CHAPTER IV

DATA EXERCISE

A PILOT STUDY:

ASSESSING FACTORS AND THEIR RELATIONSHIPS AFFECTING ACUTE RESPIRATORY INFECTION IN CHILDREN UNDER FIVE AT THE NATIONAL PEDIATRIC HOSPITAL PHNOM PENH, CAMBODIA

4.1 Introduction

Acute respiratory infection ranging from the common cold, coughs, ear infections through to pneumonia, occur in every country. Young children are particularly affected, regardless of socioeconomic status or access to health care. In the developing countries, ARI,(pneumonia in particular), is now the leading cause of childhood death, taking the place of diarrheal disease. In addition, ARI is responsible for at least 40% of cases where children are taken to clinic or hospitals. Pneumonia may result in death within three to five days of onset. Many studies have shown that if recognized and treated early enough, pneumonia deaths are mostly preventable (1).

Reducing and preventing deaths from pneumonia in the long term requires progress in general socioeconomic development; such as, better nutrition, less crowded housing, higher literacy rates. Technical solutions alone are not sufficient- ARI control needs to be approached in the context of the primary health care system

and depends on the involvement of primary health care workers in the community. There is a particular need for:

- Guidance, supervision and training of health workers.

- Attention to such issues as essential drugs and equipment.

- Increased community awareness.

- Increased awareness and knowledge of caretakers.

For this pilot study, I will focus on the awareness of caretakers in terms of their knowledge and self care practices toward their sick children under the age of five with ARI and its relationship. It is very important to get that information because caretakers, more than anyone else, know when their children are seriously ill, and given the necessary skills and support they will respond quickly to signs of danger. The result of this study will provide us with suggestions as how to improve the ARI control program, especially for health education to caretakers in community. In order to achieve this goal, quantitative research will be conducted, using a structured questionnaire to interview caretakers who have their sick children under five years of age with ARI at the National Pediatric Hospital, Phnom Penh, Cambodia.

4.2 Objectives

The main objectives of this study were:

- To assess the existing level of knowledge and of care practice of caretakers with children under five years of age regarding ARI at National Pediatric Hospital, Phnom Penh, Cambodia.

- To determine the relationship between knowledge, care practice of caretakers and others factors (socio- demographic factors, environmental factors, children factors) and the severity of ARI among children under five years of age at National Pediatric Hospital, Phnom Penh, Cambodia.

- To practice how to set up tools and instruments for the study.

- To improve my skill of interviewing using structured questionnaires.

- To test my skill on data analysis, especially through SPSS 10.0 for Window program, by using Chi-square test in order to determine the association between independent and dependent variables.

4.3 Research methodology

4.3.1 Study design:

Cross sectional study was used for this data exercise.

4.3.2 Study site:

National Pediatric Hospital, Phnom Penh, Cambodia was selected as the location for this data exercise.

4.3.3 Study population:

The target population of this data exercise were the caretakers who had children under five years of age admitted to the Out Patient and to the In Patient Departments at National Pediatric Hospital, Phnom Penh, Cambodia.

4.3.4 Sample size:

Thirty caretakers (20 from the Out Patient Department and 10 from the In Patient Department) were selected for face to face interviewing. The 20 caretakers from the Out Patient Department were selected to study

mild cases of ARI and the 10 caretakers from the In Patient Department were selected to study moderate and severe cases of ARI.

4.3.5 Study duration:

This cross sectional study was conducted within 3 days.

4.3.6 Sampling technique:

For this data exercise, systematic sampling was done, randomly choosing the first to be sampled in each block of five caretakers.

4.3.7 Instrument for data collection:

For this quantitative research, structured questionnaires including both closed and open ended questions were used .

4.3.8 Data analysis:

After finishing the data collection process, the data were analyzed by using SPSS program in terms of frequency distribution of variables and Chi square test, where appropriate, to determine the association between the independent and dependent variables.

4.3.9 Scoring and classification criteria:

a) Scoring

For knowledge: a correct answer received a score of one, an incorrect answer received a score of zero. For care practices, the way of giving the score is the same, but the score was reversed for negative questions. The summation of the scores of each component of each variables was conducted.

b) Classification criteria

Classification criteria was done as following:

- For the knowledge, if the scores was equal or more than 60% of the total scores it was classified as at a satisfactory level and if less than 60% of the total score, it was classified as at an unsatisfactory level.
- For the care practice, if the scores are equal or more than to 60% of the total scores it was also classified as at a satisfactory level and if less than 60% of the total score, it was classified as at an unsatisfactory level.

4.4 Results of data exercise

Although 20 caretakers were interviewed in OPD, two were found to be caretakers of children with severe ARI. For the balance of this report, I show the results as 18 cases of mild ARI and 12 cases of moderate and severe ARI.

The purpose of this data exercise was to determine the relationship of the socio-demographic factors (like caretaker's age, education, occupation, family income, family size etc.), caretaker's knowledge, caretaker's care practice, environmental factors (exposure to passive smoking or crowded family), children's factors (age, gender, vaccination status, previous history of illness of the child) and the severity of ARI (mild, moderate, and severity) among children under five years of age.

The results of this study were compared for the mild cases versus the moderate and severe cases by:

1) Socio-demographic factors

2) Environmental factors

3) Caretaker's knowledge

4) Caretaker's care practice

5) Children's factors

4.4.1 Socio demographic factors:

Table 4.1 shows that majority of the caretakers (72%) from Mild ARI, (58%) from Moderate and severe ARI were in the 26-35 year age group. More than two-third of caretakers (77.8%) from Mild ARI and (75%) from Moderate and severe ARI had been living in Phnom Penh. All of caretakers (100%) from Mild ARI and (83.3%) from Moderate and severe ARI were married. It was also seen that secondary school level education accounts for (61.1%) in Mild ARI group and (41.6%) in Moderate and severe ARI group. Among the respondents (55.5%) from Mild ARI and (33.3%) from Moderate and severe ARI group were housewives. Half of the respondents at (50%) in Mild ARI group and (41.6%) in Moderate and severe group had an average monthly income ranging from 150,000 Riel to 300,000 Riel. This table also shows that (55.5%) of caretakers from Mild ARI and two-third of the caretakers (66.7%) from Moderate and severe ARI have 4 –5 members in the family. Among the respondents (94.4%) from Mild ARI and (83.3%) from Moderate and severe have children under five years of age not more than two children. Most of respondents (more than 90%) from both groups (Mild ARI and Moderate-severe) were mothers who brought their sick child for health service seeking.

Table 4.1 Percentage distribution of the caretakers according to their socio-demographic factors (n=30).

Socio-demographic factors	Mild ARI		Moderate and Severe ARI	
	n =18	%	n=12	%
Age of caretakers in years				
≤ 25	1	5.6	2	16.7
26-30	6	33.3	4	33.3
31-35	7	38.9	3	25.0
≥36	4	22.2	3	25.0
Address of caretakers				
Phnom Penh	14	77.8	9	75.0
Others provinces	4	22.2	3	25.0
Marital status				
Married	18	100	10	83.3
Widow/ divorced	0	0	2	16.7
Education level				
No education	2	11.1	2	16.7
Primary school	2	11.1	5	41.6
Secondary school	11	61.1	5	41.6
High school	3	16.7	0	0
Occupation				
Housewife/no occupation	10	55.5	4	33.3
Government staff	3	16.7	1	8.3
Farmer	1	5.6	3	25.0
Laborer	2	11.1	1	8.3
Seller	2	11.1	3	25.0

Table 4.1 Percentage distribution of the caretakers according to their socio-demographic factors (n=30).

Socio-demographic factors	Mild ARI		Moderate and Severe ARI	
	n =18	%	n=12	%
Monthly family income in (Riel)				
≤150,000	3	16.7	4	33.3
150,001-300,000	9	50	5	41.6
>300,000	6	33.3	3	25.0
Family size (person)				
≤ 3	4	22.2	3	25.0
4 –5	10	55.5	8	66.7
> 5	4	22.2	1	8.3
Number of children under 5 years in the family (person)				
≤ 2	17	94.4	10	83.3
> 2	1	5.6	2	16.7
Relationship to the sick child				
Mother	17	94.4	11	91.7
Grand mother	1	5.6	1	8.3

4.4.2 Environmental factor:

Table 4.2 shows that (61.1%) of caretakers from Mild ARI and (58.4%) from Moderate and sever ARI had smoking members in the families. Concerning the relationship with children and smoking members, it was seen that (63.6%) in Mild ARI group and (57.1%) in Moderate and sever ARI group were fathers and the rest were others members in the families such as: uncle, brother in law, grand father. In Mild ARI group, the smoking members (36.4%) smoked up to 5 cigarettes per day, (18.2%) smoked from 6-10 cigarettes, (9%) smoked from 11-15 cigarettes and (36.4%) smoked more than 15 cigarettes per day, but in Moderate and severe group, the majority of smoking members (42.8%) smoked more than 15 cigarettes per day. Among smoking members (54.5%) respondents from Mild ARI and (85.7%) from Moderate and severe smoked both inside and outside the house where the children reside. It was also seen that most of respondents (83.3%) from both groups Mild ARI and Moderate-severe had members sleeping with the child in the same room not more than 3 person and only (16.7%) had more than 3 person. Table also shows that (66.7%) of household from Mild ARI and (75%) of household from Moderate and severe were cooking in house and among that (66.7%) in Mild ARI group and (77.8%) in Moderate and severe group used coal or firewood for their cooking purpose.

Table 4.2 Percentage distribution of the caretakers according to their environmental status.

Environmental factors	Mild ARI		Moderate and Severe ARI	
	n	%	n	%
Smoker in the household (n=30)				
Yes	11	61.1	7	58.4
No	7	38.9	5	41.6
Smoker's relationship to sick child (n=18)				
Father	7	63.6	4	57.1
Others (uncle, grand father)	4	36.4	3	42.9
Number of cigarettes smoke per day (n=18)				
Up to 5	4	36.4	2	28.6
6 – 10	2	18.2	2	28.6
11 –15	1	9.0	0	0
> 15	4	36.4	3	42.8
Where do they smoke (n=18)				
Outside house	5	45.5	1	14.3
Inside and Outside house	6	54.5	6	85.7
Number of person sleep with the sick child (n=30)				
≤ 3	15	83.3	10	83.3
> 3	3	16.7	2	16.7
Cooking habit (n=30)				
Cook in house	12	66.7	9	75.0
Do not cook in house	6	33.3	3	25.0
Material use for cooking purpose (n=21)				
Gas	4	33.3	2	22.2
Coal or firewood	8	66.7	7	77.8

4.4.3 Caretaker's knowledge:

Table 4.3 showed that (94.5%) of respondents in Mild ARI group and (66.7%) in Moderate and severe group had ever heard about ARI. Related to the source of the information majority of caretakers (52.9%) from Mild ARI and (62.5%) from Moderate and severe ARI received through health personnel. Concerning signs and symptoms of ARI episode, the same table shows that for Mild ARI group (94.5%) of the caretakers knew cough, (77.8%) knew fever, (72.2%) knew runny nose, (88.9%) equally know fast breathing, difficult to breath and chest indrawing , (83.3%) knew fast breathing , (55.5%) knew sore throat and (0%) of caretakers knew convulsion were the signs and symptoms of ARI. For Moderate and severe ARI group, (75%) equally knew cough, runny nose and fast breathing, (66.7%) equally know fever, difficult to breath, (25%) knew sore throat, (16.6%) knew convulsion and (50%) knew chest indrawing were the signs and symptoms of ARI. Among the respondents in Mild ARI group only (11.1%) knew bacteria, (5.5%) knew virus, (22.2%) knew cold weather and (38.9%) knew contaminated food were the causes of ARI, while (8.3%) knew bacteria, (0%) knew virus, (41.7%) knew cold weather and (16.7%) knew contaminated food were the cause of ARI in Moderate and severe ARI group. Regarding the transmission of ARI, in Mild ARI group (61.1%) of caretakers told coughing and sneezing ,(55.5%) told close contact with ARI patients, (44.5%) told droplet, (33.3%) told air and (11.1%) told utensil can transmit ARI from one person to another, while (50%) of caretakers told coughing and sneezing , (16.7%) told droplet, (25%) equally told air, utensil and close contact with ARI patients can transmit ARI from one person to another in Moderate and severe group , Concerning general

knowledge on ARI it was also seen that (16.7%) from both groups Mild ARI and Moderate and severe ARI mentioned complete vaccination can prevent the child from ARI. (72.2%) from Mild ARI mentioned that cigarettes smoke can cause ARI only (58.3%) from Moderate and severe mentioned the same concept. (16.7%) from Mild ARI mentioned that breast feeding can prevent the child from ARI, while (0%) from Moderate and severe mentioned the same concept. Regarding to the idea that ARI can cause death to children (83.3%) of respondents from Mild ARI and only (66.7%) from Moderate and severe ARI mentioned about it.

Table 4.3 Percentage distribution of the caretakers according to their knowledge on ARI.

Knowledge	Mild ARI		Moderate and Severe ARI	
	Correct answer (number)	%	Correct answer (number	%
Ever heard about ARI (n=30)				
Yes	17	94.5	8	66.7
No	1	5.5	4	33.3
Source of information (n=25)				
Health personnel	9	52.9	5	62.5
Relatives	3	17.7	2	25.0
Radio- television	4	23.5	1	12.5
News paper-magazine	1	5.9	0	0
Sign and symptoms of ARI episode (n=30)				
Cough	17	94.5	9	75.0
Fever	14	77.8	8	66.7
Runny nose	13	72.2	9	75.0
Fast breathing	16	88.9	9	75.0
Difficult to breath	16	88.9	8	66.7
Sore throat	10	55.5	3	25.0
Convulsion	0	0	2	16.6
Chest indrawing	16	88.9	6	50.0
ARI is caused by the following (n=30)				
Bacteria	2	11.1	1	8.3
Virus	1	5.55	0	0
Cold weather	4	22.2	5	41.7
Contaminated food	7	38.9	2	16.7

Table 4.3 Percentage distribution of the caretakers according to their knowledge on ARI.

Knowledge	Mild ARI		Moderate and Severe ARI	
	Correct answer (number)	%	Correct answer (number	%
ARI can be transmitted by the following (n=30)				
Coughing and sneezing	11	61.1	6	50.0
Air	6	33.3	3	25.0
Droplet	8	44.5	2	16.7
Close contact with ARI patient	10	55.5	3	25.0
Utensils	2	11.1	3	25.0
Complete vaccination can prevent the child from ARI	3	16.7	2	16.7
Cigarette smoke can cause ARI	13	72.2	7	58.3
Crowded sleeping place can be the cause of ARI	4	22.2	2	16.7
ARI can be prevented	9	50.0	2	16.7
Breast feeding can prevent the child from ARI	3	16.7	0	0
More fluid and additional food should be given to the sick child with ARI	6	33.3	5	41.7
Well ventilated area can prevent the child from ARI	8	44.5	6	50.0
ARI can cause death to the children	15	83.3	8	66.7

4.4.4 Caretaker's care practice:

Table 4.4 showed that majority of the caretakers (77.8%) in Mild ARI and (66.7%) in Moderate and severe ARI were the mothers who took care of their children by their own. It is also revealed that (66.7%) of caretakers among Mild ARI group and (58.3%) among Moderate and severe group seek medical care from health personnel by going to hospital or private clinic during the sickness of their children with ARI. Concerning the care of sick children with ARI when the child has got fever: (61.1%) of respondents in Mild ARI group and (66.7%) in Moderate and severe ARI group gave antipyretic, only (44.4%) of respondents in Mild ARI and (33.3%) in Moderate and severe ARI increased fluid, (100%) of respondents in Mild ARI group and (66.7%) of respondents in Moderate and severe ARI group made tepid when their child got fever. Regarding the use of antibiotic without prescription from doctors the table also showed that (38.9%) of caretakers in Mild ARI and (41.7%) in Moderate and severe ARI used antibiotic by themselves to treat their child. Among (66.7%) of caretakers in Mild ARI and (50%) of caretakers in Moderate and severe ARI mentioned about continuing breast feed to the child although during ARI episode. As a preventive measure (66.7%) of respondents in Mild ARI and (75%) among Moderate and severe ARI separated their child from the common cold person. It was also found that (77.8%) of caretakers in Mild ARI and (66.7%) of caretakers in Moderate and severe ARI clean the nostrils when the child got a common cold.

Table 4.4 Percentage distribution of the caretakers according to their care practice on ARI.

Care practice on ARI	Mild ARI		Moderate and Severe ARI	
	N	%	N	%
Caretakers (n=30)				
Mother	14	77.8	8	66.7
Grand mother	3	16.7	3	25.0
Others	1	5.55	1	8.3
Treatment of sick child (n=30)				
Hospital or private clinic	12	66.7	7	58.3
Pharmacies	4	22.2	5	41.7
Monk	1	5.55	0	0
Self treatment	1	5.55	0	0
Give antipyretic while child has got fever (n=30)				
Yes	11	61.1	8	66.7
No	7	38.9	4	33.3
Give more fluid while child has got fever (n=30)				
Yes	8	44.4	4	33.3
No	10	55.6	8	66.7
Made tepid sponge while child has got fever (n=30)				
Yes	18	100	8	66.7
No	0	0	4	33.3
Giving antibiotic without prescription from Dr (n=30)				
Yes	7	38.9	5	41.7
No	11	61.1	7	58.3
Continue to breast feed with ARI child (n=30)				
Yes	12	66.7	6	50.0
No	6	33.3	6	50.0

Table 4.4 Percentage distribution of the caretakers according to their care practice on ARI.

Care practice on ARI	Mild ARI		Moderate and Severe ARI	
	N	%	N	%
Allow the child close contact with common cold person (n=30)				
Yes	6	33.3	3	25.0
No	12	66.7	9	75.0
Clean the nostrils when the child got common cold (n=30)				
Yes	14	77.8	8	66.7
No	4	22.2	4	33.3

Table 4.5 Percentage distribution of caretakers according to their knowledge score on ARI.

Level knowledge	Mild ARI		Moderate and Severe ARI	
	Number	%	Number	%
Satisfactory	6	33.3	2	16.7
Unsatisfactory	12	66.7	10	83.3
Total	18	100	12	100

Table 4.5 shows the percentage distribution of the caretakers knowledge score on ARI. Total score of knowledge among caretakers was 25 for 25 questions. The maximum score of knowledge was 18 while the minimum score was 0 with a mean score of 11.4 and standard deviation of 4.77. The caretakers with a score equal or more than 60% of the total scores were grouped as satisfactory level, those with a score less than 60% of the total scores were grouped as unsatisfactory level. From this table shows that among respondents (66.7%) in Mild ARI and (83.3%) in Moderate and severe ARI were in dissatisfactory level in term of their knowledge related to ARI.

Table 4.6 Percentage distribution of caretakers according to their care practice score on ARI.

Level care practice	Mild ARI		Moderate and Severe ARI	
	Number	%	Number	%)
Satisfactory	10	55.5	7	58.3
unsatisfactory	8	44.6	5	41.7
Total	18	100	12	100

Table 4.6 shows the percentage distribution of the caretakers care practice score on ARI. Total score of care practice among caretakers was 7 for 7 questions. The maximum score of care practice was 7 while the minimum score was 1 with a mean score of 4.53 and standard deviation of 1.28. The caretakers with a score equal or more than 60% of the total scores were grouped as satisfactory level, those with a score less than 60% of the total scores were grouped as unsatisfactory level. From this table shows that among respondents (55.5%) in OPD and (58.3%) in IPD were in satisfactory level in term of their care practice related to ARI.

4.4.5 Children's factors:

Table 4.7 shows that (55.5%) of the children among Mild ARI group and (50%) among Moderate and severe ARI group aged were up to 24 months of age group. Concerning the gender of the children, the same table showed that the occurrence of ARI was more among female (61.1%) in Mild ARI group and (66.7%) in Moderate and severe ARI group in comparison with the male children. It was also found that majority of the sick children (88.9%) in Mild ARI and (91.7%) in Moderate and severe ARI had birth weight from 2.5kg or more. Regarding the immunization status, (83.3%) of the children among Mild ARI group and (75%) among Moderate and severe group were received complete immunization. The children who got breast feeding up to 6 months accounts for (22.2%) in proportion, (27.8%) of children got breast feeding from 7 months till 12 months and half of them (50%) got breast feeding for more than 12 months in Mild ARI group, children who got breast feeding up to 6 months accounts for (25%) in proportion, (25.%) of children got breast feeding from 7 months till 12 months and half of them (50%) got breast feeding for more than 12 months in Moderate and severe group. In this table also shows that most of the children (83.3%) in Mild ARI and (75%) in Moderate and severe ARI had the previous similar disease during the past 3 months. Related to occurrence cases, it is revealed that (100%) were mild in Mild ARI group (eg. Common cold/ rhinitis/ influenza/ pharyngitis/ tonsillitis/ adenoiditis/ otitis media/ or sinusitis), (33.3%) were moderate (eg. bronchitis, asthma, or epiglottitis) and (66.7%) were severe (eg. pneumonia or pneumonitis) in Moderate and severe ARI group.

Table 4.7 Percentage distribution of the children's factors.

Children's factors	Mild ARI		Moderate and Severe ARI	
	N	%	N	%
Age in months (n=30)				
≤ 12	4	22.2	2	16.6
13 - 24	6	33.3	4	33.3
25 - 36	3	16.7	3	25.0
> 36	5	27.8	3	25.0
Gender of children (n=30)				
Male	7	38.9	4	33.3
Female	11	61.1	8	66.7
Birth weight in kg (n=30)				
≥ 2.5kg	16	88.9	11	91.7
< 2.5kg	2	11.1	1	8.3
Complete vaccination (n=30)				
Yes	15	83.3	9	75.0
No	3	16.7	3	25.0
Period of breast feeding in months (n=30)				
≤ 6	4	22.2	3	25.0
7 - 12	5	27.8	3	25.0
> 12	9	50.0	6	50.0
Previous similar disease during the past 3 months (n=30)				
Yes	15	83.3	9	75.0
No	3	16.7	3	25.0
Present clinical diagnosis (n=30)				
Mild	18	100	0	0
Moderate	0	0	4	33.3
Severe	0	0	8	66.7

ASSOCIATIONS

A. Association between variables and severity of ARI

We tried to find the association between the independent variables (socio-demographic , environmental , caretaker's knowledge, caretaker's care practice and children's factors) with the severity of ARI among children under five years of age by Chi Square and by Fisher's Exact Test. Unfortunately, because the sample size was small (n=30), the cross tabulations had to be done by combining moderate and severe cases as one group and by collapse of the other variables into two levels. In these analyses, many cells had an expected frequency of 5% or less ($N \leq 2$) and the Chi Square test analysis could not be done.

Table 4.8 showed the statistical association between socio- demographic factors and the occurrence of ARI (mild, moderate + severe) among children under five years of age.

From this table shows that none of the variables of socio- demographic factors of caretakers were found statistically associated with the severity of ARI in children under five years of age (P- value> .05).

Concerning socio- demographic factors and the severity of ARI among children under five years of age, It was also seen that the proportion of mild cases was high (64.7%) with the caretakers who were more than 30 years old. It is al so observed that caretakers who were divorced , proportion of severe cases was (100%). Regarding to

educational level, it is mentioned that the proportion of mild cases was high (73.7%) from the caretakers with secondary or high school level and also the proportion of severe was least (26.3%) from the same group in comparison with no education or primary school. From the same table revealed that the proportion of mild cases (71.4%) were found from the caretakers who were housewife. In comparison between mothers take care the child and other person, the result mentioned that the proportion of mild cases was high (60.7%) from mothers who are caretakers.

Table 4.8 Association between the socio-demographic factors of caretakers and the severity of ARI.

Socio-demographic factors	Number	Severity		P- value
		Mild	Moderate and Severe	
Age (years)				.547[1]
23 - 30	13	7	6	
> 30	17	11	6	
Address				1.000[2]
Phnom Penh	23	14	9	
Provinces	7	4	3	
Marital status				Not done
Married	28	18	10	
Divorced	2	0	2	
Education				.063[2]
No education/ primary school	11	4	7	
Secondary/ high school	19	14	5	

Table 4.8 Association between the socio-demographic factors of caretakers and the severity of ARI.

Socio-demographic factors	Number	Severity		P- value
		Mild	Moderate and Severe	
Occupation				.232[1]
Housewife	14	10	4	
Others (outside house)	16	8	8	
Monthly family income (Riel)				.704[2]
≤ 300,000	21	12	9	
> 300,000	9	6	3	
Family size (person)				.367[1]
≤ 4	17	9	8	
> 4	13	9	4	
Number of children under five years in the family (person)				.765[1]
< 2	16	10	6	
≥ 2	14	8	6	
Relationship to the sick child				Not done
Mother	28	17	11	
Others	2	1	1	

1. P- value by Pearson Chi- Square. , 2. P- value by Fisher's Exact Test.

Table 4.9 showed the statistical association between environmental factors and the severity of ARI (mild, moderate and severe) among children under five years of age.

From this table shows that none of the variables of environmental factors were found statistically associated with the severity of ARI in children under five years of age (P-value> .05).

It was found that the proportion of the moderate and severe cases were not much different among smoking members in the family (39%) and no smoking member in the family (41.7%). Concerning the number of cigarettes smoking per day, this table also revealed that the proportion of the severity in clinical diagnosis were not quite different between the family which the smoking member smoked up to 10 cigarettes (40%) and more than 10 cigarettes (37.5%) per day. Regarding to the number of the person sleeping with the child in the same room, the results also showed that there were no different in term of severity related to crowded places. It is also seen that the proportion of moderate and severe cases were high (42.9%) among family cook in house in comparison with (33.3%) from family did not cook in house. It was observed from this table that the proportion of moderate and severe case were high (46.7%) among the family who use coal or firewood for cooking purpose compared with (33.3%) from the family who use gas instead for their cooking purpose.

Table 4.9 Association between the environmental factors and the severity of ARI.

Environmental factors	Number	Severity		P- value
		Mild	Moderate and Severe	
Smoking member in family				1.000[2]
Yes	18	11	7	
No	12	7	5	
Number of cigarettes smoke/day				1.000[2]
≤ 10	10	6	4	
> 10	8	5	3	
Number of the person sleep with the child in the same room				Not done
≤ 3	25	15	10	
> 3	5	3	2	
Cooking in house				.704[2]
Yes	21	12	9	
No	9	6	3	
Kind of fuel used for cooking				Not done
Gas	6	4	2	
Coal or firewood	15	8	7	

2. P- value by Fisher's Exact Test.

Table 4.10 showed the statistical association between caretakers knowledge and the severity of ARI (mild, moderate and severe) among children under five years of age. It was also observed that the proportion of moderate/ severe cases was high (45.5%) among unsatisfactory level of knowledge group, while it was less (25%)

among satisfactory group. statistically significant relationship between caretakers knowledge and the severity of the ARI in this study could not been done because there was one cell (n=2).

Table 4.10 Association between caretakers knowledge and the severity of ARI.

Caretakers knowledge n=30	Number	Severity		P- value
		Mild	Moderate and Severe	
Level of knowledge				Not done
Satisfactory	8	6	2	
Unsatisfactory	22	12	10	

Table 4.11 showed the statistical association between caretakers care practice and the severity of ARI (mild, moderate and severe) among children under five years of age. It was also seen that the proportion of moderate/ severe cases was high (41.2%) among satisfactory level of care practice group, while it was less (38.5%) among unsatisfactory group. There was no statistically significant relationship between caretakers care practice and the severity of the ARI in this study (P-value = .880).

Table 4.11 Association between caretakers care practice and the severity of ARI.

Caretakers care practice n=30	Number	Severity		P- value
		Mild	Moderate and Severe	
Level of care practice				.880[1]
Satisfactory	17	10	7	
Unsatisfactory	13	8	5	

1. P- value by Pearson Chi- Square

Table 4.12 showed the statistical association between children's factors and the severity of ARI (mild, moderate and severe) among children under five years of age. From this table shows that none of the variables of children's factors were found statistically associated with the severity of ARI in children under five years of age with (P- value> .05).

It was revealed that proportion of moderate/ severe cases was high (42.9%) among the children aged more than 24 months, while it was less (37.5%) among children aged up to 24 months. Based on this results, it was also seen that proportion of moderate/ severe cases was high (42.1%) among the female children which was only (36.4%) among the male children. Regarding to the birth weight of the children, it was observed that for the child had birth weight from 2.5kg or more the proportion of moderate/ severity was high (40.8%) compared to the child had birth weight less than 2.5kg (33.3%). The table also showed that the proportion of moderate/ severe cases

was high (50%) among incomplete vaccination children. Concerning to breast feeding period, it was mentioned that the proportion of the severity was not different between two groups (up to 12 months and more than 12 months). It was also observed that the severity cases seemed to be increased (50%) among the children who had no history of previous similar disease, while it was less (37.5%) among children had the history of previous similar disease.

Table 4.12 Association between the children's factors and the severity of ARI.

Children's factors (n=30)	Number	Severity		P- value
		Mild	Moderate and Severe	
Age of the children (months)				.765[1]
≤ 24	16	10	6	
> 24	14	8	6	
Sex of the children				1.000[2]
Male	11	7	4	
Female	19	11	8	
Birth weight of children				Not done
< 2.5kg	3	2	1	
≥ 2.5kg	27	16	11	
Complete vaccination				.660[2]
Yes	24	15	9	
No	6	3	3	
Breast feeding period (months)				1.000[1]
≤ 12	15	9	6	
> 12	15	9	6	
History of previous similar disease				.660[2]
Yes	24	15	9	
No	6	3	3	

1. P- value by Pearson Chi- Square. , 2. P- value by Fisher's Exact Test.

B. Association between selected socio-demographic variables and caretaker's knowledge

We tried to find the association between the selected socio-demographic variables with caretaker's knowledge by Chi Square and by Fisher's Exact Test. In these analyses, some cells had an expected frequency of 5% or less ($N \leq 2$) and the Chi Square test analysis could not be done.

Table 4.13 showed the statistical association between the selected socio-demographic variables and caretakers knowledge.

From this table shows that none of the variables of the selected socio-demographic were found statistically associated with the level of knowledge of caretakers about ARI in children under five years of age with (P- value> .05).

Table 4.13 Association between the selected socio-demographic variables and caretakers knowledge.

Socio-demographic factors	Number	Level of knowledge		P- value
		Satisfactory	Unsatisfactory	
Age (years)				1.000[2]
23 - 30	13	3	10	
> 30	17	5	12	
Education				Not done
No education/ primary school	11	0	11	
Secondary/ high school	19	8	11	
Occupation				.689[2]
Housewife	14	3	11	
Others (outside house)	16	5	11	
Family size (person)				1.000[2]
≤ 4	17	5	12	
> 4	13	3	10	
Number of children under five years in the family (person)				Not done
< 2	16	1	15	
≥ 2	14	7	7	

2. P- value by Fisher's Exact Test.

C. Association between selected socio-demographic variables and caretaker's care practice

We also tried to find the association between the selected socio-demographic variables with caretaker's care practice by Chi Square and by Fisher's Exact Test.

Table 4.14 showed the statistical association between the selected socio-demographic variables and caretakers care practice.

From this table shows that none of the variables of the selected socio-demographic were found statistically associated with the level of care practice of caretakers about ARI in children under five years of age with (P- value> .05).

Table 4.14 Association between the selected socio-demographic variables and caretakers care practice.

Socio-demographic factors	Number	Level of care practice		P- value
		Satisfactory	Unsatisfactory	
Age (years)				.785[1]
23 - 30	13	7	6	
> 30	17	10	7	
Education				1.000[2]
No education/ primary school	11	6	5	
Secondary/ high school	19	11	8	
Occupation				.961[1]
Housewife	14	8	6	
Others (outside house)	16	9	7	
Family size (person)				.310[1]
≤ 4	17	11	6	
> 4	13	6	7	
Number of children under five years in the family (person)				.431[1]
< 2	16	8	8	
≥ 2	14	9	5	

1. P- value by Pearson Chi- Square. , 2. P- value by Fisher's Exact Test.

4.5 Discussion- Conclusion and Recommendation

4.5.1 Discussion

This study was conducted by interviewing caretakers whose children under the age of five years were admitted to National Pediatric Hospital because of ARI.

As mentioned earlier, the main objective of this study was to assess the existing level of knowledge and care practice among caretakers toward their children under five years of age with ARI, and also to find out the relationship between the caretakers knowledge, care practice and others factors such as socio demographic, environmental, children factors and the severity of ARI among children under five years of age.

The variables of concern, such as socio-demographic factors, environment factors and children factors, were measured in terms of frequency and percentage distribution. Knowledge and care practice were classified into two groups (satisfactory and unsatisfactory) through the scoring process. In this study, the score was given by calculating as a percentage of the maximum possible score. Associations between the independent and dependent variables were determined using Chi Square test in SPSS program. Finding from this study discussed as following:

- Existing knowledge and care practice of caretakers on ARI:

From the results it was seen that (66.7%) of caretakers in Mild ARI had unsatisfactory in terms of level of knowledge and only (33.3%) was in satisfactory level of knowledge and (83.3%) of caretakers in Moderate and severe ARI had unsatisfactory in terms of level of knowledge and only (16.7%) was in satisfactory level of knowledge. In respect of care practice on ARI, the result revealed that (55.5%) of caretakers in Mild ARI had satisfactory level and the rest of (44.6%) was in unsatisfactory level and (58.3%) of caretakers in Moderate and severe ARI had satisfactory in terms of level of care practice and the rest of (41.7%) was in satisfactory level of knowledge. If we look at the content of detailed knowledge it had showed that they had quite high knowledge in term of the signs and symptoms of ARI, in Mild ARI group: (94.5%) knew cough, (88.9%) equally knew fast breathing, difficult to breath, chest indrawing, (77.8%) knew fever, (72.2%) knew running nose, (55.5%) knew sore throat and none of respondent knew convulsion (danger sign) were the signs and symptom of ARI. In Moderate and severe ARI group: (75%) equally knew cough, runny nose fast breathing, (66.7%) equally knew fever, difficult to breath, (50%) knew chest indrawing, (25%) knew sore throat and only (16.6%) of respondent knew convulsion (danger sign) were the signs and symptom of ARI. Related to the causes of ARI in Mild ARI group: only (38.9%) of respondents knew contaminated food , (22%) knew cold weather, (11.1%) knew bacteria and very small proportion (5.55%) knew virus were the cause of ARI, in Moderate and severe ARI group: (41.7%) of respondents knew cold weather , (16.7%) knew contaminated food (8.3%) knew bacteria and none of respondent knew virus were the cause of ARI.

Concerning to care practice it also mentioned that for Mild ARI group: (66.7%) of caretakers took their children to hospital or private clinic for seeking treatment when their children under five years of age got sick. All of caretakers (100%) made appropriate practice by tepid sponge while their child has got high fever. The weak points of caretakers care practice is that among the respondents (38.9%) giving antibiotics to their child by themselves without prescription from doctors and (33%) would not continue to breast feed their sick child during ARI episode, in Moderate and severe ARI group: (58.3%) of caretakers took their children to hospital or private clinic for seeking treatment when their children under five years of age got sick. Majority of care takers (66.7%) made appropriate practice by tepid sponge while their child has got high fever. The weak points of caretakers care practice is that among the respondents (41.7%) giving antibiotics to their child by themselves without prescription from doctors and (50%) would not continue to breast feed their sick child during ARI episode,

- Relationship between socio-demographic factors of the caretakers and the severity of ARI:

  In this study no statistically significant association was found between socio-demographic factors and the severity of ARI (mild, moderate or severe). Another study conducted by Abu Elias Prodhan (2) in 1995 also revealed that there was no statistically significant association between socio- demographic factors and the occurrence of ARI. This present result study supported that previous study.

- Relationship between environmental factors and the severity of ARI:

In this study no statistically significant association was found between the environmental factors and the severity of ARI (mild, moderate or severe). The study results showed that the smoking members among the household were (60%), among smoking members (61.1%) were father and (66.7%) smoked at both places inside and outside of the room. It was also seen that the majority of smoking members (38.9%) were smoked more than 15 cigarettes per day. The results also revealed that high proportion of moderate and severe cases (46.7%) were found among the household which used coal or firewood for their cooking purpose. It is assumed that all are the risk factors for the severity of ARI, but this study failed to show the statistically significant association between the above mentioned factors and the severity of ARI. A study conducted by Zaman (3) in 1994 revealed that there was no statistically significant association between environmental factors and the occurrence of ARI, this results supported the present results. Another similar study published by Canadian journal of public health (4) in 1994 , revealed that exposure to passive smoking increase the risk of lower respiratory infections among the under five children.

- Relationship between caretakers knowledge and the severity of ARI:

In this study no statistically significant association was found between caretakers knowledge and the severity of ARI (mild, moderate or severe). This results was different from the study of Harunor Rashid (5)

He found that there was statistically significant association between the mothers knowledge on ARI and the severity of ARI with (p-value=.0309).

- Relationship between caretakers care practice and the severity of ARI:

In this study no statistically significant association was found between caretakers care practice and the severity of ARI (mild, moderate or severe). Another study conducted by Abu Elias Prodhan (2) in 1995 also revealed that there was no statistically significant association between caretakers care practice and the occurrence of ARI. This present result study supported that previous study. However this results was different from the study of Harunor Rashid (5) . He found that there was statistically significant association between the mothers self care practice on ARI and the severity of ARI with (p-value=.0039).

- Relationship between children's factors and the severity of ARI:

In this study no statistically significant association was found between children's factors and the severity of ARI (mild, moderate or severe). Another study conducted by Abu Elias Prodhan (2) in 1995 also revealed that there was no statistically significant association between children's factors and the occurrence of ARI. This present result study supported that previous study.

- Relationship between selected socio-demographic variables and caretaker's knowledge:

  In this study no statistically significant association was found between selected socio- demographic variables; such as, age of caretakers, educational level, occupation, family size and number of children under five years of age in the family and caretaker's knowledge (P-value >.05).

- Relationship between selected socio- demographic variables and caretaker's care practice:

  In this study no statistically significant association also was found between selected socio- demographic variables; such as, age of caretakers, educational level, occupation, family size and number of children under five years of age in the family and caretaker's care practice (P-value >.05).

4.5.2 Conclusion

In this study, data were collected from 30 caretakers who brought their children under the age of five for treatment seeking at National Pediatric Hospital, Phnom Penh, Cambodia, by using structured questionnaires including both closed and open ended questions for data collection. The objectives of this study were to assess the existing level knowledge and care practice of caretakers toward their children under five years of age regarding to ARI and to determine the relationship between knowledge, care practice of caretakers and others factors like socio- demographic factor ,environmental factors, children factors and the severity of ARI among children under five years of age. From this study revealed that the overall knowledge of caretakers in Mild ARI were at an unsatisfactory level (66.7%) and (83.3%) in Moderate and severe ARI especially related to cause and route of transmission of ARI. It also showed that the overall care practice of caretakers in Mild ARI were at the satisfactory level for only (55.5%) and (58.3%) in Moderate and severe ARI, proportion of giving antibiotic by themselves to their sick children under five without description from the doctors were very high among both groups (38.9%) in Mild ARI group and (41.7%) in Moderate and severe ARI group, not continue to breast feed to their sick children during ARI episode and were also high (33.3%) in Mild ARI group and (50%) among respondents in Moderate and severe ARI group. Majority (55.6%) in Mild ARI group and (66.7%) in Moderate and severe ARI group did not provide more fluid to their sick children under five while these children had got fever. All of these were not good practices which caretakers have to change their behavior for care practice improvement.

This findings suggest that caretakers need more health education for their behavioral change. Also health care providers need to work harder in terms of the dissemination of knowledge related to health issues.

Based upon this study with a small sample size (n=30) the results showed that there were no statistically significant associations between (socio-demographic of caretaker factors, environmental factors, caretakers knowledge factors, caretakers care practice factors and children's factors) and the severity of ARI (mild, moderate and severe) among children under five yeas of age at National Pediatric Hospital, Phnom Penh, Cambodia.

4.5.3 Recommendation

4.5.3.1 General recommendation from this study

This study showed that the knowledge level of caretakers were unsatisfactory accounts for (66.7%) in Mild ARI group and (83.3%) in Moderate and severe ARI group, and care practice level of caretakers were at the satisfactory level for only (55.5%) in Mild ARI group and (58.3%) in Moderate and severe ARI group, based upon this some recommendations follow:

- Community health education program should be introduced to improve the caretakers knowledge in term of ARI information ,especially by focussing on causes, route of transmission and danger signs of ARI children under five years of age. Health education programs should have both not only curative aspect but also preventive aspect as well.

- Health providers at the hospital should provide counseling to the caretakers by emphasizing on appropriate care practice such as: giving more fluid, keep continue breast feeding and cleaning nostrils during their child got ARI episode and also make them understand clearly about the consequence of using antibiotic without prescription from doctors.

- Training for health providers at all level should be ensured.

- The ARI control program should be rapidly expended to all care providers so that they can follow a standard patterns of care for ARI children under five years of age.

4.5.3.2 Recommendation for further study

- This type of study should be conducted with a larger sample size in the community in order to get more reliable and meaningful results.

- Further study should be qualitative and quantitative research, so the outcome would be more detailed and useful.

4.6 Lesson learned and limitations

As already mentioned, this study was just a data exercise with small sample size (n=30) and was conducted in an urban area, so the results from this study can not be generalized to another places. In this study, we conducted quantitative research by using questionnaires for data collecting. As mentioned there were many difficulties for caretakers to understand some questions because some basic medical terms were used in the questionnaires so we can not avoid the chance of misunderstand and bias. The time for data collection was also insufficient, we had to spend a long time on data collection permission process. On the another hand, the literature review related to ARI children under five in Cambodia is very scarce and also there was no financial support through out this study.

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