



Prevalence and Determinants of Acute Respiratory Infection among Children under Age Five in Gorkha Municipality, Gorkha



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Abstract

Acute Respiratory Infections are the common and leading cause of morbidity and mortality in children under the age of five in human throughout the world. Particularly, it is affecting children under the age of five. The incidence and prevalence of ARI are a great burden in low and middle income countries in comparison to high income ARI. In context to Nepal, ARI is considered as number one killer disease. The main objective of the study was to identify the prevalence and determinants of ARI among fewer than five children in Gorkha Municipality and its prevalence [1]. A cross-sectional analytical study was conducted with the total sample size of 200. The respondents were the mothers of the children under age five in Gorkha municipality, Gorkha. Structured questionnaire were used for data collection, simple random sampling was carried out for selecting the respondents. From the study, the prevalence of ARI in children under age five was found to be 21.5%. The study found a significant association between prevalence of ARI and crowding ($p<0.05$), type of house ($p<0.05$), educational status of father ($p<0.05$) and presence of moisture and cold in room ($p<0.05$). However, no significant association was found between nutritional factor and ARI.

Keywords: ARI; Determinants; Under five children; Prevalence

Introduction

Acute Respiratory Infections are one of the leading and common causes of morbidity and mortality in human throughout the world affecting young infants, small children/under five children, elderly and person with impaired respiratory tract reserves [2]. The incidence and prevalence of ARIs are a great burden in low and middle income countries in comparison to high income countries. According to WHO, the annual number of ARI-related deaths in children less than five years old (excluding death caused by measles, pertussis and neonatal deaths) was about 2.1 million i.e., about 20% of all childhood deaths. Each year about 10.8 million children die due to ARI. Estimates indicate that in 2000, 1.9 million children died because of ARI, 70% of them in Africa and Southeast Asia [3]. The incidence of ARI stands first in Southeast Asia causing more than 80% of all the incidences along with Sub-Saharan African countries [4]. ARI is responsible to cause death of about 28,000 children in Nepal each year [5]. Nepal is diversified in socio-cultural, geographical and economical and many other aspects has so there are many factors that are associated with ARI and these factors varies from one country to another.

Objective

The objective of the study was to assess the prevalence and identify the determinants of Acute Respiratory Tract Infections among fewer than 5 children of Gorkha Municipality.

Materials and Methods

A cross sectional descriptive study was conducted on a total of 200 under five children in Gorkha municipality. Simple random sampling technique was applied for the selection of the sample of the study. Only the people willing to participate and who were present during the study were included in the study. Those youth who refused to participate and were absent during the study were not included in the study. Only one respondent was taken from each household. Mothers having fewer than five children were selected using systematic random sampling.

Ethics

Ethical approval was obtained from National Open College. Permission from Gorkha, municipality office was taken prior to the survey. The objectives of the study were explained to

each participant and informed written consent was obtained from each respondents. The confidentiality of the information gathered was assured.

Results

Socio-demographic characteristics

The total study population was 200. The respondents were mothers of children under the age of 5. The majority of the study population belonged to the age group of 36-48 months (27%). Sex wise distribution was almost equal male (54.5%) and female (45.5%). Respondents included five different castes following different religion. Most of them were janajatis (37.5%) and least were dalit (10%). Highest number of people was following Hindu religion (74.5%). Most of the respondent had nuclear family (58%). In comparison to educational status of father, highest percentage of population had only received primary education (24.5) similarly in case of mother's education status similar status was seen. 80% of the family had father as the head and most of them were farmers (39%). Main source of income was generated equally by agriculture and job (both 33.5%) followed by other profession.

The highest number of family (62%) had monthly income of 10000-20000. Most of the respondents had two children (42%). The greater numbers were living in houses made up of mud and stone with tin roof (52.5%). Almost all were living in their own house (81.5%) and few were living in rented house (18.5%). Most of the people had separate kitchen (66%) and 65.5% were using LPG as the main fuel for cooking. According to the present study, more episodes of ARI were seen during winter season (70%). Most of the respondents were exposed to dust, smoke, or other pollutants (54%). The houses were not well ventilated and 55.5/5 pf population had moisture and cold in their room.

Majority of the children (64.5%) under age five were breastfed for more than two years. 98% of the children were given the supplementation of vitamin A. 67.5% of the population didn't smoke cigarettes. The table provides information about the prevalence of ARI in children under age five. Out of the total sample, 21.5% of the children had ARI whereas 78.5% of the children had no ARI (Table 1).

Table 1: Prevalence of ARI.

	Frequency	Percent
Children who had ARI	43	21.5
Healthy children (no ARI)	157	78.5
Total	200	100

Association between study variables and ARI

From the above table it is clearly evident that there is a significant association between type of house and prevalence of ARI (p<0.05) (Table 2). There is significant association between presence of moisture and cold in surrounding or room and prevalence of ARI (Table 3). It is clearly seen that educational status of father is associated with prevalence of ARI (Table 4). The table clearly shows that there is significant association between crowding and ARI (Table 5).

Table 2: Type of house and ARI.

Type of house	ARI			P value
	Children who had ARI	No ARI	Chi-square	
mud and stone made roofed with strew/hay	2	13	9.228	0.026
	1.00%	6.50%		
mud and stone made roofed with tin	17	88		
	8.50%	44.00%		
brick and cement made with tin roof	11	15		
	5.50%	7.50%		
RCC building	13	41		
	6.50%	20.50%		

Table 3: Presence of moisture and cold in surrounding or room and ARI.

		Children who had ARI	No ARI	Chi-square	P value
Presence of moisture and cold in surrounding or room	Yes	17	94	5.653	0.017
	No	8.50%	47%		
		26	63		
		13%	31.50%		

Table 4: Educational status of father and ARI.

	Educational status	Children who had ARI	No ARI	Chi-square	P value
Educational Status	Illiterate	0	3	15.022	0.02
		0%	1.50%		
	literate(non formal education)	3	15		
		1.50%	7.50%		
	primary education(1-5)	6	43		
		3%	21.50%		
	lower secondary education(6-8)	7	27		
		20.60%	79.40%		
secondary education(9-10)	9	34			
	4.50%	17%			
higher secondary education(11-12)	13	14			
	6.50%	7%			
postgraduate/ degree/others	5	21			
	2.50%	10.50%			

Table 5: Crowding and ARI.

	Children who had ARI		No ARI	Chi-square	P value
Own house	No crowding	26	114	7.122	0.008
		16%	69.90%		
	Crowding	10	13		
		0.10%	8%		
	Children Who had ARI		No ARI	Chi-square	P value
Rented house	No crowding	6	30	4.405	0.036
		16.20%	81.10%		
	Crowding	1	0		
		2.70%	0%		

Discussion

Out of total sample population, 43 children (21.5%) were having ARI which was comparable to the studies done in the study Prajapati et al. [6] in Gujarat, India which found the prevalence to be 22% and the study in Tamilnadu, South India with the ARI prevalence of 27% [7]. This depicts that the prevalence of ARI in developing countries are on similar scale. The present study found significant association between educational status, crowding, type of house and presence of moisture and cold around the room with ARI. The findings revealed some socio-demographic and environmental factors as the determinants of ARI in developing countries and particularly in Nepalese community in Gorkha. This study showed that the prevalence of ARI was high in children living in crowded condition.

The study found a significant association between prevalence of ARI and crowding in own house (p=0.008) and in rented house

(p=0.036). Comparable association was also seen between occurrence of ARI and overcrowding (p<0.001) in the studies done in India [8], (p<0.001) and (p=0.000) [9] and (p<0.001).

There was also a statistically significant association between the prevalence of ARI and type of housing (p=0.026). The finding is comparable with the findings of (p<0.001) which identified prevalence of ARI was more in children living in kutcha house (52.6%). A significant association was found between educational status of father and prevalence of ARI (p=0.020) in the present study but was not seen to be associated with the educational status of mother. This finding is similar with the study done in Uganda [10], in Ethiopia, in India, in Nepal [11].

The present study also found a significant association between presence of moisture and cold in room and prevalence of ARI (p=0.017). The finding is comparable with the finding of the study done in India, wherein the results show that there was

association between dampness and occurrence of ARI ($p < 0.001$) in India [12].

However, no statistically significant association was found in the present study between LBW, status of breast feeding, supplements of vitamin A and ARI. The findings are similar with the study [13]. High prevalence was seen in children whose parents were smoking but was not statistically proven. This finding is similar to the study. Also no statistical association was found between use of cooking fuel and ARI and the finding is comparable with the study done by Bhaale et al. [10]. The prevalence of ARI was seen high in children in winter season (16%) but was not statistically proven. Also no statistically significant association was found between other demographic variable such as age, gender, religion, caste, type of family, and others [14].

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