A Study On Knowledge, Home Care Practice And Health Seeking Behavior Of Mothers Regarding The Management Of Acute Respiratory Infection In Under Five Year Children

Mandira Onta

Tribhuvan University, Institute of Medicine,
Nursing Campus, Maharajgunj,
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Acronyms/Abbreviation

ARI	–	Acute Respiratory Infection
ALRI	–	Acute Lower Respiratory Infection
AURI	–	Acute Upper Respiratory Infection
BBS	–	Bangladesh Bureau of Statistics
BSMMU	–	Bangladesh Sheikh Mujib Medical University
Bull.	–	Bulletin
CBIMCI	–	Community –Based Integrated Management Childhood Illness
CBS	–	Central Bureau of Statistics
CDD	–	Control Diarrhoeal disease
CHD	–	Child Health Division
COPD	–	Children Outpatient Department
CMR	–	Child Mortality rate
DHS	–	Demographic Health Survey
DOHS	–	Department of Health Services
FCHV	–	Female Community Health Volunteer
Ed(s)	–	Editor or edited
FES	–	Focused Ethnographic Study
FHD	–	Family Health Division
EPI	–	Expanded Programme of Immunization
e.g.	–	Exempli gratia; for example
et.al.	–	"et alii"; and others (used to refer to co-authors when there are three or more)
Fig (s)	–	Figure(s)
HIV /AIDS	–	Human Immune Virus/Acquired Immune Deficiency Syndrome
HRD	–	Human Research Development
IEC	–	Information, Education, Communication.
IMCI	–	Integrated Management Childhood Illness
IMR	–	Infant Mortality Rate
IOM	–	Institute of Medicine
i.e.	–	that is
JSI	–	John Snow, Inc
KAP	–	Knowledge, Attitude and Practice
KMTC	–	Kathmandu Metro Politician City
LBW	–	Low Birth Weight
LRI	–	Lower Respiratory Infection
MCHV	–	Maternal Child Health Volunteer
MOH	–	Ministry of Health
NEPAS	–	Nepal Pediatric Association Souvenir
NFHS	–	Nepal Family Health Survey
NPC	–	Nepal Planning Commission
n	–	Number of respondent

PH	–	Public Health
PHC	–	Primary Health Care
SHP	–	Sub- Health Post
S/S	–	Sign and symptom.
TOF	–	Tracheo Oesophageal fistula
TU	–	Tribhuvan University
UNDP	–	United Nation Development Programme
UNICEF	–	United Nation Children's Fund
USAID	–	United States' Agency for International development
U5MR	–	Upper 5 Mortality Rate
VHW	–	Village Health Worker
VDC	–	Village Development Committee
Vol.	–	Volume
WHO	–	World Health Organization

ABSTRACT

Acute Respiratory Infection (ARI) is a major cause behind high mortality of under 5 children in Nepal. Ministry of Health had recognized it and had implemented ARI strengthening Program to curb the overall morbidity and mortality from ARI under 5 children.

This was a descriptive and exploratory study, and the purpose was to identify the knowledge, home care practice and health seeking behavior of mothers of under 5 children with ARI at Manamaiju VDC of Kathmandu district. The sample size was 100 mothers with 122 ARI Children and the sample population was 892 mothers having 1134 under 5 children.

The study VDC was chosen purposively and proportionate stratified random sampling method was used to select the required sample size in order to cover all 9 wards of Manmaiju VDC. The questionnaire having open and closed type of question was used as test instrument and data was collected from Paush 7, 2059 to Magha 7, 2059.

All the respondent mothers, both illiterate and literate group, felt that ARI is dangerous to the baby and 96% answered two or more than two signs and symptoms of ARI (Cough and Cold with No pneumonia). Most mothers understood ARI as cough and cold (87%) and had received information from family members (45%) and health workers (38%).

The study reveled that 67% respondent mothers showed correct health seeking behavior; when it was further analyzed according to education and age of the mothers, highest frequency (68%) of correct condition to take ARI children to health care institute came from literate group. In relation to age group, it was found that elderly mothers had more (75%) correct knowledge.

The study also reveled that 57.38% ARI children were cured through *home care practice of the mothers.* And out of 42.62% uncured children, majority of the children were taken to medical shop and very small portion went to sub health post. Most mothers answered the reason for not taking children with ARI for treatment at sub-health post were *unavailability of medicine and absence of health worker.*

The study findings reveled that *literacy* and *experience* (age of the mothers) had a significant impact on *knowledge* about ARI, but *it had little relationship with the mother's attitude and practice regarding ARIs.*

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CHAPTER I

INTRODUCTION

1.1 Background

Nepal is predominantly a rural country with only about 14%
(32,48,000) of the population living in urban areas. The
majority of the nation's 23.2 million citizen still live in
rural areas, and many are subsequently isolated from the
variety of facilities and services available in urban
areas. National census of 2001 estimates the population of
the country to be approximately 23,214,681; of which 15.3 %
(35,51,846) are children under the age of 5 years. The
country is divided into five development regions, 14 zones
and 75 districts; these 75 districts include 3,913 VDCs in
total and each VDC is further broken down into nine wards.
(CBS 2001)

The current population growth rate is 2.3 % per annum and
the National per capita income is $234.00 US Dollars for
2002. 40% of the population is living below the poverty
level. The women's literacy rate is 42.49% and men's is
65.08% and 81% of the populations are engaged in
agricultural activities. (CBS 2002)

Acute Respiratory Infection

According to *Park (1997)* acute respiratory tract infection are infections in any area of respiratory tract, including Nose, middle Ear Throat (Pharynx), Voice box (Larynx), Wind pipe (Trachea), Air passages (Bronchi or bronchioles), and Lungs.

Sharma & Tuladhar (1990) defined acute respiratory infection (ARI) as acute infective inflammatory changes in any part of respiratory tract, from the nasal mucosa to the alveoli, with an alteration in the respiratory physiology. The definition excludes the chronic diseases like pulmonary tuberculosis, bronchial asthma etc.

Respiratory infection is considered acute if their duration is less than 30 days. This (ARI) include pertussis, bronchitis, bronchiolities, otitis media, tonsillitis, pharyngitis, and the common cold *(Mtango & Neuvians. 1991)*

On the basis of site of infection, ARI can be further classified into two types.

a) Acute upper respiratory infection   (AURI)

It includes cough and cold, pharyngitis, sinusitis, mastoiditis, and otitis media.

b) Acute lower respiratory infection (ALRI)

It includes epiglottis, laryngitis, tracheitis bronchitis, bronchiolitis and pneumonia *(Ruttu & Lucero, 1994)*

The AURI is less fatal but it causes more disability in children e.g. Deafness due to otitis media. On the other hand, ALRI causes more death in children because of pneumonia. *(Park, 1997)*

From the view point of public health programme WHO has classified ARI on the basis of sign and symptoms and age of the children for easier and effective case management by the health worker.

The classification is as follows:

Figure 1: Classification of ARI according to the age of the child.

Age of Children	
Below two month of age	**Two month to five year**
1.Very severe disease	1.Very severe disease
2.Severe Pneumonia	2.Severe Pneumonia
3.No Pneumonia	3.Pneumonia
	4. No Pneumonia (Cough and cold)

Source: WHO 1995

WHO estimate (1993) indicates that pneumonia is a leading cause of death in children under 5 years of age in developing countries, and 70% of all childhood pneumonia deaths occurred within the first year of life, with the majority occurring within the first 6 months (MOH/CHD, 1997).

12 million children under 5 in developing countries die each year before their fifth birthday. 8.4 million (70%) of these death are due to acute respiratory infection, diarrhea, measles, malaria, and malnutrition, common preventable and easily treatable childhood disease Of these children, 36% die in ASIA and 33% in Africa (World Bank, 2000)

According to WHO report 1997 about 4.1 million deaths are attributed to ARI world wide with 395 million new cases. In

the Southeast Asia alone every year 1.4 million children die of ARI (Bangladesh, Bhutan, India, Indonesia, Myanmar and Nepal). *(WHO 1997b)*

A child dies from an ARI every eight second at a global level. And often there is lasting damage to the lower respiratory system due to repeated ARI. The overall incident of ARI infection does not differ greatly between developed and developing countries, however the mortality is much higher in the developing countries, mostly due to preponderance of predisposing factors and the secondary bacterial infections. *(IMCI, 1997)*

The prevalence of risk factors for ARI, are lack of awareness, insufficient coverage of immunization, low level of parental education, low level of income status, poor hygiene habit, primitive sanitary environment, lack of early health check-up, malnutrition, and polluted domestic environment.*(Sharma, 1988)*

Acute respiratory infection (ARI) is one of the commonest causes of morbidity and mortality in children under age five in Nepal. Our attention has so far been focused on other health problems like tropical diseases, diarrhea disease and tuberculosis etc. Unfortunately very little attention has been given to the problem of ARI in infant and children which is major cause of infant morbidity and mortality in the country. *(Pande & Neupane 1984)*

The status of the child health is low in Nepal in comparison to other developing countries. Nepal's current infant (IMR) and child mortality rates (CMR) are among the

highest in the South Asian Region, with an IMR of 78.5 per 1000 live births and the mortality rate for children under five as 118 per 1000 live births *(NFHS, 1996)*

In Nepal, the prevalence of ARI varies by the age of the children. It is around 38% from birth to two years of age and 26% from age 2 - 5 years. The problem magnitude of ARI in Nepal differs by region. The highest incident of ARI is in Eastern Development region 374/1000 and lowest is in the Far-Western Development Region 166/100 according to annual report of fiscal year 2058/2059.

The death due to ARI contributes 17 - 25 percent of death in all children *(WHO 1992)*. The case fatality rate due to ARI in Kanti hospital is 9.6 percent *(Shrestha 1983)*. According to the annual report of 2057/58 the ARI reported deaths of under five children are 269 and 184 per 1000 on 2058/59 *(DOHS, 2001)*.

The National ARI Control program has given major importance to increase the awareness to public regarding home care management and referral of ARI children through the caretakers. But still very few mothers know about home care and used to seek medical treatment. As a result the under five child mortality is very high. This is causing a big challenge to achieve the target of reducing child mortality rate to 102.3/1000 in ninth five year plan period from the current rate of 118/1000.

In Nepal, Pneumonia is thought to be cause of death in approximately 30% to 35% of all deaths of children under five years of age. It is estimated that annual death of

children less than five years of age due to pneumonia are approximately 30,000. It is also estimated that morbidity from ARI (All episodes of cough and cold) are about 5 episodes per child per year. So the problem of ARI is particularly important in Nepalese context, perhaps because of the climate, terrain and the living condition of the people (MOH/CHD, 1997).

Everyday, millions of parents seek health care for their children, taking them to hospitals, health centers, pharmacists, doctors and traditional healers. Surveys revealed that many sick children are not properly assessed and treated by these ARI services providers, and that their parents are poorly advised (MOH/FHD 1997).

Lack of timely access to health services remains a significant factor contributing to high child mortality from pneumonia in Nepal. Early identification and treatment of children with pneumonia, is critical to preventing pneumonia deaths. An study done in Jumla, a remote mountain district in Nepal, showed that trained local community workers could effectively detect and treat pneumonia, and reduce the over all child mortality, even in absence of treatment facilities (Pandey & Dhungel, 1982)

To combat life threatening health problems, the Ministry of Health (MOH) Nepal has recognized ARI as the major public health problem in the country among children under five years of age and started National ARI Control Program in 1987. The National ARI Control Program is an integral part of Primary Health Care and is given higher priority by the MOH. MOH recognizes the need to follow the WHO guideline

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for the classification and management of ARI cases in the community. *(FHD, 1996)*.

The national programme promotes standard case management of pneumonia as the primary strategy to reduce pneumonia morbidity and mortality. This entails appropriate training of all health workers at all levels and provision of appropriate antibiotics at all levels of the health system and within the community. It also entails educating mothers, caretakers, and family decision makers to increase their awareness about the signs and symptoms of pneumonia and the benefit of early recognition of these, and seeking prompt care. *(Dawson, 1996)*

The ARI control program covers 75 districts but only 14 districts have special strengthening program. This program shows that the total death rate due to pneumonia is also gradually declining every year. And numbers of pneumonia cases are increasing, where as the number of very severe disease cases are decreasing due to increased awareness of ARI among mothers and care takers. *(DOHS, 1998)*

The main objective of the ARI program is to reduce the ARI related morbidity and mortality under five children and to improve the health status of child in Nepal. It targets to reduce the mortality from pneumonia in under five children through proper diagnosis and management of cases and morbidity from ARI in under five children. *(DOHS, 2001)*

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Status of ARI in Nepal:

- Total ARI cases in 99/00 was 555,013; in 00/01 was 724,213,and in 01/02 was 808,182.

- Total pneumonia cases in 99/00 were 242,368; in 00/01 were 311,067; and in 01/02 were 344,320.

- Incidence of ARI per 1000 under 5 children was 210 in 00/01, it increased to 229 in 01/02. (May be it is because of increase in case reporting from PHC)

- Case fatality rate due to ARI among under-5 children decreased from 1.6 in 98/99 to 0.5 per 1000 in 99/00. It further decreased to 0.4% in 00/02 and to 0.2% in 01/02.

- The proportion of home treatment for ARI cases increased from 41.6% (98/99) to 48.2% (99/00); to 50.7% (00/01); and finally to 51.5% (01/02). It shows care takers are taking home treatment eagerly. *(Thapa, 2000)*

Therefore present study intends to focus towards knowledge, homecare practices and health seeking behavior of mothers regarding the management of under five children with ARI.

1.2 Rationale of the study

Nepal being one of the least developed country has many major problems, like respiratory infection, diarrhea, malnutrition etc; 86% of people live in rural area, where they practices their own culture, tradition and their own ways of treatment. Nepal has relatively poor indicator of maternal and child care, so that study related to these two important areas could be of great value.

There are several reasons for conducting this study:

Firstly ARI is a number two major killer disease of under five children in Nepal. Five episode of ARI occurs to Nepalese children under five years of age. It is necessary to prevent children from ARI death or disability to reduce under five mortality rate. The Infant mortality Rate (*IMR*) is 78.5 per 1000 live births and under five mortality rate (*U5MR*) is 118 per 1000 live births in Nepal (*ARI related death*). The ninth Five year plan (1997-2001) targeted to reduce the IMR to 61.5 per 1000 and U5MR to 102.3 per 1000 live births (But not achieved yet) and tenth five year plan (2002-2007) targets to reduce the IMR to 45 per 1000 live births and *U5MR* to 72 per 1000 live births.

Secondly, mostly mothers are the care taker of children in Nepal, therefore, knowledge and practice of mothers may largely influence the consequence of ARI. So national ARI control program has developed and implemented the health education program for home care of ARI children in order to prevent death from ARI. The mothers are getting advice and information about home care management of children through VHWs and FCHVs during mother's group meeting or during home visit. However very few mothers refer the cases in time and many of the mothers even do not know the home care as well as do not recognize the danger signs of ARI, which needs early referral or treatment.

Thirdly, very few studies have been done in this area to explore mothers' knowledge and practice of home care management regarding ARI. So this study will explore the additional aspect of the problem, so that it might add some

new information and it would be utilized in future for various purposes.

Fourthly, home care practice or supportive therapy is cheap and effective. If it could be implemented effectively in time, it could save the most of the misery of mothers of ARI children. Also if mothers can recognize the danger signs of ARI and take the child for the treatment to health institute in time it can save many lives. Thus it could be the best possible way to reduce the children mortality under the age of five.

Fifthly, Pneumonia is thought to be the cause of death in approximately 30% to 35% of all death of children under 5 years of age; WHO figures estimate that this figure is around 30,000. These figures are based on health facility reporting, the system for which is still evolving, and which provides no estimates for those not attending health facilities. To prevent this death nearly fifty million rupees will have to be spent annually. It could be prevented by utilizing existing technology, knowledge, and medical practice at PHC level, teaching by FCHVs and VHWs to mothers regarding the danger sign of ARI, home care management and health seeking at different level of ARI.

1.3 Statement of problem

Study on knowledge, home care practice and health seeking behavior of Mothers regarding the management of ARI in under five year children at Manmaiju VDC in Kathmandu district.

1.4. Objective of study

1.4.1. General objective

To identify knowledge, home care practice and health seeking behavior of Mothers of children under five years with ARI in Manmaiju VDC in Kathmandu.

1.4.2. Specific Objectives

1. To assess the knowledge of Mothers about ARI and its danger signs.
2. To assess the knowledge of Mothers regarding home care management of children with ARI.
3. To find out the home care practices of mothers regarding management of ARI in Children.
4. To identify the health seeking practice of Mothers of children with ARI.

1.5 Operational Definition of terms :

- **Education level:** This is formal or informal education received by the Mothers.
    a. *Illiterate:* Mothers who do not read and write.
    b. *Informal Education:* Mother who can read and write with out formal education.
    c. *Primary Education:* Mother Who has passed class 1- 4.
    d. *Secondary Education:* Mother who has passed 5 - 10 .
    e. *Higher Education:* Mother who has attended campus.
- **Young mother:** Mother below 20 years of age.
- **Mature mother:** Mother from 20 years to 30 years.
- **Elder mother:** Mother above the age of 30 years.

- **Experience:** It is the experience gained by Mother because of previous ARI sickness of Children.

- **Cough/ Cold / ARI (No Pneumonia):** It includes sick under five Children with at least two symptoms namely cough, running Nose, sore throat, ear-ache but without fast breathing or Chest indrawing.

- **Knowledge of ARI :** Respondent who knows at least one symptom of ARI/Cough and cold (No pneumonia).

- **Do not know:** Respondent who does not know about ARI.

- **Danger sign:** The signs and symptoms in children with ARI that includes

  1. *Rapid breathing*
  2. *Stop feeding well/not able to drink.*
  3. *Convulsion.*
  4. *Abnormally sleepy or difficult to wake.*
  5. *Stridor in calm child(Noisy breathing).*
  6. *Chest in-drawing (Kokha hanne).*
  7. *Fever or low body temperature.*
  8. *Severe malnutrition.*

- **Knowledge of Home Care of ARI Children:** This includes care provided by the mother which is keeping warm, oil massaging, frequently breast feeding, giving safe home remedies to sooth the sore throat (Example hot drinks with Honey ginger, Tulasi leaf etc.) avoiding dust.

- **Seeking for health care** (Condition of referral): Awareness of danger sign of ARI and seeking for prompt treatment.

- **Correct knowledge of seeking care** (Condition of referral): All or any one knowledge about the

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condition of ARI children that need prompt treatment as described in danger signs.

- **Incorrect knowledge of seeking care** (Condition of referral): Include the signs and symptoms other than as described above in correct knowledge about care.

- **Practice of Home Care:** The care provided by Mother to ARI Children at home as described in Knowledge of home care of ARI children.

- **Practice of seeking care** (Taking treatment): Practice of mothers to seek health care by taking the ARI child to sub-health post / hospital / medical shop / private clinic.

1.6 Research Question:

1. What do Mothers know about ARI in Children and its danger signs?

2. What is the knowledge of Mothers regarding home care of children with ARI?

3. What are the home care management being practiced by the Mothers?

4. Where do Mothers take (Refer) Children with ARI for the treatment?

1.7 Variable:

1.7.1 Independent Variable:

- Education level
- Experience

1.7.2 Dependent Variable:

- Knowledge of ARI
- Practice about home care of ARI

1.8 Conceptual Frame Work :

Conceptual Frame Work includes a set of abstract and general concepts that are arranged into a meaningful way (*Brink & Wood, 1983*) to describe phenomena being studied. The investigator has developed the conceptual frame work to gain insight about knowledge and practice of mothers regarding home care of their ARI children and their health seeking behavior.

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┌──────────────────┐      ┌──────────────┐      ┌──────────────┐
│ Education level  │─────▶│  Knowledge   │◀─────│  Experience  │
└──────────────────┘      └──────────────┘      └──────────────┘
                             │        ▲
                             │        │
                             ▼        │
                          ┌──────────────┐      ┌────────────────────┐
                          │   Practice   │─────▶│ ▪ Home Care        │
                          └──────────────┘      │   Management       │
                                                │                    │
                                                │ ▪ Health Seeking   │
                                                │   Behavior         │
                                                └────────────────────┘
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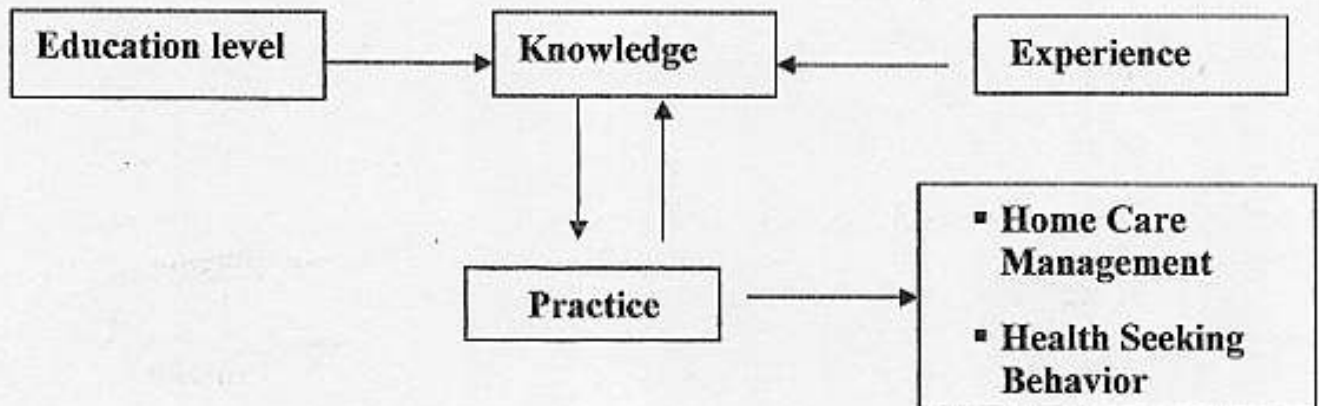
Knowledge and practice is correlated to each other because without practice, knowledge can not be up-graded. So mothers' knowledge depends upon education and experience. When mothers' knowledge is upgraded about ARI, she can easily practice home care management and change takes place in her health seeking behavior for treatment of ARI in their children.

CHAPTER II

LITERATURE REVIEW

Literature review is an essential step. Literatures related to the research problem are reviewed to gain insight to problem. This chapter represents a review of related literature both from research as well non research area of report, articles, documents, journal and books.

In order to search the literature on Knowledge, Home Care Practice and Health Seeking Behavior of Mothers of Under Five Year Children with Acute Respiratory Infection, advices were taken from concerning teachers, research guides, head of department, and colleagues. Central library I.O.M, RECPHEC, UNICEF library, Nursing campus library and Mrigenadra Medical Trust were visited.

Also the relevant articles were searched in Pop line digital data base with the help of concern librarian and relevant article and research reports were down loaded or photo copied.

Area of Literature review :

1. *General information on ARI.*
2. *Current global situation.*
3. *Situation in NEPAL.*
4. *Determinants of ARI.*
5. *Home care practice of ARI.*
6. *Health seeking behavior.*
7. *Prevention and control.*

2.1 General information on ARI

Acute respiratory tract infection are infections in any area of respiratory tract, including Nose, middle Ear, Throat (Pharynx), Voice box (Larynx), Wind pipe (Trachea), Air passages (Bronchi or bronchioles), and Lungs *(Park, 1997)*. And also it is defined as acute infective inflammatory changes in any part of respiratory tract, from the nasal mucosa to the alveoli, with an alteration in the respiratory physiology. The definition excludes the chronic diseases like pulmonary tuberculosis, bronchial asthma etc. *(Sharma & Tuladhar, 1990)*. Respiratory infection are consider acute if their duration is less than 30 days, they include pneumonia, pertussis, bronchitis, bronchiolities, otitis media, tonsillitis, pharyngitis, and the common cold *(Mtango & Neuvians, 1991)*.

On the basis of site of infection, ARI can be further classified into two types.

c) Acute upper respiratory infection (AURI)

   It includes cough and cold, pharyngitis , sinusitis, mastoiditis , and otitis media.

d) Acute lower respiratory infection (ALRI)

   It includes epiglottis, laryngitis, tracheitis, bronchitis, bronchiolitis and pneumonia. *(Ruttu & Lucero, 1994)*

The AURI is less fatal but it causes more disability in children e.g. deafness due to otitis media. On the other hand, ALRI causes more death in children because of pneumonia *(Park 1997)*

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2.2. Current Global Situation of ARI

10.5 - 12 million children under age of 5 years in developing countries die each year before their fifth birth day, 40% occurs in South East Asian region (Bangladesh, Bhutan, India, Indonesia, Myanmar and Nepal). Almost 70% of these deaths are due to acute respiratory infection, diarrhea, measles, malaria and malnutrition, common preventable and easily treatable childhood disease. Of these children, 36% died an ASIA and 33% in AFRICA *(World Bank, 2000)*

The reasons behind it might be the inability of parents to timely recognize the seriousness of the disease, to reach to an appropriate facility, and inability of the health worker to provide good care at the facility. *(IMCI 1997)*

Distribution of death among children under 5 years old in all the developing countries in 1995 are ARI 19% diarrhea 19%, perinatal 18% measles 7%, malaria 5% and others 32%. Approximately 70% of the childhood death associated with one or more of these five conditions. *(WHO 1997b)*

2.3. Situation in NEPAL

As one of the poorest country in the world, Nepal has numerous factors that contribute to the high child mortality rate estimated to be 118 under 5 deaths per 1000 live birth. It is recognized that ARI is one of the major public health problem in Nepal among under 5 children. Every year 99,000 children under the age the five years are estimated to die in Nepal, it is estimated that children

suffer in average 5 episode per child per year from ARI and about 30,000 death are due to ARI, particularly pneumonia. Another 30,000 Children are estimated to die from diarrhoeal dehydration each year. *(Thapa 2000)*

The national program for control of ARI was established in 1987 in order to reduce morbidity and mortality from pneumonia among children under the age of 5 years, this included training health facility staff and providing cotrimoxazole tablets to fixed facilities. *(MOH, 1994)*

The national ARI control program covers 75 districts, 14 of which have a special strengthening program. The program focused on children under 5 years of age because the majority of deaths in this age group are ARI-related. The MOH recognized the need to follow the WHO guidelines for the classification of ARI cases.

Family health survey conducted in 1996 estimated that 34% of children had symptoms of ARI, with the highest incidence among under 5 children. The same survey reported an under 5 mortality of 118 per 1000 live birth meaning that about one in eight children die before reaching age five. Earlier study estimated that pneumonia was responsible for 30-34% childhood death. *(Houstan 2001)*

Nepal one of the least developed countries in the world, has unacceptably high infant and childhood mortality. Since the vast majority of the people in remote areas where ARI is rampant, do not have health professional with-in miles. The problem of ARI is particularly important in the Nepalese context, perhaps because of the climate, terrain and the living conditions of the people. To prevent these

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deaths nearly fifty million rupees will have to be spent annually. It is a tragedy and irony of fate since a large proportion of these deaths could be prevented if the existing technology, knowledge and established medical practice were applied to provide comprehensive health care particularly to develop strategies at primary health care level. *(Sharma 1988)*

Known as famous JUMLA report, a retrospective study conducted during May 1981 in Jumla, showed ARI is a very important cause of infant mortality. The total infant mortality rate per thousand was 488.9 of which 333.3 were due to ARI; such high infant mortality rate due to ARI in different part of Nepal could be explained by the high rate of parental smoking, incidence of measles, malnutrition, diarrhea, and heavy exposer to domestic smoke pollution *(Pandey & Dhungel, 1982)*. A prospective study done by Mrigendra Medical Trust showed 59% reduction in the ARI specific death rate between surveillance year and intervention year I and further 25% reduction between intervention year I and II. (Pandey et al. 1989)

Another descriptive study done by *Onta and Yengden* in Eastern Nepal showed 50.5% of mother knew the sign and symptoms of ARI with out pneumonia, 45% had mixed responses, only 2.5% of the responding mother reported to have knowledge about danger sign of ARI. 39.5% had wrong answer and 12% of did not know about the danger sign of ARI. *(Onta, Yengden 1993)*

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2.4. Determinants of ARI

Risk factors associated with the development of lung diseases in children are intrinsic and extrinsic. Intrinsic abnormalities include congenital anatomic abnormalities in the airway, extrinsic factors include infection, environmental pollution, chilled or dry air, bottle feeding, malnutrition, crowding, measles, low birth weight.

Clinical evidence shows that passive smoking is detrimental to child hood respiratory infection. There is evidence to suggest that exposure to burning biomass fuel, common in Nepal and many developing countries may play an important role in the etiology of ARI. ARI occur in winter in developing countries but in developed countries it can happen in summer as well as in winter. *(Sharma, 1988)*

The average duration of illness in malnourished child is significantly longer; bronchitis occurs three times and pneumonia occurs ten times more frequently than to normal children. Several studies have recognized that breast feeding reduces the risk of ARI morbidity and mortality. Incidence of ARI is about 2-5 times higher in bottle feeding compared to breast fed infants. As ARI spreads by droplet infection, crowding and presence of high density population affect the transmission of disease. Measles accounts for nearly 6- 10% of all ARI episode and 40% of all moderate to sever ARI episode. Infant weighing less than 2.5kg at birth are more prone to infection and death from pneumonia and other form of ARI. *(Lohani and Shrestha, 2000)*

2.5. Home Care Practices of ARI

As mothers and health worker are advised to follow WHO guide lines on the classification of ARI, they must have the knowledge of home care to attend the ARI children at home. (Pneumonia and No-pneumonia).

Home care is very important for a child with an acute respiratory infection and most children could be cared with it.

Children older than 4-6 months of age should be given nutrient-rich and energy-rich foods. Depending on the child's age these should be mixtures of cereals and vegetables or pulses (e.g. beans). Malnutrition increases the chance that the next time the child gets a respiratory infection or diarrhea he or she will become more seriously ill. Children with a respiratory infection can lose more fluids than usual, especially when they have a fever. Mother should give more fluids than usual in different form to sick children. Denno (1994) reports that in Ghana to substitute the fluid in ARI children sweet tea as well as local herbal drinks were given, this would stop dehydration and sooth the throat of the child (Denno et al. 1994). If the child is exclusively breast-fed it is advised to the mother to breast-feed more frequently than usual *(WHO 1995)*. Children with pneumonia can develop shock due to sepsis. It should be treated vigorously to restore the circulation. *(WHO 1994)*

The mother can soothe the child's throat and relieve the cough by giving the child safe home - made cough syrup or

soothing remedy made from leaves of Tulsi leaf tea *(WHO, 1995)*. In a study done by *Saini (1992)*, it had been found that local herbal drink and warm to hot paste of turmeric and mustard oil were popular in India for sore throat and cough *(Saini & Gaur, 1992)*. A mixture of honey and lemon also were used as cough medication. *It is also* important not to overheat or chill a child who has pneumonia. It is advised not to over wrap child in tight clothes or too many layers of clothes. Heat and cold stress can both increase a child's oxygen consumption two to threefold, increase carbon dioxide production, and precipitate respiratory failure *(WHO, 1994)*. If there is fever cool liquids are encouraged to help reduce the temperature and to minimize the chances of dehydration *(Whalley & Wang 1995)*. Cooling with the tepid sponging or cold water is a common practice that should be discouraged. Alcohol should never be rubbed on the skin to cool the child with fever. If alcohol is absorbed through the skin it can be very toxic in a young child *(Cattaneo, 1993)*.

Most ARI are mild and cause few distressing symptoms. Cough and running nose were two most important features to identify an attack of ARI *(Saini & Gaur, 1992)*. Children may feel uncomfortable and have a "stuffy nose and some mucosal swelling, muscular contraction, mucus obstruction which cause respiratory distress. The moisture soothes inflamed membrane. A small child can be held on the lap of a parent or other adult during steam inhalation. Older child can take steam inhalation by themselves. *(Whally & Wang 1995)* If the child is not feeding well because of a blocked nose, clear it using a soft cloth wet with warm

water. Do not use nose drops in young infants – this can be harmful *(WHO, 1995)*.

Careful hand washing should be carried out when caring for children with respiratory infections. Children and families should be taught the correct disposal of respiratory secretions and proper behavior related to airborne droplets (Coughing and sneezing). *(Whally & Wang, 1995)*

2.6. Health Seeking Behavior

Many deaths from ARI occur within three days of symptoms first appearing. Therefore, it is very important that mothers recognize the signs which indicate that a child requires treatment. If they can recognize the danger signs of ARI, they will seek the medical help saving the life of their child *(Campbell et al.1990)*. In a study done by UNICEF in Bangladesh, it was reported that mothers could identify chest indrawing (52.7%) and rapid breathing (36.2%) *(UNICEF & BBS 1995)* but in another study Rahman (1998) found that most mothers took their children to hospital only when they can not drink although they thought pneumonia as dangerous disease and took it as cough deep in the chest, severe cold, very bad disease, *(Rahman & Rahman, 1998)*. In a study in Thailand, it was found that 83.7 mothers had responded about the signs and symptoms of ARI (Sorasak et al.1998) but in another study in Myanmar, Aung (1994) reported that instead of going to Medical Institution many mothers would use private general practitioners or medical shops and or go for self medication (Aung, et al. 1994).

The health workers (FCHV/VHW) must teach the following danger signs of ARI to mothers, a. Not able to feed/drink, b. Convulsion, c. Abnormally sleepy or difficult to wake, d. Stridor in calm child, e. Chest indrawing (Kokha hanne), f. Wheezing, g. Fever or low body temperature, h. Breathing becomes faster, i. Severe malnutrition. The child who is classified as having very severe disease is *very ill* and should be taken *urgently to the hospital*. (WHO 1995)

The most important message of ARI control program is that parents whose children are having difficult breathing or are breathing at a higher rate than normal should seek medical help *(Leowski, 1992)*. Pneumonia kills quickly, unless medical help is sought immediately. Health seeking behavior is very important to save the child; in a study Rehman (1994) found 66.6% mothers were aware of correct condition to take the child to health institution (Rehman et al.1994). WHO had developed a research methodology called Focused Ethnographic Study, to assist ARI programme to communicate properly with parents of ARI children when to sick medical help *(Campbell, 1992)*. *"Finding Out Local Attitude is Vital"* and families were not discouraged from seeking care from traditional healer, but were encouraged to also seek care from a trained health worker as soon as danger sign appear *(Charaly, 1992)*. It had been proved that simple education had more success in teaching women to recognize pneumonia (Akin, 1992). So an education programme utilizing an informative print material was devised to upgrade the mother's ability to recognize signs of ARI and to improve her management of the condition *(Tupasi et al., 1996)*.

2.7 Prevention and Control

Home care practice and preventive measure goes hand to hand and the knowledge of prevention and control of ARI to mothers is very crucial to bring down the morbidity and mortally of ARI.

According to WHO Bulletin 1995, *interventions* for the prevention of pneumonia are identified in six groups. If children are *vaccinated* against measles, whooping cough and diphtheria *up-to 25% of deaths* from this infection can be prevented *(HRD 1993)*. *Simple* case management approach was developed by WHO in 1982, this allowed community health workers to understand and identify clinical symptoms and use appropriate Case management according to WHO classification of illness and promptly treat by antibiotics *(WHO 1990)*. Studies in India and Papua New Guinea suggested that this simplified case classification could successfully be used by health workers in order to determine when children should be given antibiotics or referred to secondary or tertiary level health care *(Neil & Graham 1990)*. Improving nutrition and breast feeding up to five months, contribute to strengthening the defenses of the child and reduce the chances of the child becoming ill and dying from pneumonia *(HRD 1993)*. Only proper education of parents on adequate and better nutrition including breast feeding, and timely treatment of complications can reduce the incidence of death in children due to ARI *(Sharma 1987)*. Reducing environmental pollution like Tobacco smoking/Outdoor Indoor air /cooking site/Overcrowding/heating smoke/dust and cold will protecting the child and help prevent from ARI *(HRD 1993)*.

WHO had developed simple guidelines for the treatment of pneumonia with antibiotics. The antibiotic treatment regimen has shown a 55% reduction in pneumonia mortality and 25% reduction in mortality from all other causes *(ARI, 1997)*. Focusing on a single diagnosis may lead to devastating condition and not reduce childhood morbidity and mortality. Based on this fact, the WHO-UNICEF joint strategy of Integrated Management of Childhood Illness (IMCI) is impressive in improving child health care. IMCI advocates that health workers should adopt a holistic approach to examining and treating children, so that a child being treated for one illness is also checked and treated for other major childhood illnesses. *(WHO 1997a)*.

SUMMARY OF LITERATURE REVIEW

A detail study of ARI was done to gain the in-depth knowledge through number of books, journals, articles, digital data base, research papers, different INGOs' reports, MOH annual reports and manuals from IMCI, WHO, CHD, UNICEF and JSI. Out of all these books, papers, articles and journals, summary of only 51 literature review are presented.

ARI is infections in any area of respiratory tract, including Nose, middle Ear, Throat (Pharynx), Voice box, Wind pipe, Air passage and Lungs. And WHO has classified ARI on the basis of signs and symptoms and age of the children for easier and effective case management by the health workers. 10.5 - 12 million children under age of 5 years in developing countries die each year before their fifth birth day, 40% occurs in South East Asian region. Almost 70% of these deaths are due to acute respiratory infection, diarrhea, measles, malaria and malnutrition, common preventable and easily treatable childhood disease. Of these children, 36% die in ASIA and 33% in AFRICA. Scenario of the *ARI Situation in NEPAL* is very gloomy, every year 99,000 under 5 children are estimated to die in Nepal, it is estimated that children suffer in average 5 episode per child per year from ARI and risk factors associated with the development of lung diseases in children are intrinsic and extrinsic factors.

Home care is very important for a child with ARI and most children can be treated with it. Many deaths from ARI occur

within three days of symptoms first appearing. Therefore, to save the life of their child, it is very important that mothers recognize the signs indicating that a child requires treatment. Prevention of pneumonia are full course of Immunization, proper Case management, Improving nutrition, Reducing environmental pollution, Reducing transmission of pathogens, and Improving child care practice.

Most of the research deals with KAP of the mothers on ARI, they found different result with people of different cultural back-ground, it is interesting to note that *education influences the knowledge but almost does not make any impact on the health seeking behavior of the mothers;* most of the time the practices they follow are govern by the traditional beliefs and practice.

CHAPTER III

METHODOLOGY

3.1 Study Design

A descriptive, exploratory study design was used in this study to gather information on knowledge, home care practices and health care seeking behavior of mothers regarding ARI in their children under five years of age.

3.2 Study Setting.

3.2.1 Study district

The study district was Kathmandu. It is located at Bagmati zone, central Development region. The area of this district 'is 395 Sq.km which is about 0.27% of total National area. It consists of 1 Metropolitan City, 1 Municipality and 57 VDCs. According to the census 2001, the population of Katmandu district is 10,81,845 among which 85,276 are 0-4 year old. (*CBS, 2001*) The district has one children hospital (Kanti Children hospital). As indicated by the district organization chart, there are 7 Primary Health Care Centers (Including Ramghat Health Centre), 6 Health Posts and 53 Sub- Health Posts.

3.2.2 Study VDC

The study VDC was Manamaiju. It lies at north-west corner of Kathmandu district. It is surrounded by Gongabu VDC in the east, Goldhunga VDC and Dharmasthali VDC in the west, Phutung VDC in the north and Balaju, ward no 16 of Kathmandu Metropolitan City in south. The VDC is divided into 9 wards. The major ethnic groups are Chhetri-40%, Brahmin-30%, Newar-5%, Mongolians-10% and others -15%. *(Data from Manamaiju SHP)*

The total population of this VDC is 11,208 among them male are 5892 (52.56%) and female are 5316 (47.43%). The sex ratio is 1.10 male per female. The total number of children under five years of age is 1134 (Under 1 year - 242, 0-36 months - 480, and 0 to 60 months - 1134). The total number of household is 1321. It has one sub health post with 3 health worker and one peon. There are twenty eight FCHVs working in this VDC. As this VDC is attached to KMTC, it has good enough transportation facility and the Kanti Children Hospital is only five kilometer from the VDC.

3.3 Study Population and Sampling

The study population included all mothers of Manamaiju VDC having children under five years of age who had at least one episode of ARI in the last one month period. Proportionate Stratified random sampling technique according to ward, was used to select 100 mothers with 122 children from the 9 wards of the VDC. List of children under five years of age from Manamaiju VDC was used as a reference frame to select the subjects.

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3.4 Sample size.

100 mothers with children under five were selected out of 892 mothers *(FCHVs record)* by Proportionate Stratified random sampling technique as the sample for the study from these nine wards. The figure below represents the sampling scheme and number of respondents from nine wards of Manmaiju VDC.

Sampling Scheme

Ward No.	No. of mothers with Children of under five years	Total No. of under five Children	Selected no. of mothers	No. of Children
1	114	144	13	16
2	21	27	2	2
3	25	32	3	3
4	40	51	4	3
5	26	33	3	4
6	19	24	2	2
7	42	53	5	6
8	570	725	64	81
9	35	45	4	5
Total	892	1134	100	122

* *Source: Manamaiju SHP*

3.5 Instrumentation

The selection and development of tool is based on objective of the study. In order to collect the required information, structured and in-depth questionnaire was developed based upon review of literature, consultation with the concerned experts, and the research guides. It was finally translated into Nepali and was used at the chosen VDC for the interview with the mothers.

The questionnaire consists of:

    a) Socio-demographic information

    b) Information regarding ARI

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3.6 Validity and Reliability of the tools.

3.6.1 Validity

- The instrument was developed by the investigator based upon review of literature.
- The validity of the test instrument was assessed through consultation with concerned advisor, subject teachers, and experts in ARI.
- The concerned persons were requested to read the questionnaire and the feed-back was collected and necessary changes were made in the questionnaire as per their suggestion.

3.6.2 Reliability

- Reliability of the instrument was maintained by pre-testing the instrument in non study area in Dhapasi VDC ward no 7. Ten percentage of the sample size was pre-tested; feed-back was taken and necessary modification was made in the questionnaire to get the desired information.
- Questionnaire was designed for interviewing the mothers in Nepali and later on it was translated in English. Tested and retested to find out the consistency of the response.

3.7 Data Collection.

Mothers were randomly and proportionately selected from the record of mothers having under five children in Manmaiju

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sub health post. Help from one FCHVs from each ward was taken to visit the selected mothers to collect the data.

The selected mother was interviewed using the questionnaire, of which reliability and validity was already established.

Direct personal interview technique was used to obtained necessary information from the respondent.

3.8 Ethical consideration

Prior to conducting the research, the following measures were taken in consideration.

- Study was conducted only after getting approval from the research committee, Master of Nursing program, Nursing Campus, Maharajgunj .

- Formal permission was obtained from the authorities of concerned VDC.

- Greeting and introduction of each-other was done before interview and the investigator followed the principals of justice, human dignity and physical wellbeing of the respondents. The subjects were also protected from physical and emotional harm during the study.

- All responding mothers were clearly explained the purpose of the interview.

- Informal verbal consent was taken from each subjects before interviewing them and were given due respect for acceptance or rejection of the interview.

- The confidentiality was ensured before the interview was started. And obtained in formations were used only for the necessary study purpose.

- After finishing the interview, feed back was given along with health teaching if any wrong practices were practiced by the mother and questions raised by respondents regarding ARI was answered properly.

- 100 cases were included without any discrimination; subjective biasness was minimized when collecting data.

3.9 Data Cleansing and processing

- At the end of the day, the completed questionnaires were checked for accuracy, consistency and completeness.

- After the completion of the data collection, editing and coding was done and master table was developed.

3.10 Statistical Analysis.

- Basically this study was done on descriptive way. So while analyzing the data, the descriptive statistical calculation method was used and main focus was on frequency, distribution mean and percentile.

- Responses of the mothers were analyzed in English according to the original questionnaire. Data were analyzed manually. For each of the open questions, the responses were carefully analyzed, categories were formulated and coding was done. Frequency table were prepared and percentages calculated.

- Table, charts and graphs were prepared to facilitate the interpretation of the data.
- Chi squire test was used to determine the association between the concern variables.

3.11 Limitation

It was tried best to avoid the bias and error during the study. However there were some limitations as following:

- Since the study is concentrated in the Manamaiju VDC, the result drawn from the study may not be applicable in other locations.

- The test instrument used for data collection may not be sufficient to measure the practice of the mothers as the answer given by the respondent might have biases.

- The study was done in only one VDC because of the limitation of the Budget and the Time.

- Practical data were based on their verbal response only.

- Some time respondents may have recall biases.

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

The collected data was analyzed according to the objective
and research question of the study. Classification of data
was done by arranging in master sheet. Tabulation and
analysis of data was done according to numerical order from
the master data sheet.

The data analysis consisted of two main items:

a) Socio demographic information.

b) Information regarding ARI:

- Knowledge of ARI

- Home care practice of children with ARI

- Health seeking behavior for ARI in children

Data are analyzed using different tables, graphs and
charts.

4.1 Socio demographic character of respondents Description

It includes age, ethnicity, religion, education, occupation, family status etc.

Table: 1

Distribution of respondents according to their age ethnicity, and religion.

n=100

Variable of respondents		Percent
Age	15-19	8
	20-24	38
	25-29	30
	30-34	14
	35-40	10
Mean Age 26.05		
Standard Deviation 5.57		
Ethnicity	Chhetri	29
	Newar	22
	Brahmin	19
	Magar	4
	Rai	3
	Other*	23
Religion	Hindu	73
	Buddhist	25
	Christian	2

*Others include Lama, Pariyar, Paija, Majhi, Kami, Sunuwar group

Table No.1 shows that majority of the mothers belonged to 20 to 29 group probably because this is the most fertile age period. The smallest percent belonged to teenage mother. Aged 15-19 years.

Higher percentage of the respondents belonged to Chhetri ethnic group (29%) and majority of respondents were Hindus.

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Figure: 1

Angular diagram showing the family status of the respondents

Daughter in law 15%
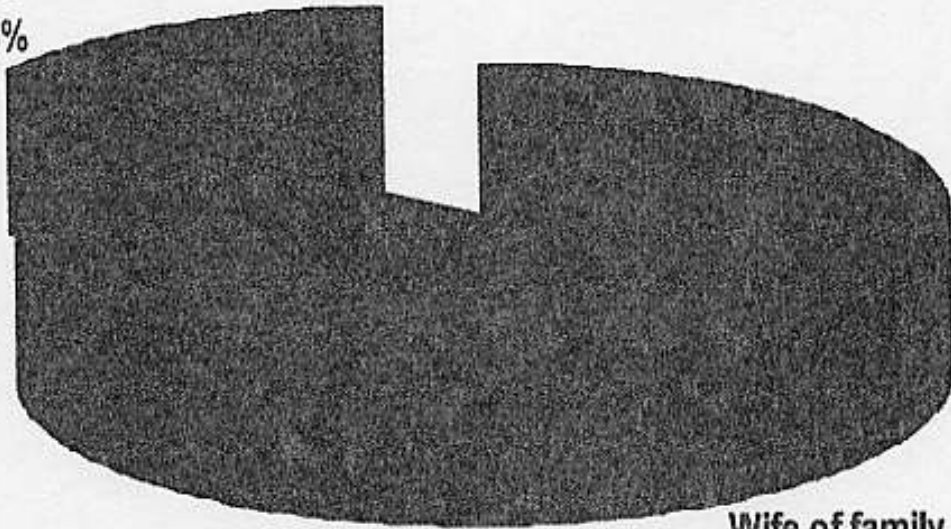
Wife of family head 85%

Above angular diagram shows that most of the respondents were wife of the family head with no support or guidance from in-laws.

Table: 2

Distribution of respondents according to their education and occupation status

n=100

Variable of respondents		Percentage
Education	Illiterate	23
	Informal	17
	Primary	9
	Secondary	35
	Higher	16
Occupation	Housewife	74
	Service	12
	Agriculture	6
	Daily Wages	5
	Business	3

Table 2 shows that majority (60%) respondents were literate and about half of them had secondary to higher level education. Occupation wise however, must mothers were house wife (74%) thus making respondents appropriate for obtaining information on the home care practices in management of ARI in children.

4.2 Knowledge about ARI:

Respondent mothers had 122 ARI children in total. All of the respondents had heard about episode of ARI in under five children.

Figure: 2

Source of information about ARI
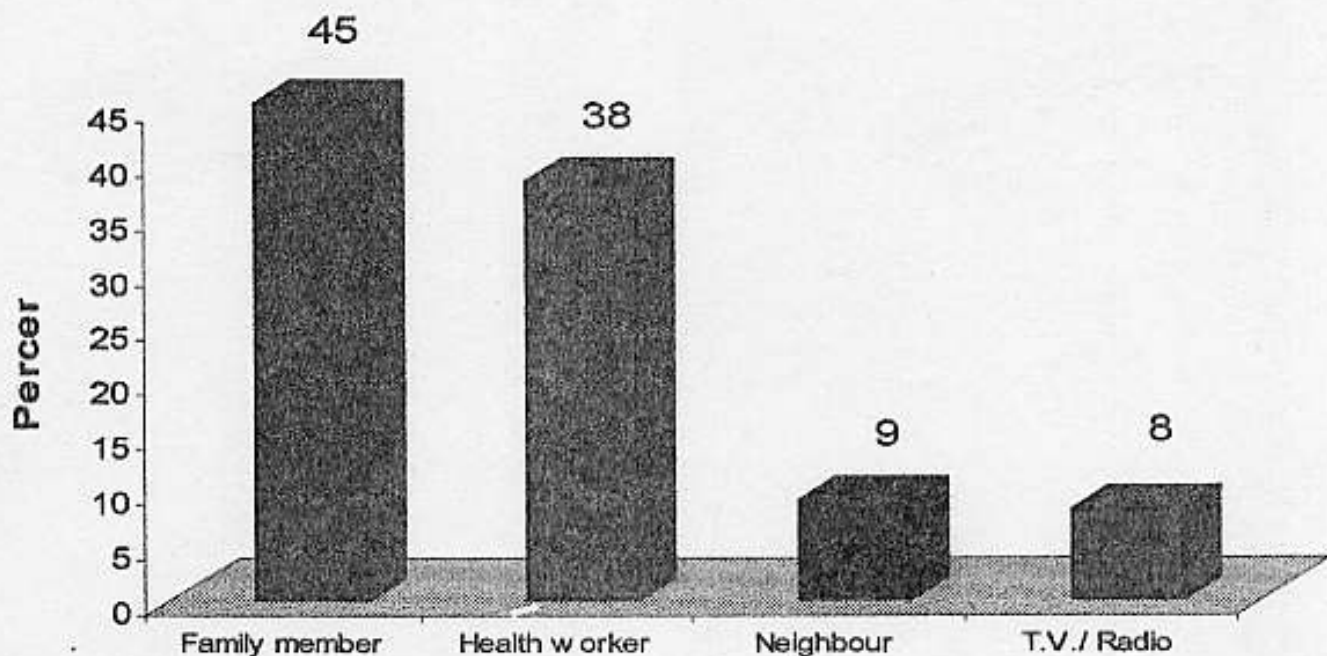
Table 2 shows that 45% respondents had received information of ARI from family members (Husband, mother in law, sister in law etc); 38% respondents had received information from health workers, some has received information from neighbors (9%) and from TV and Radio (8%)

Figure: 3

Meaning of ARI / Cough & Cold (No Pneumonia)
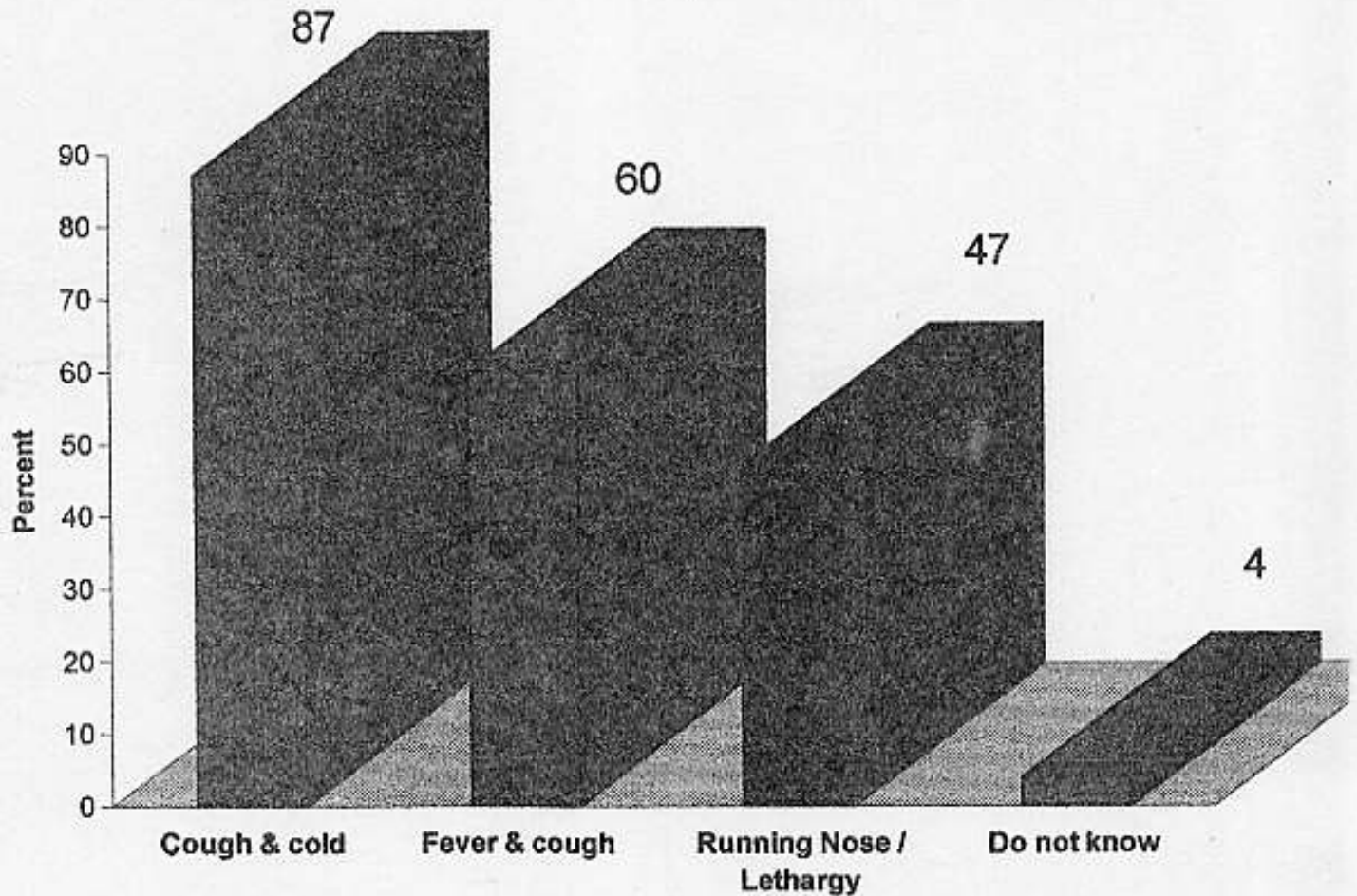
Above simple bar diagram shows 87% of respondent mothers understood ARI as cough and cold; 60% as fever and cough, and 47% as running nose / lethargy.

4.2.1.Knowledge about signs and symptoms of ARI/ cough and cold (No Pneumonia)

Out of 100 respondents, 99% answered about the signs and symptoms of ARI/cough and cold (No pneumonia) and only one percent did not respond. 96% respondent answered two or more than two signs and symptoms of ARI/cough and cold (No pneumonia). Three percent respondents answered only one sign and symptom of ARI/cough and cold. And one percent did not respond.

Data were further analyzed to the education level and age of the mothers.

Table: 3

Distribution of Knowledge about sign and symptoms of ARI/cough and cold (No Pneumonia) according to their education and age

n=100

Variable	Two or less than two S/S	More than two S/S	Do not know	Total	χ^2test
	Number (Percent)	Number (Percent)	Number (Percent)	Number (Percent)	
Education					
Illiterate	11 (27.50%)	29 (72.50%)	0 (0.00%)	40 (100%)	χ^2=0.10
Literate	18 (30.00%)	41 (68.33%)	1 (1.67%)	60 (100%)	(p=·75)
Age:					
Young (↓20)	1 (12.50%)	7 (87.50%)	0 (0.00%)	8 (100%)	χ^2=1.28
Mature (20-30)	19 (27.94%)	48 (70.59%)	1 (1.47%)	68 (100%)	(p=·53)
Elder (↑30)	8 (33.33%)	16 (66.67%)	0 (0.00%)	24 (100%)	

Above table shows that higher proportion of the respondents both in the illiterate (72.50%) and literate (68.33%) group knew more than two S/S of ARI.(p = ·75)

According to the age group, all age group of respondents had high percentage of knowledge of two S/S of ARI. In comparison to other age groups, young mothers had highest (87.5%) knowledge of ARI, this may be because this group had breastfeeding babies at the time of interview and they were in regular touch with FCHVs. (p=.53)

There is no statistically significant association between education and knowledge (p=·75) as well as age and knowledge (p=·53)about sign and symptom of ARI/cough & cold (No pneumonia); which means education and age of mother does not influence on knowledge about sign and symptom of ARI/cough and cold (No pneumonia).

4.2.2.Understanding of mothers regarding danger sign of ARI

All of the respondents (100%) felt that ARI is dangerous to the baby, and in regards to danger sign of ARI 56% answered two danger signs of ARI, and 29% answered two or less than two danger signs and symptoms of ARI. 15% knew none.

The data were further analyzed according to education level and age of the mothers.

Table: 4

Distribution of knowledge of respondents about danger sign of ARI according to their education and age of the mother.

n=100

Variable	Two or less than two S/S	More than two S/S	Do not know	Total	χ^2test
	Number (Percent)	Number (Percent)	Number (Percent)	Number (Percent)	
Education					
Illiterate	10 (25.00%)	26 (65%)	4 (10.00%)	40 (100%)	χ^2 =1.12
Literate	19 (31.67%)	30 (50%)	11 (18.33%)	60 (100%)	(p=0.29)
Age:					
Young ($\downarrow$20)	4 (50.00%)	3 (37.50%)	1 (12.50%)	8 (100%)	χ^2=1.85
Mature (20-30)	19 (27.94%)	39 (57.35%)	10 (14.71%)	68 (100%)	(p=.40)
Elder ($\uparrow$30)	6 (25.00%)	14 (58.33%)	4 (16.67%)	24 (100%)	

Table no 4 shows that both illiterate group (65%) and literate group (50%) had good knowledge of danger sign of ARI, (p=·29). The reason behind above finding may be maximum involvement of illiterate group in mothers' group meeting because the primary concern of the FCHVs is to educate the ignorant group and during the mothers' group meeting FCHVs facilitated the discussion regarding the child health care and related issues and mothers gain knowledge from such meetings. According to the age group, maximum number (58.33%) of elder mother answered more than two signs of danger sign of ARI and only half of the young mothers answered more than two signs, the reason behind is probably due to experience of the elder age group mothers. (p=·40)

There is no statistically significant association between education and knowledge about danger sign (p=·29) as well as age and knowledge about danger sign (p=·40) of ARI which means education and age of mother does not influence on knowledge about danger signs of ARI.

Figure: 4

Meaning of Pneumonia by mothers

Legend

- Cough deep in chest
- Severe cold
- High fever & cold
- Very bad disease
- Difficult breathing
- Don't know
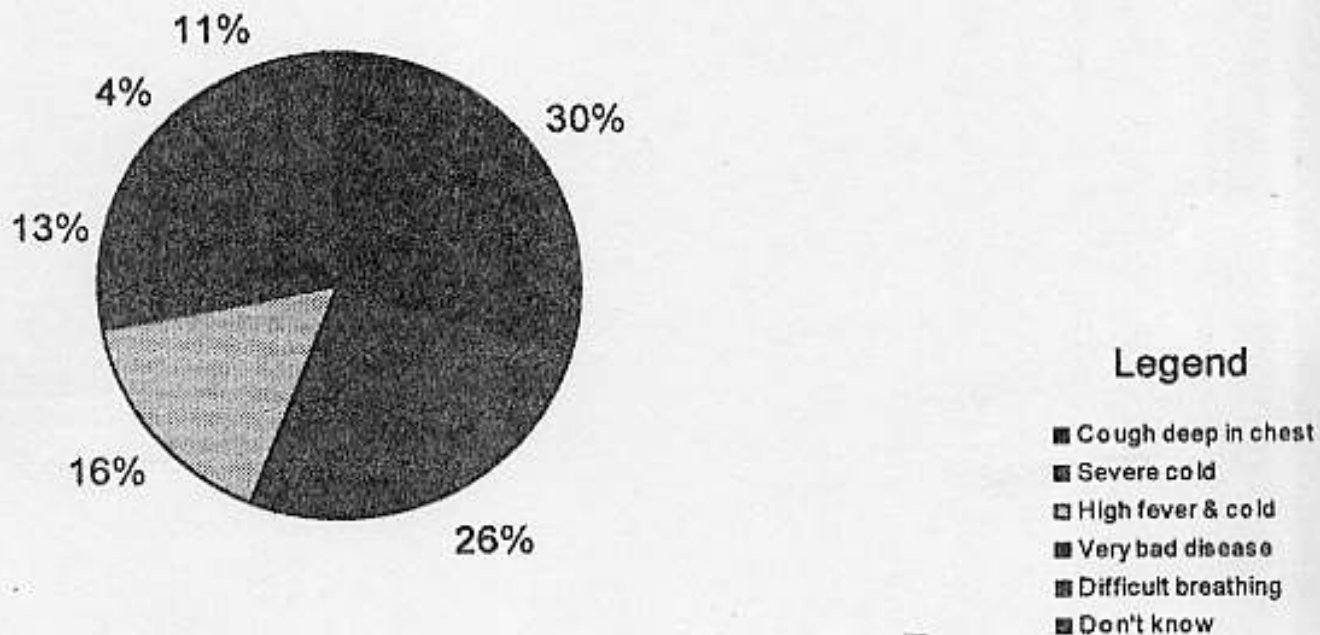
Figure 4 shows that majority of mothers (30%) thought that pneumonia means cough deep in the chest, another (26%) means sever cold by term pneumonia and (11%) of mothers did not know term pneumonia .

4.2.3. Understanding of symptom of pneumonia by mothers

Prime symptom of pneumonia is rapid breathing/fast breathing according to age of children, and some time children may develop other associated symptom like fever, irritation, looking tired, and difficult breathing etc.

Among 100 respondents 89% could answer different symptoms of pneumonia and 11 respondent knew none.

Table: 5

Understanding of symptom of pneumonia by mothers

n = 100

Symptom	Percent
Chest indrawing	26
Noisy breathing	21
Difficult breathing	16
Lethargy	7
High fever & cough	6
Sunken fontanelle	6
Rapid breathing	5
Convulsion	2
Do not know	11
Total	100

Table 5 shows that (26%) of respondent mothers told that they could identify pneumonia by chest indrawing and (21%) could identify noisy breathing only (5%) answered they could identify pneumonia by rapid breathing.

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4.2.4. Knowledge about home care practice of ARI children:

Out of 100 respondents 100% had some knowledge on home care of ARI children and they are being able to give home care.

Figure: 5

Respondents' knowledge about home care of ARI children
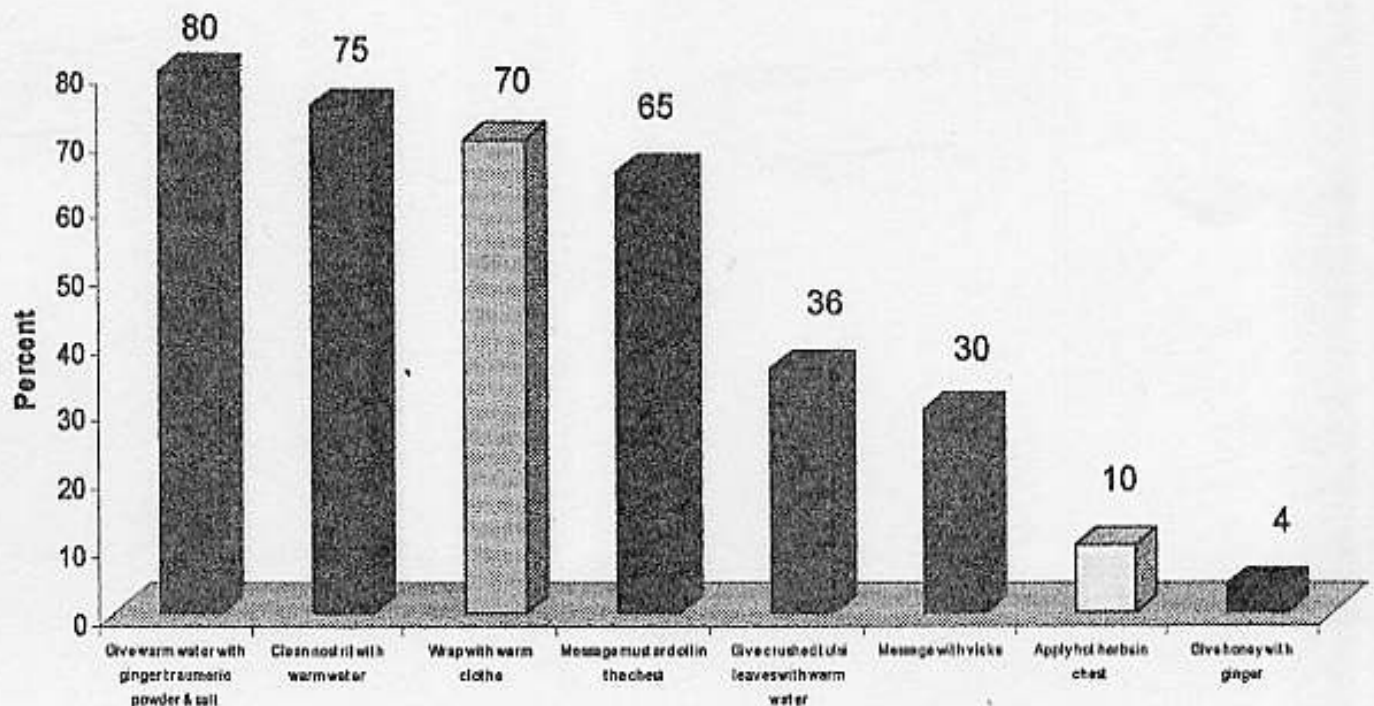
Majority of the respondent mothers (80%) would give warm water with ginger, cumin, traumeric powder & salt as home care practice when their children suffer from ARI. Only (10%) of respondents mother apply hot herbs in chest & (4%) give honey with ginger.

4.2.5. Condition to take child with ARI to consultation with others or to health facilities.

According to ARI classification, the danger signs of ARI include not able to drink, abnormally sleepy or difficult to wake, cold and clammy skin, rapid breathing, chest indrawing, malnutrition and strider in calm child etc. WHO guide line tells that when the child develops these signs he/she should be taken to health institution urgently.

Table : 6

Distribution of knowledge about Condition in a child with ARI requiring consultation with others

Variable	Incorrect	Correct	Total	χ^2 test
	Number (Percent)	Number (Percent)	Number (Percent)	
Education				
Illiterate	14 (35.00%)	26 (65.00%)	40 (100%)	$\chi^2 = .12$
Literate	19 (31.67%)	41 (68.33%)	60 (100%)	(p= .73)
Age:				
Young ($\downarrow$20)	4 (50.00%)	4 (50.00%)	8 (100%)	$\chi^2 = 1.76$
Mature (20-30)	23 (33.82%)	45 (66.18%)	68 (100%)	(p= .41)
Elder ($\uparrow$30)	6 (25.00%)	18 (75.00%)	24 (100%)	

Above table revels that 67% respondent mothers showed correct health seeking behavior; when it was further analyzed according to education and age of the mothers, highest frequency (68%) of correct condition to take ARI children to health care institute came from literate group. (p=·73) In relation to age group, it was found that elderly mothers has more (75%) correct knowledge followed by mature mothers (66.18%) and young mothers (50%) respectively. (p=·41)

There is *no statistically significant association* between *Education (p=·73) and age* (p=·41) *with knowledge* about condition to take the ARI child to consultation; which means education and age of mother does not significantly influence on the knowledge about condition to take the ARI child to consultation.

Figure : 6

Place of treatment

14%

18%

18%

50%

Legend

▣ Medical shop
▣ Hospital
▣ Traditional Healer
▣ Sub-helth post
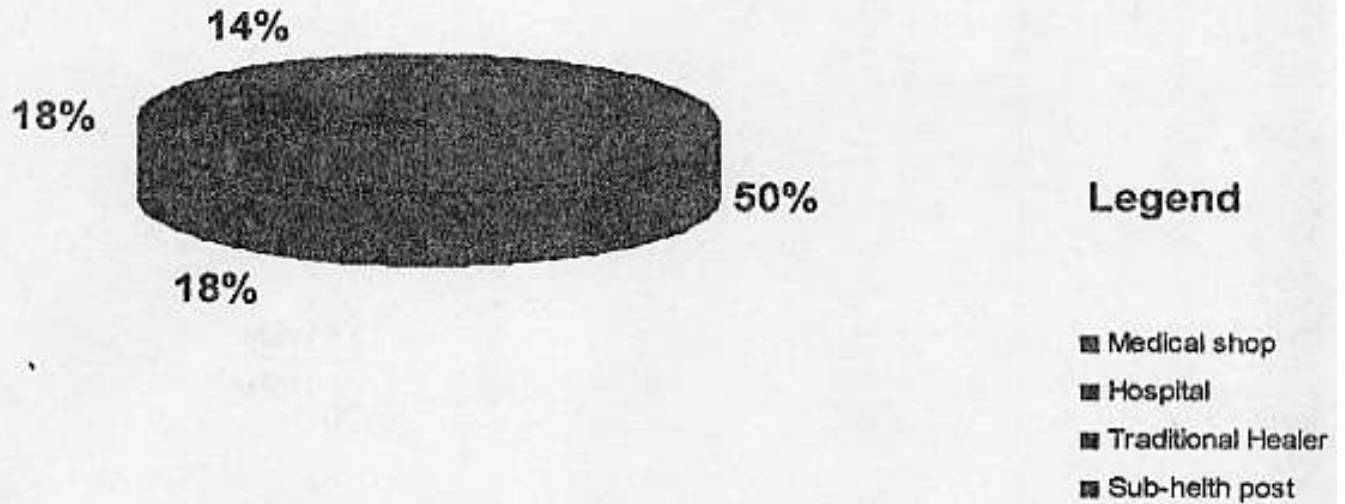
Out of 100 respondents, 50% said that they would take their
children with danger sign at medical shop (private clinic),
only 14% mothers choose to go to sub-health post, 18%
mothers choose to take children to hospital. And remaining
18%   respondents said that they would choose traditional
treatment.

4.2.6.Morbidity of ARI

Of the 100 respondents,122 under 5 children had suffered from ARI within one month prior to data collection among them male children were 54.92% and female 45.08% . The percentage of children under one year was 44.26% and 1-5 years 55.74%.

Table: 7

Distribution of age and sex of the children with ARI

n =122

Age of children	Male		Female		Total:	
	No.	Percentage	No.	Percentage	No.	Percentage
0--6 Months	10	58.82%	7	41.18%	17	100%
7-12 Months	17	45.95%	20	54.05%	37	100%
13--60 Months	40	58.82%	28	41.18%	68	100%

Above table shows that 0-6 month babies were 13.94%, 7-12 month babies were 30.32% and 13-60 month babies were 55.75%; thus 1-5 year are more vulnerable to ARI,

4.3.Home care practice

Home care is very important for child with ARI , and good home care means that mother will maintain thermal environment, treat fever, wrap cloth properly, sooth the child's sore throat, increase the amount of fluid intake, feed frequently, make the breathing easily, clearing the nostrils

Table : 8

Distribution of practice of mother to keep child at home according to education and age.

n=100

Variable	Windows & doors open or as usual	Windows & doors closed to keep room warm	Total	x^2 test
	Number (Percent)	Number (Percent)	Number (Percent)	
Education				
Illiterate	12 (30.00%)	28 (70.00%)	40 (100%)	$x^2=1.81$
Literate	26 (43.33%)	34 (56.67%)	60 (100%)	(p=.18)
Age				
Young Mother	5 (62.50%)	3 (37.50%)	8 (100%)	$x^2=2.25$
Mature mother	24 (35.29%)	44 (64.71%)	68 (100%)	(p=.32)
Elderly mother	9 (37.50%)	15 (62.5%)	24 (100%)	

Above table shows that majority (62%) of the respondents keep the window and door close to keep the room warm. Further analysis according to the education and age shows that higher percentage (70%) of illiterate mothers were practicing it than the literate mothers (56.67%)((p=·18); where as it was found that mature mothers (64.71%) were practicing this more than elderly mothers (p=·32). This may be because of the experience as well as the Nepali tradition of keeping the room warm by keeping the window and doors closed.

There is no statistically significant association between education and home care practice (p=·18) as well as age and home care practice (p=·32) which means education and age of mother does not influence significantly on home care practice of mothers to keep ARI child at home.

Table: 9

Distribution of Practice in reducing fever in child with ARI according to education and age

Variable	Cold sponge	Light clothing	Give more fluid	Total	χ^2 test
	Number (Percent)	Number (Percent)	Number (Percent)	Number (Percent)	
Education					
Illiterate	21(52.50%)	9 (22.50%)	10(25.00%)	40(100%)	χ^2=2.00
Literate	27(45.00%)	10 (16.67%)	23(38.33%)	60(100%)	(p=.37)
Age					
Young Mother	2(25.00%)	2(25.00%)	4(50.00%)	8(100%)	χ^2=3.02
Mature mother	32(47.06%)	14(20.59%)	22(32.35%)	68(100%)	(p=.55)
Elderly mother	14(58.33%)	3(12.50%)	7(29.17%)	24(100%)	

Above table shows that cold sponge is being frequently used to reduce fever during ARI. Related literature discourages the cold sponge during fever but this recent idea has not reached to community and cold sponge is used for home care practices during ARI. Remarkable percentage of the respondents were keeping cloth light and giving more fluid as home care practice to reduce fever in ARI.

In relation to education it was found that the percentage of respondents practicing cold sponge is on decreasing with the increasing education status. (p=·37) Similarly higher the age of the respondents, higher the cold sponge practice, where as use of fluid is decreasing with the increase of mother's age. (p=·55)

There is no statistically significant association between education and home care practice(p=·37) as well as age and home care practice (p=·55) which means education and age of mother does not influence significantly on home care practice to reduce fever of ARI children.

Figure: 7

Nature of wrapping used by mother for child with ARI
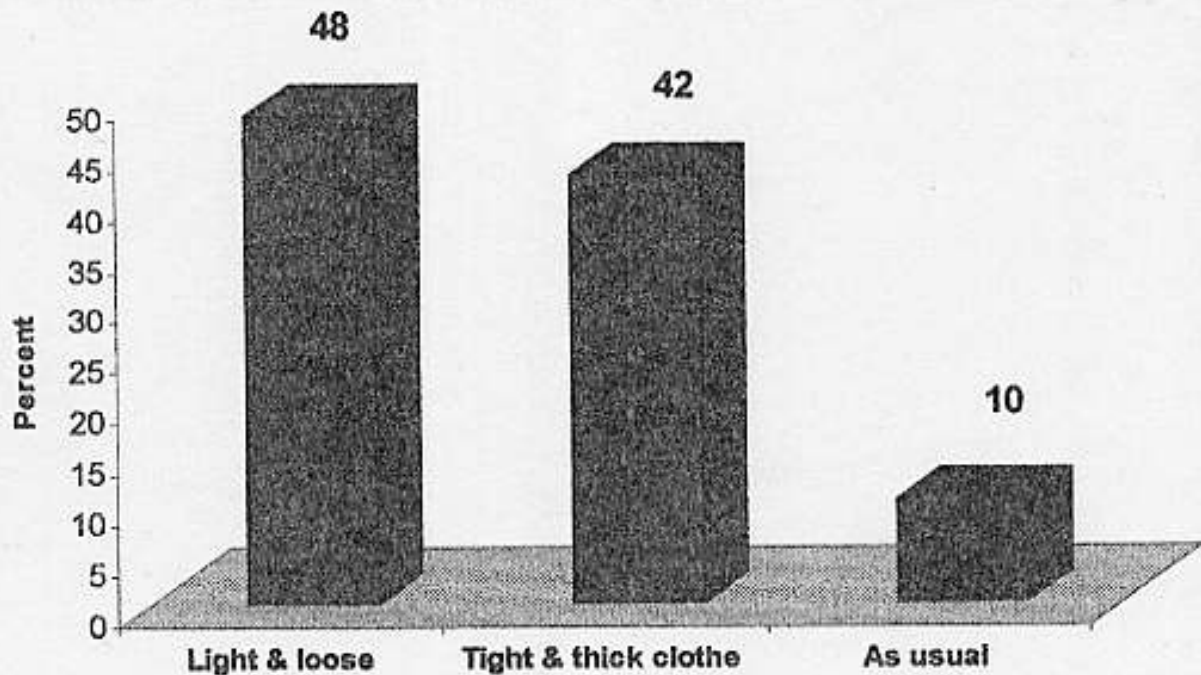
Wrapping the child properly during ARI is another aspect of home care practices. Above simple bar diagram shows majority (48%) of respondents were using light and loose clothing for their ARI children.

It was found that the proportion of the respondent who use light and loose clothes and keep the child in a traditional way (Tight & Thick) is almost equal

Table: 10

Measure taken by respondents to reduce decongestion and breathing difficulty

<div align="right">n=100</div>

Measures taken by respondents	Percent
Clean nose with wet napkin in warm water	56
Steam inhalation	16
Apply Vicks	28
Total:	100

The above table shows that cleaning the nose of the child suffering from ARI with wet napkin warm water was found 56%, Vicks apply 28% and steam inhalation 16%.

It was seen that use of warm water to clean the nose is dominant home care practices.

Table: 11

Amount of fluid given to the child with ARI

<div align="right">n=88</div>

Amount of fluid	Percent
Normal	20.45%
Less than Normal	36.37%
More than Normal	39.77%
Do not know	3.41%
Total:	100%

Above table shows out of 88 respondent mothers 39.77% respondent mothers were giving fluid more than normal, which is followed by less than normal 36.37 %, and normal respectively 20.45%.

Table: 12

Frequency to give exclusive breast feeding to babies during ARI

n=12

Frequency of exclusive breast feeding	Percent
Breast feed more frequently	50.00%
Breast feeding as normal	33.33%
Breast feeding less frequently	16.67%
Total:	100%

Above table shows that out of 12 respondent mothers 50% mothers were breast feeding frequently to their ARI babies, this is followed by 33.33% mothers were breast feeding normally and 16.67% mothers were breast feeding less than normal. The result shows that mothers of this VDC need more educational intervention so that they will learn to give breast feeding more frequently when their babies have ARI.

Table: 13

Amount of food given to the child in a day when he or she had ARI

n=88

Amount of food	Percent
As normal	25.00%
Less than normal	23.87%
More than normal	45.45%
Do not know	5.68%
Total:	100%

Above table shows that out of 88 respondent mothers, 45.45% mothers were giving more than normal flood to their ARI children, this is followed by 25% mothers who are giving food normally, and 23.87% mothers were giving less than normal. The study result shows that mothers of ARI children must be educated to give more food.

Table: 14

Type of food given to the child during ARI

n=88

Type of food	Percent
Soft jaulo	37.50%
Mixture of cereal bean	22.73%
Lito & milk	31.82%
Dal bhat	7.95%
Total:	100%

Above table shows that majority (37.50%) of the respondent mothers prefers to give soft Jaulo during ARI, this is followed by Mixture of cereal bean (22.73%), lito & milk 31.82% and dhal bhat 7.95%.

Table: 15

Type of home remedies to the child to sooth the throat and relieve the cough

n=88

Type of home remedies	Percent
Sugar tea	4.54%
Tulasi leaf tea	38.64%
Honey & ginger	4.54%
Warm water with Cumin salt & turmeric	52.28%
Total:	100%

Above table revels that highest percent of the respondent mothers (52.28%) preferred to give warm water with cumin, salt and turmeric, a traditional herbal drink of Nepal, this is followed by tulasi leaf tea 38.64% and very small percent of mothers (4.54%) preferred sugar tea and honey ginger drink.

This study shows that the respondent mothers were following very healthy practice; tulasi leaf drink is a good herbal drink to sooth the throat and it was seen that warm water with cumin, salt and turmeric, a traditional herbal drink of Nepal, was used by majority because traditionally this drink had been used from long ago.

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4.4.Consequence of home care of ARI children

Out of total 122 cases of ARI, 70 (57.68%) were cured, it shows that *home care practice* of ARI children is very important for mothers to take care ARI children at home.

Among 52 (42.62%) not cured children, 8 (15.38%) were taken to sub-health post, 25 (48.08%) to Medical shop, 9 (17.31%) to Kanti Children hospital and 10 (19.23%) to traditional healers.

Figure: 8

Consequence of home care and treatment of ARI children in other consultation areas.
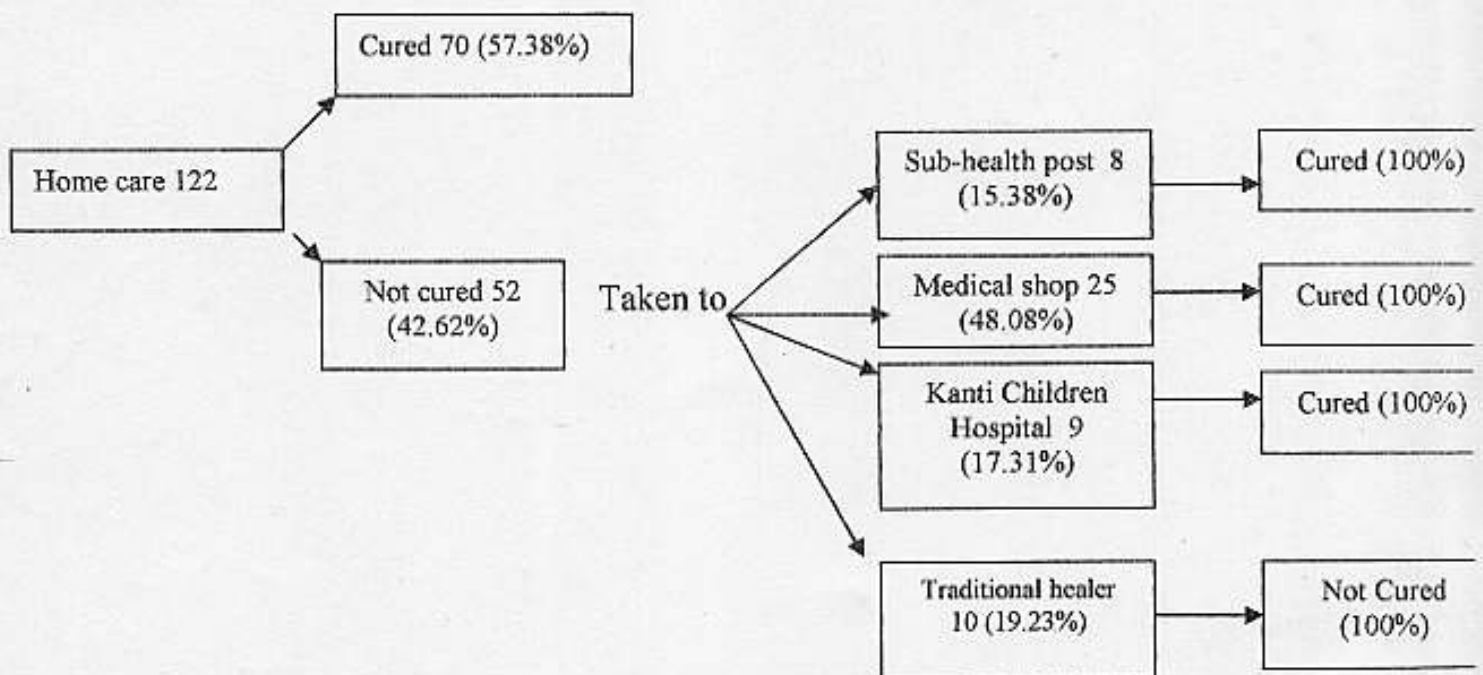
4.4.1.Consequences of treatment at traditional healers:

Out of 52 not cured ARI children, it was found that 10 (19.23%) children with ARI were taken to traditional healers. The treatment they received were *Jharphuk and Mantra gareko pani;* all of them were not cured and finally again taken to medical shop and sub-health post for treatment.

Figure: 9

Consequences of treatment at traditional healers

```
┌───────────┐     ┌──────────────────┐          ┌──────────────┐     ┌──────────────┐     ┌──────────┐
│Treatment at│────▶│Jharphuk & Mantra │    ┌────▶│Cured =0 (0%)  │     │Sub-Health post│────▶│  Cured   │
│traditional │     │  Gareko pani     │    │     └──────────────┘  ┌─▶│  2 (20%)     │     │ (100%)   │
│  healer    │     │                  │────┤                       │  └──────────────┘     └──────────┘
└───────────┘     └──────────────────┘    │     ┌──────────────┐  │  ┌──────────────┐     ┌──────────┐
                                           └────▶│Not cured =10  │──┤  │Medical shop  │────▶│  Cured   │
                                                 │   (100%)      │  └─▶│  8(80%)      │     │ (100%)   │
                                                 └──────────────┘     └──────────────┘     └──────────┘
```
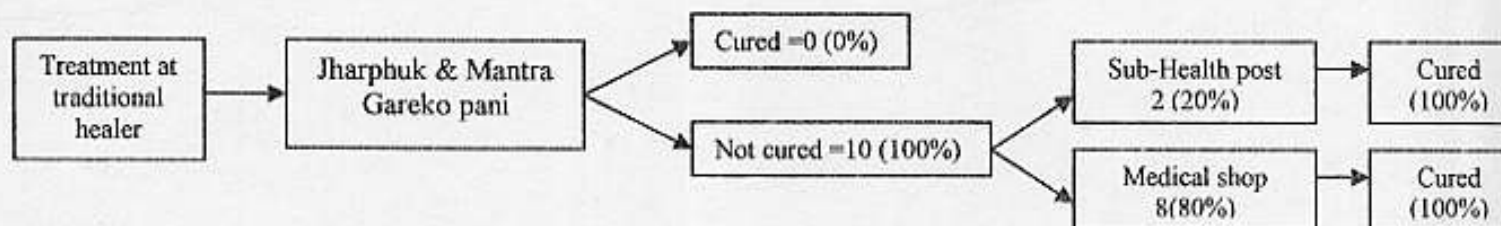
From the above finding it came in light that out of 52 not cured children 33 (63.46%) (including 8 coming back from jharfuk) of children were taken to medical shop/private clinic. Government has provided medical services in VDC Sub-health post, but majority of ARI children were taken to medical shop/private clinic. It showed that education awareness should be provided to the mother so that ARI children can receive proper and cheaper treatment in time, also medical shop should be provided with knowledge of ARI and drugs scheme along with guidance of WHO on ARI classification. It is also necessary to educate traditional healers about ARI so that they could support ARI programme for prompt referral of the ARI cases in various level of health institutions.

4.4.2.Reason for not taking ARI children at sub-health post for the treatment

The total number of respondents who had given reason for not taking ARI Children to sub-health post for treatment was 37. All of the respondent said that they did not take their children to sub-health post because *of unavailability of medicine and absence of health worker.*

4.4.3. Consequences of treatment at sub-health post /hospital/private clinic

ARI children were taken to sub-health post after *two days;* to medical shop or private clinic after *three days* and to the *hospital after seven days only.* 100% mothers answered their children got medicine from health institutions.

Children who were taken to sub-health post received medication for five days; those who were taken to medical shop were given medicine for fifteen days where as children taken to hospital had received the medicine for seven days. Children receiving medicine from different health institution, all of them were cured.

As hospital and sub-health post has follow-up system, children who were taken there were asked to come again after seven days and two days respectively.

Table: 16

Precautionary measures taken for prevention from ARI

n=100

Precautionary measures	Percent
Dust Smoke and other pollutions	85
Immunization coverage	70
Cleanliness	60
Good nutritious diet	50
Breast feeding	15

- Respondents had answered more than one answer

Above table shows that 85% respondents answered to take precaution from Dust Smoke and other pollutions; 60% answered Cleanliness, 50% answered Good nutritious diet, 15% Exclusive Breast feeding, and 70% complete Immunization coverage.

Table: 17

Suggestion to make home care practices more effective

n=100

Suggestions	Percent
FCHV/VHW have to visit house to house	85
Sub health post became active	60
Motivational incentive to FCHB	50
Develop IEC material	40
Information on ARI in radio/ TV	30

- Respondents had answered more than one answer

Above table shows that 85% respondents have suggested that FCHV/VHW have to visit house more often to teach about ARI, 60% respondents want sub-health post to become more active and make medicine supply regular, 50% respondents suggested Motivational incentive to FCHV should be given, 40% respondents think Developing IEC material will help preventing ARI (Poster, pamphlet, etc.)and 30% respondents want program and information regarding ARI in Radio & TV.

CHAPTER V

FINDINGS, CONCLUSION, AND RECOMMENDATION

5.1 Major findings:

5.1.1. Socio Demographic Characteristic:

Majority of the mothers belonged to 20 to 29 groups because this is the most fertile age period.

Majority of respondents were Hindu (73%) and highest percent of the respondents belonged to Chhetri ethnic group (29%), followed by Newar (22%).

Majorities (60%) of the respondents were literate and half of them had secondary to higher level education. Most of the respondents were wives of family head with no support or guidance from in-laws.

Occupation-wise most mothers were house wives (74%) thus making respondents appropriate for obtaining information on the home care practices regarding management of ARI in children. Respondent mothers had more than one child suffered from ARI (n=122) within one month duration prior to data collection.

5.1.2. Knowledge of ARI

The findings reveled that both illiterate and literate group had good knowledge of ARI. In comparison to age group, young mothers had better knowledge of ARI; this may be due to this group had breast feeding babies and they are in constant touch with FCHVs.

Most mothers understood ARI as cough and cold (87%) and as fever and cold (60%). This finding is consistent with *Saini et al*, where cough and running nose were two most important features used to identify an attack of ARI by mothers. *(Saini, 1992)*

Regarding the knowledge of sign and symptom of ARI that is cough and cold with No pneumonia, 96% respondent answered two or more than two signs and symptoms of ARI. This finding is consistent with *Sorasak et al.,* where 83.7% had responded about the signs and symptoms of ARI *(Sorasak et al 1998)*. Large numbers of mothers had received the information from family members (45%) and health workers (38%).

In regard to danger signs of ARI, all mothers (100%) felt that ARI is dangerous to the baby, and majority (56%) knew more than two danger signs of ARI. These findings are in contrast with earlier study which shows that 2.5% of mothers correctly knew the danger signs *(Onta & Yangden, 1999)*.

In regards to meaning of ARI, 30% of mothers considered pneumonia as "cough deep in chest", 26% understood it as

"severe cold" and few mothers (11%) did not give any answer. This finding is consistent with *Rahman,* where mothers recognize pneumonia to be dangerous disease like severe cold, very bad disease and cough deep in chest. (*Rahman, 1998)*

In regards to signs and symptoms of pneumonia, about one fourth respondents told that they would identify pneumonia by "chest indrawing"(26%), "noisy breathing" (21%), and "rapid breathing" (5%). These findings are in contrast with earlier study which shows that 52.7% and 36.2 % mothers knew of chest indrawing and rapid breathing as a referral sign of pneumonia and severe pneumonia respectively. (UNICEF & BBS 1995)

All mothers (100%) had some knowledge about home care of ARI children as well as the Vaccination and they were able to take care of their child with ARI.

Majority of the mother (80%) thought to give warm water with ginger, cumin, traumeric powder & salt as home remedy when their children suffer from ARI. Only 10% of mothers would apply hot herbs in chest & 4% give honey with ginger. This finding was consistent with the finding of *Saini (1992)* where local herb drink and applying warm and some time even hot paste made of turmeric and mustard oil was the commonest remedy used by the mothers. (*Saini &* Gaur, *1992)*

The study reveled that out of 122 under 5 children suffering from ARI, 54.92% were male child and 45.08% were female child. The percentage of ARI children under one year was 44.26% and 1-5 years were 55.74%. ARI seemed to be quite common in Manamaiju VDC as among the 100 respondents

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122 under five children had suffered from ARI within the past one month period.

5.1.3. Home Care Practice

Regarding the practice of mothers in caring the ARI child at home, the study reveled that majority (68%) of the mothers "keep the window and door close" to keep the room warm.

The study reveled that cold sponge is being frequently used to reduce fever during ARI. Related literature *(WHO 1995)* discourages the cold sponge during fever but this idea has not reached to community and cold sponge is used for home care practices during ARI.

To reduce decongestion and breathing difficulty, cleaning the nose of the ARI child with napkin wet with warm water (56%) was found to be dominant home care practice, followed by Vicks application (28%) and steam inhalation (16%). This finding was consistent with practical guideline suggested by the *WHO, 1995.*

It is necessary to give more fluid as well as frequent breast feeding to ARI children and babies *(WHO 1995);* also it is necessary to give more than usual food to prevent the child from malnutrition *(Sharma 1988a).* However, the study reveled that percent of respondents giving more than normal amount of fluid to ARI child was low (39.77%), and only 50% of the mothers were breast feeding frequently to ARI babies. Also only 45.45% mothers were giving more than normal food to their ARI children. This suggests that mothers of this VDC need more educational intervention so

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that they would learn to give more fluid, frequently breast feed, and give more nutritional food when their babies have ARI.

By giving boiled water with cumin, salt, and turmeric, a traditional herbal drink of Nepal (52.28%), and tulasi leaf tea (38.64%) (approved by WHO), the respondents were following healthy practice to sooth the throat and relieve the cough; this finding is in consistent with *Denno et al*, where herbal drink were most commonly cited treatment for rhinorrhoea *(Denno et al, 1994)*.

5.1.4 Health seeking Behavior

Regarding *Care seeking behavior* the study showed that 67% respondent mothers showed correct health seeking behavior i.e. the condition needing to take child at health institution. This finding was consistent with the finding of *Rehman et al.,* who found that 65% mothers were aware of correct condition to take the child to health institution. *(Rehman et al. 1994)*

The study revealed that 57.38% ARI children were cured through *home care practice of the mothers alone;* 42.62% not cured children were taken to different health facilities. Majority of the children were taken to medical shop and very small portion went to sub health post. This finding was consistent with finding of Aung et al, where self medication from medical shop with western medicine is common. *(Aung et al, 1994)*

85% respondents have suggested that FCHV/VHW have to visit house more often to teach about ARI, 60% respondents want sub-health post to become more active and make medicine

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supply regular, 50% respondents suggested Motivational incentive to FCHV should be given, 40% respondents think developing IEC material (Poster, pamphlet, etc.) will help preventing ARI and 30% respondents want program and information regarding ARI in Radio & TV. MOH/National ARI control program aims to support FCHV and VHW by giving them training on ARI control prevention, this will further strengthening ARI control program.

5.2 Conclusion:

The study was conducted to identify the knowledge, home care practice and health seeking behavior of mothers of children under 5 with ARI in Manmaiju VDC. Data were taken from One hundred mothers drawn from sample population of 892 mothers of the VDC.

Based on the study result, it is concluded that most mothers of Manamiaju VDC are house wives. As the study area is attached to KMTC as well as very near to health facilities, almost of all the mothers know sign and symptoms of ARI (No pneumonia).

Most mothers of this VDC have knowledge of home care of ARI children and they are providing home care for ARI children. Their practices seem to be helpful in recovering the children from ARI (No pneumonia). Majority of mothers have idea of danger signs of ARI but very few mothers are aware of clinical referral sign (rapid breathing) of pneumonia.

It is also concluded that mothers of Manamaiju VDC are likely to take their children for treatment without correct indication. And their tendency to take their ARI children

to medical shop or private clinic is higher in compare to health service facilities.

The study findings reveled that the education level and age of the mothers can influence their knowledge level about ARI, but it had almost no impact on the attitude and practice followed by mothers in the management of ARI children, which is govern by the tradition and cultural back ground of the family.

The study findings also suggest that by increasing the availability of health workers and necessary drug supply the utilization of Health facilities services (Sub-health post) may be increased.

5.3 Implication of the study

1. The study findings will be helpful to health workers for providing health education to mothers regarding ARI in child.

2. The study will help the planner to make strategies to reduce ARI morbidity and mortality.

3. The study will help to develop educational intervention to bring awareness among the mothers of under five children regarding ARI.

4. The study will help develop IEC materials for the education intervention in the ARI control program.

5. It will also be helpful to conduct further research study in future.

5.4 Recommendation

On the basis of study findings following recommendation are made:

1. Education to mothers on supportive care strategies and in recognizing the signs and symptoms of pneumonia.
2. FCHV/VHW has to visit house more often to teach about ARI
3. Sub-health post to become more active and make medicine supply regular,
4. Motivational incentive to FCHV should be given,
5. Developing IEC material will help preventing ARI (Poster, pamphlet, etc.)
6. Broadcast program and information regarding ARI in Radio & TV.
7. Introduce ARI training program for medical shop keepers (Chemists % druggists), to prevent the misuse of medicine as well as resistant of drug.
8. Traditional healers are a part of our society, training them in ARI could play a big role to reduce the ARI mortality rate.
9. This small study merits for the further study on Knowledge, practice and health seeking behavior of mothers on ARI covering large sample at community level.

5.5 Plan of Dissemination

The investigator intends to disseminate the finding of the study through submission of written report to following organization/institution and persons.

- Research Committee of Masters of Nursing Faculty at Nursing Campus Maharajgunj.
- Research Advisors.
- Nursing Campus Maharajgunj library.
- UNICEF, JSI, and ARI/Child Health Division.
- Mrigendra Medical Trust.

The investigator also plans to prepare the abstract of the study report and publish it in health or nursing journals for wider dissemination.

BIBLIOGRAPHY

Akin, Levent. 1992. Hacettepe University, Turkey. ARI News, April 1992, Issue no. 22

ARI 1997 International Conference, July 7-10. 1997. Canberra, Australia

Aung, T., Tun, K.M., Thinn, K. and Thein, A.A et al. Knowledge, attitude and practice of mothers on childhood acute respiratory infection (ARI); Southeast Asian Journal Tropic Med Public Health 1994 Sep.25 (3)

Brink, J. Pamela, and Wood, J. Marilynn 1983. Basic Steps in Planning Nursing research, from Question to Proposal. Second edition, Wadsworth Health Sciences Division, Monterey, California.

Campbell, H., Byass P., Greenwood BM. 1990. Acute lower respiratory infection in Gambian children: maternal perception of illness. Medical Research Council Laboratories, Fajara, The Gambia, West Africa, Ann Trop Peadiatr 1990 Mar: 10 (1) : 45- 51

Campbell, H. Editor-in chief, ARI News August 1992, Issue no 23

Cattaneo, Adriano, CDR/ARI, WHO, ARI News April - July 1993, Issue no. 25)

CBS 2001. Central Bureau of Statistic's Annual report 2001, Statistical pocket Book Kathmandu: CBS

CBS 2002. Central Bureau of Statistic's Annual report 2002, Statistical pocket Book Kathmandu: CBS

Charaly Dolores, 1992. La Paz, Bolivia, ARI News august 1992, Issue no. 23.

Dawson, Penny. 1996. "ARI case studies from Chitwan and Morang Districts, Nepal, August 1996, in collaboration with CDD/ARI Section Child Health Division DHS/MOH

Denno, M. Donna, Bentsi-enchill, Mock N. Charles & Adelson W. Joel, et al. 1994. Maternal knowledge, attitude and practices regarding childhood acute respiratory infection in Kumasi, Ghana; Annuals of tropical Paediatric (1994) 14,2993-301.

DOHS/MOH annual 1998. report: 1998/1999 (2055/2056)

DOHS/MOH annual 2001. report: 2001/2002 (2058/2059)

Houstan, Robin, MD MPH 2001 : A short History of Nepal's community based pneumonia program 2001

HRD 1993. HRD Dissemination notes no 5, April 25 1993

IMCI 1997. Division of Child Health and Development, WHO Regional office for South East Asia, New Delhi

Leowski, J. Dr. 1992. WHO, ARI News, August 1992, Issue no 23.

Lippincot 1983. Manual of Paediatric Nursing, Harper & Row, Publishers, London 1983;

Lohani, Dhan Nani & . Shrestha, Sarala, 2000. Acute Respiratory infection, Nursing Care of Children 2000, Published by Health learning Centre;

MOH, 1994. National ARI control program: Technical Guidelines On The Control of ARI, Ministry of Health 1994

MOH/CHD,1997. CDD/ARI Section, Child Health Division, Dept. of Health services; assessment of the ARI strengthening program, in collaboration with USAID/WHO/UNICEF 1997

MOH/FHD, 1997. Family Health Division, Family health Survey, pp 128-129,1997

Mtango, FD. & Neuvians. D. 1991. "Acute Respiratory Infection' London, England, Harper Collins Academic 1991.

Neil, M. and Graham, H. 1990. The epidemiology of acute respiratory infection in children and adult; A global perspective. Epidemiological Review 120, 1990

NFHS 1996. Nepal Family Health Survey, 1996, Family Health Division, DHS, MOH, HMG, New Era, and Micro International, Calverton, Maryland, March 1997

Onta, SR, & Yengden B. 1999. "What do mother know about Acute Respiratory infection a case from Eastern Nepal" Nepas Journal volume ... July December 1999.

Pandey, MR, Dhungel S. 1982. "ARI in infants and children in remote rural hill Jumla", Nepal, J. Institute Medicine, 1982, March 1,

Pandey, MR., & Neupane RP.1984. "Acute Respiratory Infection (ARI) in infants and children in Nepal"; Nepas, pediatric Soc J, 1984 Feb; 3 (1); 47-52

Pandey, MR., Sharma PR., Gubhaju BB., Shakya GH., Neupane RP., Gautam A. and Shrestha TB, et al 1989. Impact of a pilot acute respiratory infection (ARI) control program in a rural community of the hill region of Nepal. ARI Project, Mrigendra Medical Trust, Kathmandu, Nepal.

Park, J.E., Park, K.1997. Acute Respiratory Infection. pp 132, Textbook of preventive and Social Medicine, 15th edition, Jabalpur, India 1997

Rahman Shahana Akhter, and Rahman Mizanur 1998, Knowledge and practices of Mothers regarding Acute Respiratory Infection (ARI): a Hospital Based Study, Bangladesh Journal of Child Health Vol.22(1/20;7-11

Rehman GN., Qazi SA., Mull DS., Knan MA. Et al.1994. ARI concept of Mothers in Punjabi villages; a community based study. J.Pak. Med. Ed 1994;44(8)185-188 Children's Hospital, Pakistan Institute of Medical Sciences, Islamabad.

Ruutu, P., Lucero M.G.1994. Respiratory infection. Health & disease in developing countries. London. England 1994.

Saini, N.K., Gaur, Ila S. 1992. Acute Respiratory Infection in children. A study of knowledge and practice of mothers in rural Hariyana. J. Com Dis 1992: 24(2) : 75-77

Sharma, PR. 1987, Role of Village health Volunteers in the prevention of Acute Respiratory Infection in Children Nepas Journal 1987 July- December; 6(2);17-9

Sharma, PR. 1988. Acute Respiratory Infections in Infants and Children Journal of the Nepal Medical Association, Vol: 26 Issue No. 86, No. 2 April-June.

Sharma, PR. & Tuladhar Rita 1990, Acute Respiratory Infection in Children , Signs/Symptoms and Management, NEPAS Journal 10,15-22

Shrestha, YB. 1983. Respiratory diseases in Kanti Children Hospital, Journal of Institute of medicine, Sep; 5(2) : 119-28

Sorasak, L. MD.,1998. Suteerat V., Nantawan S., Ajaree I. Suksant J. Knowledge Attitude and Practice of mothers for prevention and control of Acute Respiratory Infections in children. (ARIC) Prev. Med 1998 Mar.-Apr., 27(2); 268-73

Thapa, SL. 2000. IMCI preliminary report 2000

Tupasi, T.E., Miguel C.A, Tallo V.L, Bagasao T.M, Natividad J.N, Valencia L.B, De Jesus M.E, Lupisan S, Medalla F. 1989 June; "Child Care Practices of Mothers for Intervention in Acute Respiratory Infections" annual tropical Pediatric 9(2): 82-88

UNICEF & BBS 1995, Bangladesh Bureau of Statistics and UNICEF 1995

Whaley, Lucille F. and Wong, Donna L. 1995. Nursing care of Infants and children "the child with respiratory dysfunction," Published by Mosby, London. fifth edition volume 3rd, 1995 page 1373

WHO, 1990. Acute respiratory infection 1990

WHO, 1992. Acute reparatory Infection in South East Asia report, New Delhi, India 1992.

WHO, 1994. "Acute Respiratory infection in children: Case management in small hospital in developing countries" A manual for doctors and other senior health workers; World Health Organization, Geneva, 1994; Page 48-52.

WHO, 1995. The Management of Acute Respiratory Infection in Child, Practical Guidelines of Outpatient Care. World Health Organization, Geneva, 1995

WHO, 1997a. Integrated management of the sick child.

WHO, 1997b. Global update on Child Health: WHO department of child and adolescent health and development.

World Bank, 2000. PH at glance Child health: the World Bank group

Appendix C

Work Plan :

Months 2059	Jesth	Ashadh	Shrawan	Bhadra	Ashwin	Kartic	Mangsir	Poush	Magha	Falgun	Chairta
Weeks	4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Activities:											
1. Literature review	+	++++	++++	++++	++++	++++	++++	++++	++++	++++	
2. Selection of topic		++									
3. Writing of proposal			++								
4. Review & finalization of proposal				++							
5. Preparation of instrument					++	++					
6. Pre testing/final preparation of instrument							+	+			
7. Data collection								+++	+		
8. Data processing & analysis a) Data tabulation b) Data analysis									++	++	
9. Report preparation										++	+
10. Dissemination											+

The sign one plus (+) equal to one week.

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Appendix D

Interview Questionnaire Form For

Mothers Of Under Five Children With ARI:

Objectives : To gather information about the knowledge and home-care practices and health seeking behaviors of mothers regarding ARI in children under five years.

Direction : The interviewer will explain to the mothers about the purpose of the questionnaire; they will be assured of the confidentiality of the information given by them and their willingness to respond to the questionnaire will be sought before interviewing them. After completing the interview, the interviewer will re-check the questions for completeness of the items.

Serial Number : ....

V.D.C. : ....

Ward No. : ....

Part I (Socio demographic data)

A) Name of the mother : ....

B) Age (In-completed years) : ....

C) Ethnicity :

    a) Chhetri   L

    b) Newar   L

    c) Gurung   L

    d) Magar   L

    e) Rai (Limbu)   L

    f) Brahman   L

    e) Others specify

D) Religion:

    a) Hindu   L

    b) Buddhist   L

    c) Muslim   L

    d) Others specify

E) Occupation :

    a) Agriculture   L

    b) Housewife   L

    c) Service   L

    d) Business woman   L

    e) Others specify

F) Education status :

    a) Illiterate   L

    b) Informal education   L

    c) Primary education   L

    d) Secondary education L

    e) Higher education   L

G) Status of interviewee in the family:

    a) Head of the family   L

    b) Wife of the family head L

    c) Daughter in law   L

    d) Others specify

H) Total number of under five children in the house hold: ……………

Part II (Knowledge of ARI)

1) Do you know about ARI?

  a) yes…

  b) No… (if NO skip the rest questions)

1.1) If "YES" from where did you get information about ARI?

  a) Family member

  b) Neighbor

  c) Radio

  d) Television

  e) Health worker (VHW, FCHV)

  f) Others

2) What do you understand by ARI?

……………………………………………………………………………………

……………………………………………………………………………………

3) What sign and symptoms will make you suspect that the child has ARI? (No pneumonia)

   (a) Cough

   (b) Running nose /blocked nose

   (c) Sore throat

   (d) Ear ache /ear discharge

   (e) If others, specify

4) Do you think ARI could be dangerous ?

   a) Yes

   b) No   (Skip Q. No. 4)

4.1)   If "YES" what are the danger signs of ARI in children?

   a) Fast breathing   b) Chest indrawing   c) Malnutrition   d) Cold clammy skin

   e) Sleepy child / Unable to wake up   f) High Fever   g) Refuse to breast feed/drink/eat

5) What do you understand by pneumonia?

....

....

6) Can you tell me the symptoms of pneumonia in children?

....

....

7) How should a child with ARI be cared at home?

....

....

8) In which condition should a child with ARI be taken to health care institution for medical treatment?

....

....

9) Please tell me, where can a child with ARI be treated?

   a) Sub. health post b) Private clinic

   c) Hospital   d) Traditional healer

10) Do you know that vaccination helps to prevent ARI death in children ?

   (a) Yes   (b)   No

11) Please give the following information about the under five children of your family?

S. no	Name of Child	Age	Sex		Had ARI in the past one months period.		Measles Vaccine given	
			M	F	Yes	No	Yes	No

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Part – III : Home Care Practice

I am referring to your child .... Who had ARI

1) How long back did he/she had ARI?

....

Home care treatment

2) How did you keep the child in home when he/she had ARI?

   a) In a room with window and doors closed to keep the room warm.

   b) In a room with doors and window open or as usual.

3) What did you do to reduce fever when the child had ARI?

   a) Cold sponge

   b) Keep the clothing light

   c) Give more fluid.

4) How did you wrap the child with cloth in home when he/she had ARI?

   a) Light and loose

   b) Tight and Thick cloth

   c) As usual

5) What did you do when the child suffered from decongestion and difficult breathing?

   a) Clearing the nose with napkin soaked in warm water

   b) Steam inhalation

   c) Vicks apply

6) How much fluid did you give to your child in a day while he/she had ARI?

   a) Normal

   b) Less than normal

   c) More than normal

   d) Others specify

7) If the child is infant (Who is in exclusively breast feeding and had ARI)

   How did you breast feed your child?

   a) Normal Breast feeding

   b) Breast fed Less than normal

   c) Breast fed more frequently

8) How much food did you give to your child in a day when he/she had ARI?

   a) Normal

   b) Less than normal

   c) More than normal

   d) Others specify

9) What special food did you give to the child during ARI?

    a) Soft- jaulo

    b) Mixture of cereal and beans

    c) Milk & Lito

    d) Dal bhat

10) What home remedies were given to soothe the throat and relieve the cough

    a) Sugar-tea

    b) Tulasi leaf tea

    c) Honey and ginger

    d) Salt, Cumin, & Traumeric mixture warm water

11) What was the outcome of home care?

    a) Cured

    b) Not cured

Traditional / Modern treatment

12) Where did you take the child for treatment

    a) Dhami Jankri (Traditional healer)

    b) Sub-Health-post

    c) Hospital

    d) Private clinic (Medical)

If the answer is Traditional healer (Dhami Jankri)

12.a1) What was the reason for taking to the traditional healer

    a) Cheaper

    b) Easily available

    c) Faith in Dhami Jankri

12.a2) What medicine or healing he gave

    a) Drug

    b) Herbs

    c) Others specify ……….

12.a3) What was the outcome of the treatment

    a) Cured

    b) Not cured

12.a 4) What were the reasons for not taking sick child for the treatment at Health-post?

    a) Health institution is too far

    b) Drug is not available

    c) Health worker is not available

    d) The house head did not allowed

If the answer is Sub-Health-post / Hospital / Private clinic

13.1) After how many days of sickness did you take the child at health post or private clinic for treatment? . ...Days.

13.2)   Did the child get the medicine?

    a) Yes

    b) No

13.2.1) For how many days did he give the medicine?

    .... Days.

13.2.2) Did it helped to cure the child?

    a) Yes

    b) No

13.3) Did the health worker advice for the follow-up?

    a) Yes

    b) No

13.4) After how many days did you take the child for follow-up?

    ..... Days

14) What were the precautions did you take to prevent ARI?

    a) Cleanliness

    b) Nutritious diet

    c) Immunization (Complete coverage)

    d) Prevent from dust and smoke and other pollution

    e) Exclusive breast feeding

    f) Others

15) What suggestion would you like to give in order to make home care practice more effective.

....

....

....

....

Thank You Very Much For Your time
and
for talking with me today.

Appendix E

MANAGEMENT OF THE CHILD WITH COUGH OR DIFFICULT BREATHING

ASSESS	ASK	LOOK, LISTEN (Child must be calm)
	• How old is the child?	• Count the breath one minute
	• Is the child coughing? For how long?	• Look for chest indrawing
	• Age two month unto 5 years- is the child able to drink?	• Look and listen for stridor
	• Age less than 2 months; has the young infants stopped feeding well?	• Look and listen for wheeze, is it recurrent?
	• Has the child had fever? For how long?	• See if the child id abnormally sleepy or difficult to wake?
	• Has child has convulsions?	• Feel for fever or low body temp. or measure temp.
		• Look for severe under-nutrition

CLASSIFY THE ILLNESS.

THE YOUNG INFANT AGE LESS THAN 2 MONTHS

Signs:	• Stopped feeding well.
	• Convulsion,
	• Abnormally sleepy or difficult to wake.
	• Strider in calm child
	• Wheezing, or
	• Fever or low body temperature.

Classify as:	VERY SEVERE DISEASE

Treatment:	➢ Refer URGENTLY to hospital.
	➢ Keep young infant warm.
	➢ Give first dose of antibiotic.

Signs:	• Sever chest indrawing or
	• Fast breathing
	(60 per minutes or MORE)

Classify as:	SEVERE PNEUMONIA

Treatment:	➢ Refer URGENTLY to hospital.
	➢ Keep young infant warm.
	➢ Give first dose of an antibiotic. (if referral is not feasible, treat with an antibiotic and follow closely.)

Signs:	• No sever chest indrawing and
	• No fast breathing
	(LESS than 60 per minute).

Classify as:	NO PNEUMONIA: COUGH OR COLD

Treatment:	➢ Advise mother to give the following home care:
	➢Keep young infant warm.
	➢Breast-feed frequently.
	➢Clear nose if it interferes with feeding.
	➢Return quickly if:
	➢ Breathing becomes difficult.
	➢ Breathing becomes fast.
	➢ Feeding becomes a problem.
	➢ The young infant becomes sicker.

Source - WHO – Program for the control of Acute respiratory Infections 1995

MANAGEMENT OF THE CHILD WITH COUGH OR DIFFICULT BREATHING

## CLASSIFY THE ILLNESS.

THE CHILD AGE 2 MONTHS UP TO 5 YEARS.

Does child has danger sign?

Signs:
- Not able to drink
- Convulsion
- Abnormally sleepy or difficult to wake
- Stridor in calm child, or
- Severe malnutrition

Classify as: VERY SEVERE DISEASE

Treatment:
- ➤ Refer URGENTLY to hospital
- ➤ Give first dose of an antibiotic
- ➤ Treat fever, if present
- ➤ Treat wheezing if present
- ➤ If cerebral malaria is possible, give an antimalarial

Does child have pneumonia?

Sign
- Chest indrawing

if also recurrent wheezing go directly to

Treat Wheezing

- No chest indrawing and
- Fast breathing
(50 per minute or more if child 2 month up to 12 months; 40 per minute or more if child 12 months up to 5 years.)

- No chest indrawing and
- No Fast breathing
(Less than 50 per minute if child 2 month up to 12 months; less than 40 per minute if child 12 months up to 5 years.)

Classify as: SEVERE PNEUMONIA. | PNEUMONIA. | NO PNEUMONIA: COUGH AND COLD.

Treatment:

SEVERE PNEUMONIA:
- ➤ Refer urgently to hospital
- ➤ Give first dose of an antibiotic.
- ➤ Treat fever, if present.
- ➤ Treat wheezing, if present.
(if referral is not feasible, treat with an antibiotic and follow closely)

PNEUMONIA:
- ➤ Advise mother to give home care.
- ➤ Give an antibiotic.
- ➤ Treat fever if present.
- ➤ Treat wheezing, if present
Advise mother to return with child in two days for reassessment, or earlier if the child is getting worse.

NO PNEUMONIA: COUGH AND COLD.
- ➤ If coughing more than 30 days refer for assessment.
- ➤ Assess and treat ear problem or sore throat, if present
- ➤ Assess and treat other problem
- ➤ Advise mother to give home care.
- ➤ Treat fever, if present
- ➤ Treat wheezing, if present

Reassess in 2 days a child who is taking an antibiotic for pneumonia:

	WORSE	THE SAME	IMPROVING
Signs:	• Not able to drink. • Has chest indrawing. • Has other danger signs.		• Breathing slower. • Less fever. • Eating better
Treatment:	➤ Refer URGENTLY to hospital.	➤ Change antibiotic or Refer.	➤ Finish 5 days of antibiotic.

Source - WHO – Program for the control of Acute respiratory Infections 1995

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Appendix H