>P&lt;0.75</td>
</tr>
</tbody>
</table>

### Table XIII Post-Intervention Behaviour of Mothers

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
<th>Difference</th>
<th>( \chi^2 )</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Behaviour Towards Treatment From Chemist</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention Area</td>
<td>218(69.0)</td>
<td>118(57.6)</td>
<td>-10.4%</td>
<td>5.66</td>
<td>P&lt;0.025</td>
</tr>
<tr>
<td>Control Area</td>
<td>185(73.7)</td>
<td>108(70.2)</td>
<td>3.5%</td>
<td>0.47</td>
<td>P&lt;0.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Behaviour Towards Treatment From Hospital</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention Area</td>
<td>211(68.0)</td>
<td>152(74.1)</td>
<td>8.1%</td>
<td>2.75</td>
<td>P&lt;0.1</td>
</tr>
<tr>
<td>Control Area</td>
<td>181(72.2)</td>
<td>116(76.8)</td>
<td>4.6%</td>
<td>0.88</td>
<td>P&lt;0.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Behaviour Towards Taking Child To Hospital/Clinic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention Area</td>
<td>220(69.8)</td>
<td>158(76.9)</td>
<td>8.1%</td>
<td>2.97</td>
<td>P&lt;0.1</td>
</tr>
<tr>
<td>Control Area</td>
<td>190(75.7)</td>
<td>120(79.5)</td>
<td>3.8%</td>
<td>0.96</td>
<td>P&lt;0.5</td>
</tr>
</tbody>
</table>
Table XI shows mothers' recognition of signs/symptoms and causes of ARI. In the intervention area 70% of the three hundred and twenty mothers recognised fast breathing as a sign of pneumonia before intervention, 81.4% of the two hundred and five interviewed recognised fast breathing after intervention giving a percentage difference of 11.4%, $X^2$ of 8.26 and a $P<0.005$. This shows a statistically significant difference.

In the control areas, the difference was 9.7%, $X^2 = 4.73$ and $P<0.05$ also showing a statistically significant difference.

The percentage difference in knowledge of mothers about chest indrawing before and after intervention in the intervention area was 14.8%. The $X^2$ was 11.91 with a $P<0.005$, showing a significant difference in knowledge before and after intervention.

For the control area the difference was 1.9% giving a $X^2$ value of 0.19 and $P<0.75$. There was no statistically significant difference before and after intervention.

Seventy-three percent (73.4%) of the mothers in the intervention area identified cold weather as a cause of ARI before intervention. After intervention seventy-seven percent (77.1%) giving a percentage difference of 3.7%, $X^2$ of 1.05 and a $P<0.5$. This result showed no statistically significant difference.
In the control area the result showed 88.4% before and 87.6% after intervention identified cold weather as a cause of ARI. This gives a difference of -0.8% $\chi^2 = 0.10$ and $P = 0.75$. This result also did not show any significant difference.

In the intervention area, 59.7% of mothers identified indoor pollution by smoke as a cause of ARI before intervention. After intervention, 69.8% identified smoke as a cause of ARI. The percentage difference was 10.1% giving a $\chi^2 = 5.84$ and a $P < 0.025$. There was a significant difference in knowledge about indoor smoke as a cause of ARI.

In the control area, it was 82% and 81% before and after intervention respectively, giving a difference of -1.0% and $\chi^2 = 0.07$, $P > 0.75$. There was no significant difference in the control area.

Table XII shows the attitude of mothers towards when to treat ARI.

Of the three hundred and twenty (320) mothers interviewed before the intervention in the Intervention area, 71.6% will take their child to hospital for fast breathing and fever. 74.1% of the two hundred and five studied after intervention will take their child to clinic or hospital. The percentage difference was 2.5%, $\chi^2 = 0.36$ and $P < 0.75$. This difference is not statistically significant.
For the control area, 85.3% and 80.1% of the mothers will seek care for fast breathing before and after intervention respectively. This gives a negative difference of -5.2% with $X^2 = 1.92$ and a $P<0.25$. There was no significant difference in attitude before and after intervention.

Before intervention 92.5% of mothers studied in the intervention area will seek care for their child with chest-in-drawing while after intervention 63.6% of those studied will seek care. A difference of 1.1% with $X^2 = 0.04$ and $P>0.75$. The result shows no significant difference before and after intervention.

In the control area the difference was 0.5% with $X^2 = 0.06$ and a $P>0.75$. Also showing no significant difference.

Table XIII shows the post-intervention behaviour of mothers towards ARI pneumonia. Sixty eight percent (68%) of the three hundred and twenty mothers in the intervention treated ARI in the chemist before intervention.

After intervention 57.6% of the two hundred and five mothers intervened will treat their child with ARI with drugs bought in the chemist. The difference was -10.4% with $X^2 = 5.86$ and a $P<0.025$. The difference is statistically significant.

In the control area, the difference was 3.5% with $X^2 = 0.47$ and a $P<0.5$. The difference is not significant.
For the behaviour of mothers towards ARI, sixty six percent (66%) of the three hundred and twenty mothers interviewed before intervention treat their child with ARI in the clinic or hospital. Seventy four percent (74.1%) of the two hundred and five interviewed after intervention will treat in the clinic or hospital. The difference was 8.1% with a $\chi^2$ of 2.75 and a $P<0.1$. There was no statistically significant difference.

In the control area, the difference was 4.6% with a $\chi^2 = 0.88$ and a $P<0.5$. There was no significant difference.

For the behaviour of mothers towards pneumonia, in the intervention area, two hundred and twenty (68.8%) mothers out of the three hundred and twenty interviewed before the intervention seek care in a clinic or hospital for pneumonia. After the intervention, one hundred and fifty eighty (76.9%) mothers out of the two hundred and five interviewed claimed they will seek care in a clinic or hospital. A difference of 8.1% with $\chi^2 = 2.97$ and a $P<0.1$. The difference is not statistically significant.

In the control area, the difference was 3.8% giving a $\chi^2 = 0.96$ and a $P<0.5$. The difference is also not significant.
FIGURE 1: PREVALENCE OF ARI AMONGST UNDER-FIVE CHILDREN

- Intervention (n=320)
- Control (n=205)
FIGURE 2: MOTHERS’ KNOWLEDGE OF SIGNS & SYMPTOMS OF PNEUMONIA

<table>
<thead>
<tr>
<th></th>
<th>Intervention (n=320)</th>
<th>Control (n=205)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cough/Catarrh</td>
<td></td>
<td></td>
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<tr>
<td>Catarrh/Fever</td>
<td></td>
<td></td>
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<tr>
<td>Cough/Vomiting</td>
<td></td>
<td></td>
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<tr>
<td>Fast Breathing/Cough/Fever</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chest In-drawing/Fever/Cough</td>
<td></td>
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</tbody>
</table>

Cough/Catarrh Catarrh/Fever Cough/Vomiting Fast Breathing/Cough/Fever Chest In-drawing/Fever/Cough
FIGURE 3: RECOGNITION OF SIGNS/SYMPTOMS AND CAUSES OF ARI AMONGST MOTHERS

- Fast Breathing
- Chest In-drawing
- Cold Weather
- Indoor Pollution

Intervention Pre - (n=320)  Intervention Post - (n=205)
Control Pre - (n=251)  Control Post - (n=151)
FIGURE 4: ATTITUDE OF MOTHERS TOWARDS WHEN TO TREAT ARI

- Fast Breathing
- Chest In-drawing/fever

Intervention Pre - (n=320)  Intervention Post - (n=205)
Control Pre - (n=251)  Control Post - (n=151)
FIGURE 5: BEHAVIOUR OF MOTHERS TOWARDS WHERE TO TREAT PNEUMONIA
CHAPTER 5

DISCUSSION

The two communities (Aluu and Emohua) studied showed some similarities in many aspects like age distribution, educational attainment and prevalence of ARI among others. Generally, Health Education had some impact on the perception and health-seeking behaviour of mothers in the intervention area as shown by the results. However, it was observed that where mother had fairly good knowledge, attitude and behaviour before the intervention, there was no appreciable change in attitude or behaviour after the intervention.

Age Distribution

The median ages were 31 and 21 years in the intervention and control areas respectively. Up to age group 30 – 39 years, there was no statistically significant difference ($x^2_{df} = 1.73$ $P<0.5$) in age distribution between the intervention and control areas. There was a significant difference in the age group 40-49 years ($x^2 = 9.75$, $P<0.005$). This finding might have contributed to the better perception and behaviour of mothers in the control. The older mothers (in intervention area) with more experience about the disease (ARI) are less likely to seek care when their children have ARI as shown by the study (69% and 76%, intervention and control respectively).
There was no statistically significant difference in educational attainment up to the secondary level in both communities ($\chi^2 = 0.91, P<0.5$) None of the mothers studied in the control area had tertiary education. Four of the five mothers in the intervention area with tertiary education were immigrants who live in the village and work outside. Mothers in the control area attained a higher secondary educational level (35% Vs 30%) than mothers in the intervention area, though the difference was not statistically significant. It is possible that this difference enhanced their perception and care-seeking behaviour even though none of them attained tertiary education. Attainment of tertiary education did not affect the perception and care-seeking behaviour generally as expected, probably due to the negligible number (5 out of 320).

The study showed no statistically significant difference in prevalence of ARI in both communities ($\chi^2 = 1.26, P<0.5$) though the prevalence in the control area was slightly lower (29.6% Vs 32.8%). This is expected since mothers in the control have better knowledge, attitude and behaviour towards ARI in children. There is need for a more comprehensive study.
Knowledge about ARI

i. Recognition of Pneumonia

Nearly three quarters of mothers (70% and 73% respectively from intervention and control areas) recognised fast breathing as a sign of pneumonia. This result compares favourably with most of the studies cited earlier except the Ile-Ife study where mothers did not recognise fast breathing. In Enugu only 57% of mothers recognised fast breathing. The better performance of mothers in this study may be due to previous education they had and also the Enugu study was done before the take off of ARI control programme in Nigeria. Chest in-drawing was poorly recognised in this study (26% and 33%) as in most other studies.

ii. Causes of ARI

Both communities showed good knowledge about exposure to cold as a risk factor (77% and 87% respectively). Knowledge about indoor pollution was fair (60%) in the intervention area and good (82%) in the control area. Only five (1.8%) of mothers in the intervention area, perceived viruses and bacteria as causes of ARI. None of the mothers in the control area did. This might be because none of the mothers in the control attained tertiary education. Other studies showed similar results of poor perception of microbial causes of ARI. There is need for education of mothers to appreciate the relevance of viruses and bacteria in the aetiology of pneumonia.
iii. Prevention of ARI

Mothers in both communities did not appreciate the place of good nutrition, breast-feeding and immunization in the prevention of ARI. This is quite surprising because during health talks in Immunization clinics, prevention of ARI is mentioned as one of the benefits of Immunization, good feeding and breast-feeding of infants. It is not certain how many of these mothers avail themselves of the services in the infant welfare clinic.

Attitude Towards ARI

Results showed that mothers had fair to good attitude towards ARI. 72% and 85% of them in the intervention and control areas respectively will take their child to hospital or clinic if the child develops symptoms and signs of pneumonia. This is unlike the Ghanaian mothers who would delay seeking help even in the presence of severe symptoms and signs. Egyptian mothers will not seek help because they do not believe fast breathing is a sign of serious pneumonia. In this study mothers will not seek care either because they do not have the financial resources or that the health centre is not easily accessible to them. Some will seek care mainly because the illness is life threatening and distressing to the child. A few will treat because the illness disturbs their work. 62.5% and 77% of mothers respectively, will seek care for chest in-drawing and slightly more mothers will seek care for
weakness and refusal to eat in their child (63% and 88%). This shows that mothers do not quite appreciate the seriousness of chest indrawing.

Behaviour Towards ARI

In both communities, 68% and 73.7% of mothers respectively go to the chemist for treatment while 66% and 72% respectively seek care from health centre or hospital. This showed that a higher proportion of mothers go to the chemist for treatment, if the child does not improve will then seek care in the health centre or hospital. Mothers in the control area did not seem to use herbal drinks or other remedies for treatment of ARI. This is probably why more of them use the chemist and health facilities. In both communities mothers preferred home remedies and chemist prescriptions for mild ARI. Consultations with traditional healers were minimal unlike in Bolivia and Bangladesh where mothers consulted traditional healers because of their belief in supernatural forces in aetiology of pneumonia. In this study only 2.2% and 1.6%, respectively, thought ARI was caused by supernatural forces.

The Intervention Study

The intervention (Health education) led to some modest and statistically significant differences in knowledge and behaviour of mothers towards ARI in the intervention area. In the control area, most of the observed changes were not statistically significant.
I. Intervention Area

Effects of Health Education on Knowledge of Mothers

Maternal knowledge about signs and symptoms of pneumonia improved. For fast breathing a percentage difference of 11.4% (16.3% change from baseline). This was statistically significant ($\chi^2 = 8.26$ and $P<0.005$). For chest in-drawing a difference of 14.8% (56.4% change from baseline) which was also statistically significant ($\chi^2 = 11.91$, $P<0.005$). This significant change is expected as knowledge changes soon after health education.

Maternal perception of cold weather as a cause of ARI improved slightly but the difference was not statistically significant – difference 3.7%, $\chi^2 = 1.05$ and $P<0.5$. However their perception of indoor pollution as a cause of ARI improved significantly, difference 10.1%, $\chi^2 = 5.84$ and $P<0.025$. Baseline data showed that most of the mothers cooked outside with firewood and kerosine, and about 60% of them were aware of the risk of indoor pollution before intervention. In the case of cold weather nearly three quarters of the mothers were aware and the difference post-intervention was not significant.

Effect of Health Education on Attitude of Mothers

Nearly three quarters (71.6%) of the mothers will seek care for fast breathing in their child before health education and 75% after health education. The difference in attitude after education was 2.5%, $\chi^2 = 0.36$
and $P<0.75$. Though there was a slight difference in attitude after health education, this difference was not statistically significant.

Before health education 62.5% of mothers responded that they will seek care for chest indrawing and after health education 63.6% of them responded that they will seek care for chest indrawing. A difference of 1.1% with $x^2=0.04$ and $P>0.75$. There was also no statistically significant difference in the mother's attitude towards care seeking for chest indrawing. It is possible that mothers did not understand the seriousness of chest indrawing. It is also generally believed that knowledge is easier to change than attitude and behaviour, that is to say that it takes more time to influence attitude and behaviour.

**Effect of Health Education on Behaviour of Mothers**

After intervention fewer mothers (57.6% compared to 68% before intervention) said they will consult the chemist first for ARI. The difference of 10.4% was statistically significant with $x^2 = 5.86$ and $P<0.025$. This apparent change needs follow up to detect actual change, the response might have been given just to impress the interviewer with no real intention to change behaviour.

There was no statistically significant difference in behaviour towards treatment in health facilities. After intervention 74.1% of mothers compared to 66% before intervention responded that they will seek care in health facilities.
centre or hospital for ARI. The difference was 8.1% with a $x^2 = 2.75$ and $P<0.1$. Also there was no statistically significant difference in behaviour towards care seeking for pneumonia. 68.8% and 76.9% of mothers before and after intervention respectively will seek care for pneumonia in the clinic or hospital. The difference was 8.1%, $x^2 = 2.97$ and $P<0.1$.

Thus apart from the significant difference in percentage of mothers who will consult the chemist before and after intervention, there was no significant improvement in the behaviour of mothers towards ARI in this study.

Jerrold S. Greenberg\textsuperscript{22} writes, "To think that some education conducted over a few weeks or even months will have a dramatic effect on behaviours that have taken years to develop is unrealistic." Health educators he said have found it relatively easy to effect changes in knowledge and skills, somewhat more difficult to effect changes in health attitudes and extremely difficult to get people to change their health-related behaviours. When changes in health behaviour have occurred, it is not unusual to find that participants revert to past behaviours shortly after programmes completion.

Control Area

In the control area, only knowledge about fast breathing improved significantly. A difference of 9.7%, $x^2 = 4.79$ and $P<0.05$. Compared to the
intervention area, the significance is less, $P<0.005$ in intervention area) knowledge about chest indrawing did not change ($x^2 = 0.19$, $P<0.75$).

Knowledge about cold weather and indoor pollution also did not change $x^2 = 0.10$, $P<0.75$ and $x^2 = 0.07$, $P<0.75$ respectively.

There was also no change in attitude of mothers towards ARI. For fast breathing $x^2 = 1.92$, $P<0.25$ and for chest indrawing $x^2 = 0.05$, $P>0.75$.

Results showed no significant difference in behaviour of mothers towards ARI and pneumonia.

For treatment from chemist for ARI, $x^2 = 0.47$, $P>0.5$
For treatment from clinic/hospital for ARI, $x^2 = 0.88$, $P<0.5$.
Taking child to clinic/hospital for pneumonia $x^2 = 0.96$, $P<0.5$.

These findings were expected since no health education was given to mothers in the control area. The significant change observed for knowledge about fast breathing as a sign of pneumonia is difficult to explain. Could it be that some of the mothers in the control area were exposed to health education during the intervention period?

The overall result showed that health education had some impact on the mothers' perception and care seeking behaviour, though only knowledge
was significantly affected. Attitude and behaviour were not significantly influenced in this study.

When community based interventions are found to be effective, it is not totally clear what caused their effectiveness and when no effects are found, it is also not clear why there were no effects. No effects or modest effects might be due to many factors e.g. the methodology, intervention and implementation deficits. Other factors include sample size which was taken care of in this study by using the method of determining expected difference between baseline and post-intervention measures. The sample size used (320) fell between 10% to 15% expected difference though the actual sample size for an expected difference of 15% is 165. The difference in sample size (320 Vs. 165) is believed to have taken care of the high attrition rate of 35% observed in the study.

Most of the intervention studies reviewed were carried out over one to five years and included other activities apart from health education. Other activities included case management which could have been a source of motivation to mothers for positive change in health related behaviour. For instance Roosim carried out a yearly survey after intervention to measure the impact of the health education on mothers in Kediri, Indonesia. He found that attendance rate and the number of referrals for ARTi increased at the local health centres.
The Tanzanian study, showed a reduction in mortality rate for pneumonia from 14.3 to 10 per 1000 per year. The Pakistan based study, which lasted about three years with regular follow-ups, showed a reduction in mortality rate for acute lower respiratory infection from 14.4 to 6.5 per 1000 children per year.

These studies showed actual behaviour changes. Such follow ups are necessary for one to attribute the change to the health education. This was not the case in this study where study lasted for less than a year and so no conclusions can be made about the actual effect of the intervention on the care-seeking behaviour of mothers. One can only say that there are indications of possible change.
CHAPTER SIX
CONCLUSION AND RECOMMENDATIONS

Conclusion
This community based intervention study carried out in Aluu Community in Rivers State showed that health education had a statistically significant effect on maternal recognition and prevention of ARI/pneumonia in children. The effect of health education on the attitude and care-seeking behaviour was not statistically significant. This later finding could be because the study did not allow adequate time necessary to observe a significant change in attitude and behaviour.

Unfortunately, in public health intervention studies, we rarely have the power to test for a small effect, despite the fact that a small effect size of 5% to 10% often is substantially meaningful with important public health implications.67

Community education should therefore be a major component of all National ARI control programmes. It might be a critical determinant of the success of care management strategies in preventing ARI related mortality in children in the long run.

This study has provided some useful baseline information for the planning and implementation of the ARI programme in Rivers State. It has also to
some extent identified the health educational needs of the communities studied and possibly of other similar communities.

Recommendations

1. Ministry of Health should incorporate appropriate messages on ARI into the Primary Health Care Programme – as part of health talk during family health clinics.

2. Training of health workers especially those in the Primary Health Sector, through seminars and workshops organised at National or State level, should be intensified. The most important cadre is the village health worker who lives with the people and is in the best position to treat the people right in the community.

3. Periodic evaluation of the programme is necessary.

4. Community health education programme should be put in place where ARI causes high mortality and morbidity.

5. All health centres should be properly equipped in order to attract mothers to the facilities. The health workers in the health centres with adequate training on ARI should supervise the village health workers.

6. Use of the media to increase awareness of ARI should be adopted.

7. More research on maternal perception and risk factors of ARI should be undertaken in other parts of Rivers State.
Ethical Consideration

After the post-intervention data collection, health education was given to the control area based on the result of their baseline study.
Components of the Health Belief Model.

Individual Perceptions → Modifying Factors → Likelihood to Action

- Perceived susceptibility/seriousness of disease
- Perceived threat of Disease
- Age, Sex, Ethnicity, Personality, Socio-economic Knowledge
- Perceived Benefits vs Barriers to behavioral change
- Likelihood of behavioral change

Figure above is adapted from Rosenstock, I. M., Historical origins of the Health Belief Model. In: The Health Belief Model and Personal Health Behaviour. Edited by M. H. Becker, Thorofare, N. J., Charles B. Slack, 1974.
APPENDIX II - QUESTIONNAIRE SAMPLE

THE IMPACT OF HEALTH EDUCATION ON MATERNAL PERCEPTION AND CARE SEEKING BEHAVIOUR TOWARDS ARI IN CHILDREN IN RIVERS STATE

This study is being carried out to determine the knowledge, attitude and care seeking behaviour of mothers towards Acute Respiratory Infections (ARI) in their children.

The information obtained will help to design appropriate and effective health education programmes for the control and prevention of ARI among children.

I shall be very grateful if you will answer the questions correctly. The information you give will be strictly confidential.

Thank you.

Dr. Meg Mezie-Okoye

Note: Please mark (a) against the correct alternative answer where provided, or fill in the answer as requested in the space provided. More than one answer could be correct.

Section A: General Information

1. Area of study (a) Name of Town
   (b) Status of Town: (i) □ Urban (ii) □ Rural

2. Name of Mother

3. Age

4. Tribe

5. Language

6. Religion

7. Address

8. Occupation

9. Educational Level
   (a) □ Tertiary/Professional education
   (b) □ Secondary/Trade/Technical education
   (c) □ Primary education
   (d) □ No formal education

10. Number of living children:

11. Number of children under 5 years

12. Did any of your children die in the last one year

13. Cause(s) of death (if known)

14. Does any of the under five children have cough or catarh now?
   (a) □ Yes (b) □ No

15. How many of them?
   (a) □ One (b) □ Two (c) □ Three (d) □ Four

16. Where do you cook?
   (a) □ In the Kitchen (b) □ Outside the house (c) □ In the corridors

17. What do you use for cooking?
   (a) □ Firewood (b) □ Kerosene stove
   (c) □ Others (specify)
18. What do you call the following in your language?
(a) Cough
(b) Catarrh or Running Nose
(c) Fast Breathing
(d) Chest Indrawing
(e) Wheeze
(f) Pneumonia

19. Which of these symptoms and signs will make you suspect pneumonia in your child?
(a) Cough and catarrh
(b) Cough and fever
(c) Cough and vomiting
(d) Fast breathing, fever and cough
(e) Chest indrawing, not eating and cough
(f) Others (specify)

20. Which symptoms and signs will make you suspect that the pneumonia is serious?
(a) Cough, catarrh and fever
(b) Cough, catarrh, fever and vomiting
(c) Cough, fever, fast breathing, chest indrawing and not eating.
(d) Child weak and sleeping most of the time.
(e) Child crying a lot or not playing
(f) Others (specify)

21. Can pneumonia be a serious illness in your child?
(a) Yes
(b) No
(c) Don’t know

22. If “Yes”, Why?
(a) Can kill the child
(b) Affects many children
(c) Takes long to treat
(d) Kills fast if not treated
(e) Others (specify)

23. What are the causes of ARI? (List the symptoms cough, catarrh, blocked nose, etc.)
(a) Cold weather
(b) Dirty surroundings (environment)
(c) Child not eating well (poor feeding)
(d) Exposing child to cold weather (by not putting on clothes at night)
(e) Indoor air pollution (cooking inside the room with kerosene)
(f) Supernatural forces
(g) Virus and bacteria
(h) Others (specify)

24. Is there any difference between ordinary cold (cough and catarrh) and pneumonia?
(a) Yes
(b) No
(c) Don’t know

25. How can you prevent ARI in children?
(a) By exposing them to cold weather
(b) By feeding them well
(c) By breast feeding the infants
(d) By immunizing them
(e) By exposing the child to indoor air pollution (e.g., cooking inside the room or smoking)
(f) Don’t know
(g) Others (specify)
Section C Attitude and Care-Seeking Behaviour

26. If any of your children have ARI (cough and catarrh only), what do you do?
(a) [ ] Home care with rubs, herbs, drinks.
(b) [ ] Home treatment after seeking a neighbour’s or relative’s advice.
(c) [ ] Home treatment with drugs bought from the chemist after consulting the nurse or pharmacist.
(d) [ ] Some treatment from a traditional doctor.
(e) [ ] Prescribed treatment after visiting a clinic or hospital.
(f) [ ] Others (specify).

27. Has any of your under-5’s have symptoms of ARI in the 10 days?
(a) [ ] Yes.
(b) [ ] No.

28. If “Yes”, have you given the child/children any form of treatment?
(a) [ ] Yes.
(b) [ ] No.

29. If “Yes”, why did you treat the child?
(a) [ ] Because illness is life-threatening.
(b) [ ] Because illness is distracting to the child.
(c) [ ] Because illness is disrupting the parent’s work or disturbing their sleep.
(d) [ ] Because the previous health on ARI by health workers.

30. If No.29 above, why?
(a) [ ] Illness is not serious in my judgment.
(b) [ ] No time to take child to hospital.
(c) [ ] Illness can be treated at home with local herbs and drink.
(d) [ ] Illness can be treated by native doctor.
(e) [ ] The Health Centre is very far.
(f) [ ] Health workers are not friendly.
(g) [ ] No drugs at the Health Centre.

31. Which symptoms and signs will make you take the child to the hospital or clinic?
(a) [ ] Ordinary cough and catarrh.
(b) [ ] If the child develops fever and fast breathing.
(c) [ ] If the child becomes weak and is not eating.
(d) [ ] If the child has chest indrawing and coughing.
(e) [ ] If the child has cough and vomiting.
(f) [ ] Others (specify).

32. Have you ever had any form of health education on ARI?
(a) [ ] Yes.
(b) [ ] No.
(c) [ ] Don’t know.

33. If “Yes”, by whom?
(a) [ ] Health worker in the health centre.
(b) [ ] Health worker in the hospital.
(c) [ ] Neighbours.
(d) [ ] Through the radio.
(e) [ ] Read in the papers.
(f) [ ] Others (specify).

34. If your child has Pneumonia (cough, catarrh and fast breathing), what do you do?
(a) [ ] Give Panadol and Cough syrup.
(b) [ ] Give Septrin with other drugs.
(c) [ ] Take Ampicillin with other drugs.
(d) [ ] Take child to Hospital/Clinic.
(e) [ ] Take child to Prayer Home.
(f) [ ] Watch and see.

35. If the child does not improve despite treatment, what would you do?
(a) [ ] Take child Hospital/Clinic.
(b) [ ] Increase dose of antibiotic (Septrin/Ampicillin).
(c) [ ] Intensify prayer in the Prayer House.
(d) [ ] Go to the Native Doctor.
(e) [ ] Watch and see.
APPENDIX III - MAP SHOWING IKWERRE AND EMOHUA LGAS
(Source: Federal Surveys Maps: Rivers State Political Maps)

LEGEND
State Boundaries
State Capital
LGA Boundaries
LGA Headquarters
Towns and Villages
Mail Roads
Secondary Roads
Rivers and Creeks
APPENDIX IV - MAP OF VILLAGES IN ALUU COMMUNITY

LEGEND
1. Community Secondary School
2. Health Centre
3. Community Primary School
4. Unibat Demonstration Sec. School
5. Lape Primary Health Centre
6. Man Y. Main Training Centre
7. UFWH Staff Quarters
8. Griendy Delta Park
9. Unifrut-University Park (A.A.R.)
10. Unifrut-Loqua Park

- TARMED ROAD
- UNTARRED ROAD
- VILLAGES OF MAIN COMMUNITY
- VILLAGES OF OTHER COMMUNITIES
Appendix V

ARI SONG (TUNE: when you're happy and you know it say Amen)

1. When your child has cough and catarrh
   If your baby has cough and catarrh
   You can treat him at home
   Just give him plenty fluids
   When your child has cough and catarrh

2. When there’s fever with the cough and catarrh
   Or the child is vomiting
   Then take him to the clinic
   Where the doctor will decide
   What to give your child
   for his cough

3. When the baby is breathing fast
   And his chest is drawing in
   Then rush him to the clinic
   For he has pneumonia
   So the doctor will treat him well
4. When your child is breathing fast
   Don’t wait for his chest to draw in
   Just take him to the clinic
   Before it becomes worse
   Don’t wait for his chest to draw in

5. Don’t expose your child to cold
   Don’t expose your child to smoke
   Feed him only with breast milk
   Till he’s six months old
   He will grow healthy and strong

(Composed by the Researcher)
REFERENCES


2. Ian Riley. Involving the Community. ARI News (1985); 3:3

3. WHO: Management of the Young Child with an Acute Respiratory Infection. The WHO ACT International, Atlanta, Georgia; U.S.A

4. Enarson P. and Enarson D. Management of the child with Cough or difficult breathing. A guide for low-income countries. International Union Against Tuberculosis and Lung Disease, Paris, France...


6. AHRTAG. Primary Care of ARI. ARI News (1987); 7:1.


11. Diakparome M. A. and Obi M. O. The Pattern of Paediatric emergencies in the University of Benin Teaching Hospital. Nig. J. Paed. (1980); 7(2); 43-45.


18. Oruamabo R. S. Analysis of Paediatric Medical cases admitted to the University of Port Harcourt Teaching Hospital, Nigeria. East African Medical Journal (1987); 64:520-526.


21. AHRTAG. ARI News (1989); 15.1.


23. Rosin R. ARI Health Education Activities. ARI News (1989); 14:5.


Program Planning; Putting the Parts together.


40. Roesin R. ARI Health Education Activities. ARI NEWS (1989); 14:5.


