

# Risk Factors for Acute Lower Respiratory Tract Infections in Children: Mothers' Perspective

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## 1 INTRODUCTION

Acute Lower Respiratory Tract Infections (ALRTIs) are leading causes for morbidity and mortality among children worldwide (Martins *et al.*, 2016). According to the literature, in low and middle-income countries, 6.9 million children have died in 2011 and about one fifth of these deaths were caused by ALRTIs (UNICEF, 2012). Furthermore, ALRTIs are the main cause of utilization of health services by children under five years in developing countries.

Therefore, identify the risk factors related to ALRTIs play a major role in the reduction of morbidity and mortality associated with the disease. Several studies done in many countries in the world have found that socio economic factors (low family income, high number of persons in household), low birth weight, poor parental education, malnutrition, seasonality, crowding, air pollution, household pollution, and smoking were major risk factors for acquiring ALRTIs among children play a critical role in this condition. (Prietsch *et al.*, 2008; Savitha *et al.*, 2007). A study conducted by Martins *et al.* (2016) have found that maternal characteristics (such as gestational and childbirth conditions),

use of preventive health services like vaccination and nutritional variables (birth weight, breastfeeding, and maternal nutritional status) have triggered the acquiring ALRTIs to children.

In Sri Lanka, ALRTIs are the leading causes of childhood mortality and morbidity (World Health Organization, 2008). Further, these are responsible for 37% neonatal deaths and 17% post-neonatal deaths in the country (World Health Organization, 2008). However, in Sri Lanka studies carried out to identify the risk factors associated with ALRTIs were limited. Accordingly, the purpose of this study is to identify the risk factors related to ALRTIs among children under 5 years as inscribed in the perspectives of the mothers in the Matara District. The mother is the major close caregiver and the primary diagnostic person of children. The specific objectives of the study were to assess the factors leading to ALRTIs in relation to the socio-demographical, practices, economic and environmental aspects.

## 2 METHODOLOGY

A quantitative, descriptive design was utilized in this study. The study was conducted in the Paediatric unit at the Teaching Hospital, Matara, during the



period January to March 2017. Mothers of children under five years of age with ALRTIs admitted to Paediatric unit at the Teaching Hospital in Matara were recruited for this study. Children with critical illnesses were excluded from the study. Data were collected from purposively selected sample of 213 mothers whose children suffered from ALRTIs. Written informed consent was obtained from every participant. Pre-tested, self-administrated questionnaire was used to collect data. It contained the demographic factors, practices, environmental factors and economic factors related to ALRTIs in children. Content validity and reliability were assured. Privacy and confidentiality of participants were secured throughout the study.

Ethical approval was granted by the ethical review committee, Faculty of Medicine, University of Ruhuna, Sri Lanka. Data analysis was done with descriptive statistics using Microsoft Excel software.

### 3 RESULTS AND DISCUSSION

Two hundred and two mothers who have children with ALRTIs were studied. The response rate was 94.8%. Collected data were presented under four main categories: demographic factors, practices, environmental factors and socio-economic factors.

**Table 1:** Socio demographic factors related to Lower Respiratory Tract Infections

Socio demographic factors		Frequency (n=202)	Percentage (%)
Gender	Male	120	59.4
	Female	82	40.6
Age	1 months - 1 years	28	13.9
	1 - 3 years	98	48.5
	3 - 5 years	76	37.6
Attend pre-school/not	Pre schooling	121	59.9
	No pre schooling	81	40.1
Age of mother	Below 18 years	40	19.8
	18 - 25 years	30	14.9
	26 - 40 years	113	55.9
	Over 41 years	19	9.4
Education level of mother	No formal education	2	1.0
	Up to grade 5	9	4.5
	Up to grade 8	25	12.4
	Up to G.C.E O/L	91	45.1
	Up to G.C.E A/L	37	18.3
	Higher education	38	18.8



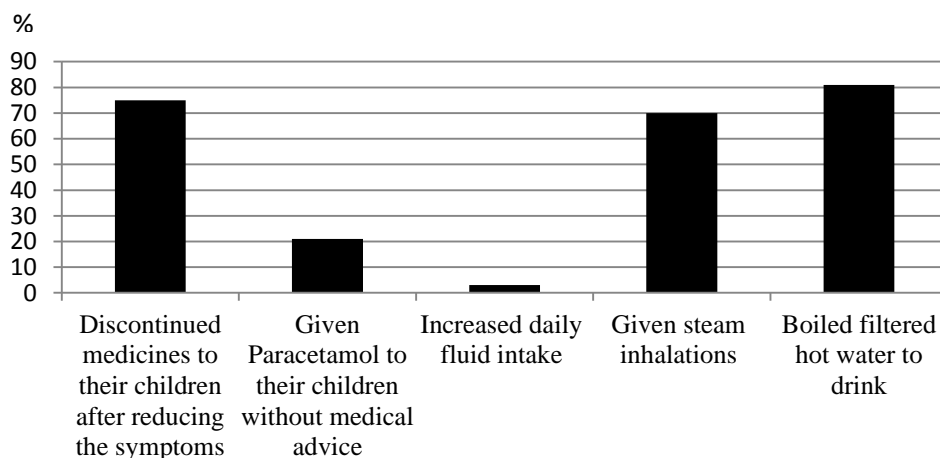
### 3.1 Demographic factors

The mean age of all participants was  $2.7 \pm 1.6$  years. The majority (n=98, 48.5%) of children were being between one to three years age group, showing that they may be at highest risk to ALRTIs. This was evidenced by the contemporary study carried out by Chen *et al.*, (2014). They highlighted that children were more susceptible for infections than adults due to immature immunity.

When considering the gender of the children, 59.4% (n=120) were male. Further, 59.9% children with ALRTIs attended pre-school. In view of the mothers' aspects, the majority of mothers were between 26-40 years and about half of them (n=91, 45.1%) were educated only up to General Certificate of Education (Ordinary Level) (Figure 1).

### 3.2 Practices of mothers regarding children with ALRTIs

In view of the practices of mothers in relation to ALRTIs, more than 75% of the mothers have discontinued medicines for their children after the reduction of the symptoms of ALRTIs. Sommer (2011) also revealed that high mobility and mortality associated with ALRTIs among children in Indonesia were mainly due to discontinuation of medical management. Therefore, the findings of the present study emphasized that discontinuation of medicine may be one of the risk factor for ALRTIs. Furthermore, 21% of mothers had given Paracetamol to their children without medical advice; only 3% of mothers had increased daily fluid intake of the child while majority of them had given steam inhalations and boiled filtered hot water to their children during the period of ALRTIs.



**Figure 1:** Practices of mothers regarding children with ALRTIs

### 3.3 Economic factors

In identifying financial barriers, 56.5% of mothers were unemployed while the majority of them had monthly family income less than 15,000 Sri Lankan rupees. In fact a similar study carried out in Brazil has found that poor financial status was a significant risk factor for acquiring ALRTIs among children

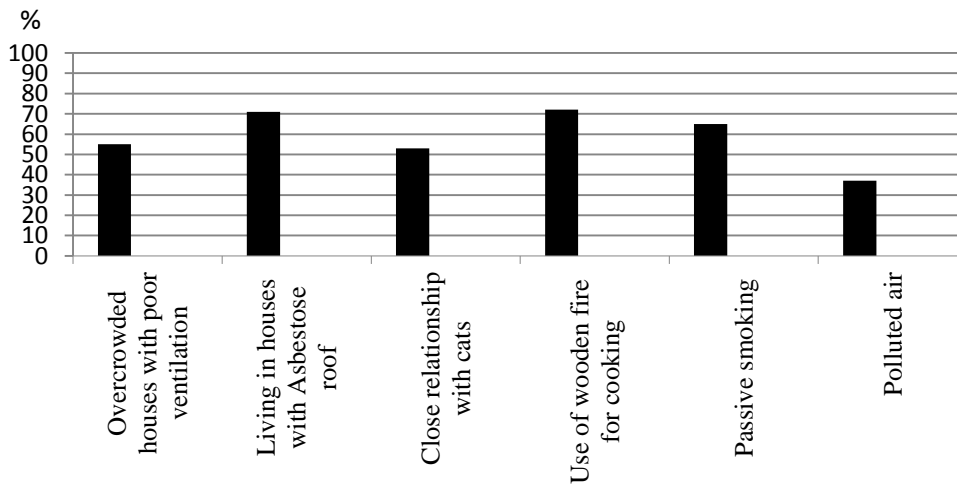
(Prietsch *et al.*, 2008). Because, it leads to poor living facilities, poor nutrition and poor mental health which cause reduction of immunity in children (Prietsch *et al.*, 2008). Therefore, present study highlights that children from low income families are more susceptible for ALRTIs.

### 3.4 Environmental factors

According to the study findings, more than half the children lived in houses where there were only 2 bed rooms with poor ventilation and sanitation. Comparable results have been obtained by a contemporary study done by Prietsch *et al.* (2008). They revealed that poor sanitation and housing conditions acted as risk factors for ALRTIs. Therefore, the present study further emphasizes that poor living conditions and lack of proper ventilation may be a risk factor for ALRTIs among children. Besides, living in houses with Asbestose roof was another risk factor for ALRTI cases. More than half of the mothers revealed that their children had close relationship with pets: 53.4% with cats, 40.8% dogs (Figure 1). A similar study done in Sri Lanka has (Dharmage *et al.*, 1996) pointed out that having a close relationship with pets such as cats and

dogs was a significant risk factor for acquisition of ALRTIs. Hence, present study further suggested that close relationship with pets as also a key factor for ALRTIs among children. Moreover, the respondents of the present study further reasoned out that use of wooden fire for cooking and passive smoking as risk factors which increase the chance of ALRTIs acquisition. Comparable results have been obtained by the contemporary studies carried out by Smith (2000) and Kar *et al.*, (2013). They showed that use of wood stoves had 80% increased occurrence of respiratory illness such as chronic cough, bronchitis, chest illness, wheeze or asthma.

The majority of mothers perceived that they believed polluted air as a significant risk factor for ALRTIs cases. For instance, polluted air causes the asthma condition and it leads to ALRTIs.



**Figure 2:** Environmental factors related to LRTIs



## 4 CONCLUSIONS

According to the present study findings, socio-demographic factors, such as age between 1 to 3 years, male gender, and lower level of education among mothers were common risk factors for ALRTIs among children. The study further pointed out that discontinuation of medicine as one of the major factor which increases the susceptibility of children to ALRTIs. Moreover, environmental factors such as domestic gasses, passive smoking, close relationship with pets, polluted environment e also increased the risk of ALRTIs acquisition. Furthermore, poor socio economic conditions were the main factor which influenced the acquisition of ALRTIs among children in the Matara District. Health intervention programs, widespread immunization against causative agents (virus/bacteria), and proper home care management of children should be recommended to control and prevention of ALRTIs.

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