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Original Research

Prevalence of acute respiratory infection among under-five children in rural areas

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***ABSTRACT*:**

Background: Acute respiratory infections (ARIs) contribute to major disease associated mortality and morbidity among children under 5 years. **Aim of the study:** To study prevalence of acute respiratory infection among under-five children in rural areas. **Materials and methods:** The present study was conducted in the Department of Community Medicine of the Medical institution. For the study population, children under age of 5 years in rural areas were selected. The study population was estimated at 200. Random sampling technique was used to select the study population from the rural areas. An informed written consent was obtained from the parents/guardians. Tool used A predesigned, pre-tested, semi-structured and validated questionnaire was administered by an interview method to the parent/guardian, preferably to the Mother. **Results:** In the study population, 39 subjects were <1 year age and 161 were in between 1-5 years. The number of males was 112 and females was 88. 172 subjects were of hindu belief and 28 were of muslim belief. It was observed that ARI was more prevalent in <1 year age children. Female children were more prone to ARI as compared to males. Furthermore, hindu children were seen to be more prone to ARI as compared to muslim children. **Conclusion**: Within the limitations of the present study, it can be concluded that the prevalence of ARI among under-five children was found to be 46.63 %. The ARI was more prevalent in children less than one year age.

Keywords: ARI, prevalence, respiratory infections, under five children

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INTRODUCTION:

Acute respiratory infections (ARIs) contribute to major disease associated mortality and morbidity among children under 5 years. [1] The existing evidences on ARI are focused on the burden of illness around urban slums and hence lack representative and reliable data resulting in under estimation of ARI prevalence. Shift in the infectious disease etiology from gram positive to gram negative organisms is not well-recognized by health care providers who often under utilize novel rapid diagnostic methods and/or irrationally use antibiotics leading to increased burden of ARI. [2,3]

In developing countries, close to 50% of all deaths in the community are among under-five age group children (WHO comprise 13% of the general population). Among under-fives, ARI cause specific mortality in 20-25%. On this basis, one million deaths among under-fives in our Country are due to ARI and most of these occur in infants. [4] Cause specific mortality due to ARI is 10 to 50 times higher in developing countries than developed countries. In our country, 14.3% of deaths during infancy and 15.9% of deaths between 1-5 years of age are due to ARI. [5, 6] Hence, the present study was conducted to study prevalence of acute respiratory infection among under-five children in rural areas.

MATERIALS AND METHODS:

The present study was conducted in the Department of Community Medicine of the Medical institution. The ethical clearance for the study was approved from the ethical committee of the hospital. The study period was one year. For the study population, children under age of 5 years in rural areas were selected. The study population was estimated at 200. Random sampling technique was used to select the study population from the rural areas. An informed written consent was obtained from the parents/guardians. Tool used A predesigned, pre-tested, semi-structured and validated questionnaire was administered by an interview method to the parent/guardian, preferably to the Mother. Information regarding demographic details of the family, socioeconomic status, housing condition including fuel used for cooking factors indicating indoor air pollution and history of ARI in last 2 weeks was collected.

The statistical analysis of the data was done using SPSS version 11.0 for windows. Chi-square and Student's t-test were used for checking the significance of the data. A p-value of 0.05 and lesser was defined to be statistically significant.

RESULTS:

In the present study, a total of 200 children under the age of 5 years were studied. Table 1 shows the distribution of study population based on age, gender and religion. In the study population, 39 subjects were <1 year age and 161 were in between 1-5 years. The number of males was 112 and females was 88. 172 subjects were of hindu belief and 28 were of muslim belief [Fig 1]. Table 2 shows the association of ARI with demographic variables. It was observed that ARI was more prevalent in <1 year age children. Female children were more prone to ARI as compared to males. Furthermore, hindu children were seen to be more prone to ARI as compared to muslim children. The results on comparison were found to be statistically significant for age ($p<0.05$).

Table 1: Distribution of study population based on age, gender and religion

Variables		Frequency (n)
Age (in years)	<1	39
	1-5	161
Gender	Male	112
	Female	88
Religion	Hindu	172
	Muslim	28

Fig 1: Distribution of study population based on age, gender and religion

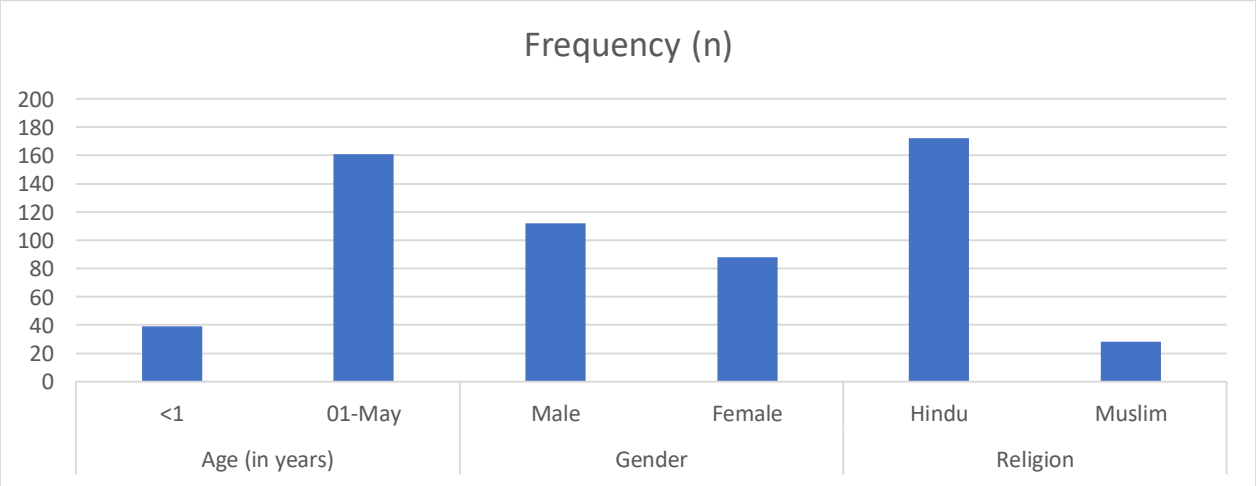

Table 2: Association of ARI with demographic variables

Variables		ARI		Total	p-value
		Yes n (%)	No n (%)		
Age (in years)	<1	23 (58.9)	16 (41.1)	39 (100)	0.002
	1-5	70 (43.5)	91 (56.5)	161 (100)	
Gender	Male	45 (40.2)	67 (59.8)	112 (100)	0.52
	Female	42 (47.8)	46 (52.2)	88 (100)	
Religion	Hindu	80 (46.5)	92 (53.5)	172 (100)	0.26
	Muslim	11 (39.3)	17 (60.7)	28 (100)	

DISCUSSION:

In the present study, we studied a population of 200 rural children under the age of 5 years. The study population consisted of 112 males and 88 females. In our study population, ARI was more prevalent in <1 year age children. Female children were more prone to ARI as compared to males. Furthermore, hindu children were seen to be more prone to ARI as compared to muslim children. The results on comparison were found to be statistically significant for age. The results were compared with previous studies from the literature. Kumar SG et al [7] estimated the prevalence of ARI and selected associated factors among under-five children. A community-based cross-sectional study was conducted in urban and rural areas of Puducherry, India. Data were collected from 509 parents of under-five children regarding ARI incidence along with socio-demographic and selected associated factors. Overall prevalence of ARI was observed to be 59.1%, with prevalence in urban and rural areas being 63.7% and 53.7%, respectively. Bivariate analysis indicated that overcrowding, place of residence, and mother's education were significantly associated with ARI. Multiple logistic regression analysis suggested that presence of overcrowding (adjusted odds ratio [AOR] = 1.492), urban residence (AOR = 2.329), and second birth order (AOR = 0.371) were significant predictors of ARI. They concluded that the prevalence of ARI is high, particularly in urban areas. Improvement of living conditions may help in reduction of burden of ARI in the community. Savitha AK et al [8] evaluated the risk factors that contribute to occurrence of ARI among the under 5 children. This community based cross sectional study was carried out among 380 rural under five children in Kancheepuram district, by systematic random sampling method. They reported that prevalence of ARI among under five children was 41.6%. The prevalence of ARI was predominant among boys (50.6%) and those residing in semi pucca and kutcha type of house (50.3%) with poor ventilation (61.3%), history of parental smoking (57%), respiratory infection among family members (51.1%) children who did not cry immediately after birth because of any complication (60.9%), and malnourished children (66.4%).

Dagne H et al [9] evaluated the prevalence of, and risk factors associated with, acute respiratory infection hospitalization in under-five years children hospitalized at the University of Gondar Comprehensive Specialized Hospital. An institution-based cross-sectional study was carried out from May 01/2019 to July 10/2019. After the selection of participants using simple random sampling, face to face interview was performed using a semi-structured pre-tested questionnaire. Data were also extracted from medical registration charts. Four hundred and twenty-two under-five years' children attending the Pediatrics ward were included in this study. The prevalence of acute respiratory infection among under-five years' children in this study was 27.3%. Children aged below 12 months, maternal age of 16 to 27 years, maternal age of 28 to 33 years, lack of maternal awareness of handwashing, rural residence, and lack of meningitis, were significantly associated with acute respiratory infection. They concluded that acute respiratory infection was common among children under-five years. Child and maternal age, residence and maternal hand hygiene information were significant factors identified to be associated with an acute respiratory infection. Rahman MM et al [10] determined the prevalence and risk factors of the disease among under five children in a rural community. Three villages were randomly selected from the Ghoraghat thana of Dinajpur district. All under five children were followed once a month for consecutive four months and all the target variables were checked and recorded in the questionnaire. 566 out of the total of 965 under five children had ARI episodes during the study period. The prevalence of ARI in the community was 58.7%. However, the incidence in both sexes were 14.7%. It was 14.9% and 14.4% in male and female respectively. The mean number of episodes of ARI was 1.75 per child per year. Among studied risk factors, malnutrition (63% vs. 37%), illiteracy (64% vs. 36%), poverty (62% vs. 38%), overcrowding (62% vs. 38%) and parental smoking (61% vs. 39%) were found in significantly higher proportions in ARI victims compared to those without ARI. These observations emphasize the need for research aimed at health system to determine the most appropriate approaches to control acute respiratory infection and thus could be utilized to strengthen the ARI control programme.

CONCLUSION:

Within the limitations of the present study, it can be concluded that the prevalence of ARI among under-five children was found to be 46.63 %. The ARI was more prevalent in children less than one year age.

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