IOSR Journal of Nursing and Health Science (IOSR-JNHS)
e-ISSN: 2320–1959.p- ISSN: 2320–1940 Volume 10, Issue 6 Ser. IV (Nov. – Dec. 2021), PP 01-06
www.iosrjournals.org

To assess the incidence and associated factors of ARI among under five children in a rural community

Ms. Shreejita Maity[1], Ms. Saptaparna Jana[2], Ms. Sampa Bera[3], Ms. Samima Aktar Banu[4],Ms.Sharmistha Saha[5], Ms. Mita Mondal[6], Ms. Naoshekpam Suniakumari Devi[7]

[1]*(Clinical instructor, Calcutta Nursing Training Institute Kolkata, West Bengal, India)*
[2]*(Nursing Incharge and Quality Manager, Mass Clinic and Hospital, Tamluk, West Bengal, India)*
[3]*(Tutor, Desun Nursing School, North 24 PGS, Kolkata, West Bengal, India)*
[4]*(Tutor, Jiaganj School and College of Nursing, Murshidabad, West Bengal, India)*
[5] *(Tutor, Islamia Hospital School of Nursing, Kolkata, West Bengal, India)*
[6]*(Staff Nurse, North City Hospital and Neuro Institute Kolkata, West Bengal, India)*
[7]*(Associate Professor, Charnock College of Nursing, Kolkata, West Bengal, India)*

Abstract:
Background: *Acute respiratory infections are commonly occurring among the children who lead to morbidity and mortality. Acute Respiratory infection account for 4 million of 15 million child deaths in the world annually, globally 32-60% of pediatric outpatient attendance. In developing countries close to 50% of all deaths in the community are among below 5 children. In our country 14.3% of deaths during infancy and 15.9% of deaths between 1.5 years of age are due to ARI. The aim of the study was to assess the associated factors (ventilation status, overcrowding, type of fuel used for cooking, indoor smoking by family member, immunization and nutritional status of child) of ARI and incidence of ARI among under 5 children in a rural community Reckjoani.*
Materials and Methods*: A non-experimental descriptive research design is used for the study. 70 samples from rural community, Reckjaoni, Kolkata were selected by purposive sampling technique and target population of children was under 5 years of age. The data was collected by using structure questionnaire and observation checklist* ***Results:*** *The data were analyzed by using descriptive and inferential statistics. The incidence and associated factors of ARI among under five children was computed by frequency distribution and chi square. The calculated chi value shows that there was significant relationship between the associated factors and demographic variables of acute respiratory tract infection under 5 year children at 0.05 level of significance. So there is presence of alternative hypothesis in immunization till present age, breast feeding , exclusive breast feeding, type of ventilation, type of family, number of family members, history of contact, type of fuel used for cooking ,technique used to prevent mosquito bite, economic factor and hereditary factors with the demographic variables.*
Conclusion*: After detailed analysis, the conclusions were drawn based on the findings of the study- The study findings revealed that associated factors such as ventilation status, overcrowding, type of fuel used, nutritional status, area of living, history of contact, immunization status etc are responsible for developing Acute Respiratory Infection among children under 5 years of age. Findings also signified that demographic characteristics like age of child, birth weight, education of parents also responsible for the occurrence of ARI in those children.*

Key Word: *Incidences, Associate Factors, Acute Respiratory infection*

Date of Submission: 01-12-2021 Date of Acceptance: 15-12-2021

I. Introduction

Acute respiratory infections contribute to major disease associated mortality and morbidity among children under five years. Over the period 2000 to 2003 it is estimated that each year there are 10.6 million deaths in children under five years. Four communicable diseases (malaria, pneumonia, diarrheal disease and measles) accounted for 54%of these deaths and ARI alone for just over 2 million deaths. The existing evidence on acute respiratory tract infection focus on the burden of illness around urban slums and hence lack representative and reliable data resulting in under estimation of ARI prevalence. It is estimated that in the first two years of life each child experiences 8-9 episodes of ARI each year. It assess three principal signs to determine severity namely rapidity of breathing, chest in drawing and inability to feed. Shift in the infectious disease etiology from gram positive to gram negative organisms is not well recognized by health care providers

who often underutilize novel rapid diagnostic methods and/or irrationally use antibiotics leading to increased burden of ARI. Although a few studies have claimed efficacy and impact of vaccines (Hemophilus influenza pneumococcal vaccines) in reducing the respiratory infections, ignorance and other competing priorities are major hurdles against implementing the newer vaccines in control of acute respiratory tract infection. Within these circumstances, this review is focused toward the sensitization on disease burden, etiology and state of newer vaccines against ARI in India. During our community posting, there was man children below five years were suffering from ARI. Hence the Investigators decided to find out whether it is associated with the demongraphic variables

II.Material and Methods

Study Design: Non experimental descriptive research design
Study Setting: Reckjaoni BPHC, North 24 parganas, Kolkata, West Bengal.
***Study Duration*:** 18- 30th November 2019.
***Sample size*:** 70 samples under 5 children were selected from rural community Rackjaoni.
Sample selection Methods: Non probability convenience, purposive sampling technique

Inclusion criteria:

- Children who are under 5 years of age.
- Those mothers who are willing to participate in this research study.
- People who at least can read and write as they have to give the answers of the questions.

Exclusion criteria:

- Children who are not under 5 year of age.
- Children who are not coming at BPHC with acute respiratory tract infection symptoms.
- Those mothers who are not willing to participate in the research study.

Procedure Methodology:

Subjects were selected by assessing and identifying the sign and symptom to collect the background information and to determine whether the sample meet the inclusion criteria. Patients who met the criteria were assigned to include in the sample. Each day the duration of data collection was 8 hours. After written informed consent was obtained, a well-designed questionnaire was used to collect the data for the study. The questionnaire include the socio-demographic characteristics such as age of child, gender of child, birth weight, present weight of child, height of child, term of child, place of delivery, mother's education and fathers education. An observation checklist was used to assess the sign and symptom of acute respiratory tract infection under five year's children.

Ethical clearance:

Ethical clearance was obtained from Principal Madam of Charnock College of Nursing, Vice Principal madam of Charnock College of nursing...and BMOH sir from Reckjoani .No physical or psychological pain was caused to the participants. Confidentiality was maintained throughout the study.

Statistical analysis

The collected data were analyzed using descriptive and inferential statistics according to the stated objectives. Frequency and percentage were used to measure the demographic variables. Chi-square test was done to determine the associated factors (ventilation status, overcrowding, type of fuel used for cooking, indoor smoking by family member, immunization and nutritional status of child) among the under 5 year's children.

II. Result

In the present study the obtained data was organized, tabulated, analyzed and interpreted under three sections.
Section –I: Demographic characteristics of samples.

Table 1: Frequency and percentage distribution of demographic characteristics of samples N= 70

Serial no	Criteria	Frequency	Percentage
1.Age of child	1 to 12 months	29	41.42%
	12 to 24 months	25	35.71%
	24 to 36 months	11	15.71%
	36 to 48 months	3	4.28%
	48 to 60 months	2	2.85%
2.Gender	Boy	43	61.42%

	Girl	27	38.57%
3.Birth Weight	<2.5 kg	21	30%
	2.5 to 3.5 kg	41	58.57%
	>3.5 kg	8	11.42%
4.Weight of Child	2 - 9.5 kg	36	51.42%
	9.5 - 17 kg	34	48.57%
5. Height of Child	14 to 28 inch	24	34.28%
	28 to 42 inch	46	65.71%
6. Term of Child at Birth	Full term	51	72.85%
	Preterm	19	27.14%
7. Place of delivery	Institutional Delivery	67	95.71%
	Home delivery	3	4.28%
8. Mother,s Education	No formal education	8	11.42%
	Up to primary	46	65.71%
	Up to higher secondary	14	20%
	Graduation and above	1	1.42%
9. Fathers Education	No formal education	12	17.14%
	Up to primary	39	55.71%
	Up to higher secondary	17	24.28%
	Graduation and above	2	2.85%

Data presented in table 1 revealed that 41.42% of children are between 1 day to 12 months and 2.85% of children are between age group of 48 to 60 months, 61.42% children are boy and 38.57% are girl children, 30% have <2.5 kg, 58.57% have birth weight of 2.5 to 3.5 kg and 11.42% have > 3.5 kg, 51.42% have weight of 2 to 9.5 kg and 48.57% have 9.5 to 17 kg, 65.71% have height of 28 to 42 inch and 34.28% have height of 14 to 28 inch, 72.85% are full term baby and 27.14% are preterm baby, 95.71% are institutional delivery and 4.28% are delivered in home delivery , 65.71% of child's mother have up to primary education and 1.42% have graduated and above studies and 51.71% of child's father have up to primary education and 2.85% have graduated and above studies.

Section II: Frequency and percentage of sign and symptoms of ARI among the samples. N=70

SL NO	CRITERIA	FREQUENCY	PERCENTAGE
1.	**Fever**	56	80%
2.	**Sneezing**	57	81.42%
3.	**Rhinitis**	51	72.85%
4.	**Blocked nose**	44	62.85%
5.	**Nasal flaring**	32	45.71%
6.	**Cough**	66	94.28%
7.	**Wheezing sound**	46	65.71%
8.	**Hoarseness of voice**	20	28.57%
9.	**Unable to eat and drink**	49	70%
10.	**Unable to sleep**	51	72.85%
11.	**Whole body fatigue**	36	51.42%
12.	**Sore throat**	7	10%
13.	**Ear discharge**	3	4.28%
14.	**Grunting sound**	3	4.28%
15.	**Rapid breathing**	8	11.42%
16.	**Chest in drawing**	2	2.85%
17.	**Cyanosis**	1	1.42%

Table no 2: Shows that the data represents are 94.28% of children have symptoms of cough, 80% of children have fever , 81.42 % of children have sneezing and 1.42% of children have symptoms of cyanosis due to ARI.

Section - III: Associated factors of ARI with demographic variables among under five Years children

Table 3: Chi square test of associated factors of ARI with demographic variables N=70

Sl. No.	VARIABLES	DEGREE OF FREEDOM	TABULATED CHI-SQUARE VALUE	CALCULATED CHI-SQUARE VALUE
1	**IMMUNISATION WITH DEMOGRAPHIC VARIABLES:**			
	Height of the child	2	5.99	7.32
	Term of child at birth	2	5.09	6.59
	Father's education	6	12.59	18.18
2	**BREAST FEEDING WITH DEMOGRAPHIC VARIABLES:**			

	Age of child	4	9.49	9.69
	Mother's education	3	7.82	2.94
3	**EXCLUSIVE BREAST FEEDING WITH DEMOGRAPHIC VARIABLES:**			
	Term of child at birth	2	5.99	18.84
	Place of birth	2	5.99	7.43
	Father's education	6	12.59	13.98
4	**VENTILATION AND SOCIO DEMOGRAPHIC VARIABLES:**			
	Place of birth	1	3.84	3.95
5	**TYPE OF FAMILY AND SOCIO DEMOGRAPHIC VARIABLE:**			
	Father's education	3	7.82	7.91
6	**No. OF FAMILY MEMBER AND DEMOGRAPHIC VARIABLE:**			
	Term of child at birth	2	5.99	17.13
7	**HISTORY OF CONTACT AND DEMOGRAPHIC VARIABLES:**			
	Birth weight	2	5.99	6.01
8	**TYPE OF FUEL USED FOR COOKING AND DEMOGRAPHIC VARIABLES:**			
	Height of the child	1	3.84	4.04
9	**TECHNIQUES USED TO PREVENT MOSQUITO BITE AND DEMOGRAPHIC VARIABLE:**			
	Height of the child	3	7.82	7.88
	Term of child at birth	3	7.82	7.9
	Mother's education	9	16.92	16.93
10	**ECONOMIC FACTORS WITH DEMOGRAPHIC VARIABLES:**			
	Gender of child	2	5.99	6.81
	Mother's education	6	12.59	55.23
11	**HEREDITARY FACTOR AND DEMOGRAPHIC VARIABLE:**			
	Age of child	4	9.49	9.86
	Father's education	3	7.82	7.88
12	**NUTRITIONAL STATUS WITH DEMOGRAPHIC VARIABLES:**			
	Gender of child	2	5.99	6.43
	Weight of the child	4	9.49	9.89

P= 0.05 (Level of significance)

Table 3: Data represents that out of 70 samples, these are the following factor which was associated

- There is significant association between height of the child, term of the child and father's education in socio demographic variable with immunization status as evidence by tabulated chi-square value that is lower than calculated value at o.o5 level of significance.
- There is significant association between age of the child and mother's education in socio demographic variable with breast feeding as evidence by tabulated chi-square value that is lower than calculated value at o.o5 level of significance.
- There is significant association between term of the child, place of birth and father's education socio demographic variable with exclusive breast feeding as evidence by tabulated chi-square value that is lower than calculated value at o.o5 level of significance.
- There is significant association between place birth of socio demographic variable with types of ventilation as evidence by tabulated chi-square value that is lower than calculated value at o.o5 level of significance.
- There is significant association between father's education of socio demographic variable with type of family as evidence by tabulated chi-square value that is lower than calculated value at o.o5 level of significance.
- There is significant association between term of child at birth of socio demographic variable with number of family members as evidence by tabulated chi-square value that is lower than calculated value at o.o5 level of significance.
- There is only significant association between birth weights of the child in socio demographic variable with history of contact as evidence by tabulated chi-square value that is lower than calculated value at o.o5 level of significance.
- There is only significant association between heights of the child in socio demographic variable with type of fuel used in cooking as evidence by tabulated chi-square value that is lower than calculated value at o.o5 level of significance.
- There is significant association between height of child, term of child at birth and mother's education of socio demographic variable with technique used to prevent mosquito bite as evidence by tabulated chi-square value that is lower than calculated value at o.o5 level of significance.
- There is significant association between mother's education and gender of child of socio demographic variable with economic factor as evidence by tabulated chi-square value that is lower than calculated value at o.o5 level of significance.

- There is significant association between age of child and father's education of socio demographic variable with hereditary factor as evidence by tabulated chi-square value that is lower than calculated value at o.o5 level of significance.
- There is only significant association between weights of the child and gender of the child in socio demographic variable and nutritional status as evidence by tabulated chi-square value that is lower than calculated value at o.o5 level of significance.

III. Discussion

The major findings of the present study are discussed in relation with the findings of other studies. In this study majority of the samples belong to 12 months (41-42%) and very less sample from 48 to 60 months (2.85%), boys are more than girl child, maximum birth weight of the children falls between 2.5-3.5 kg, 72.85% children are full term and 27.14% are preterm. 95.71% children were born in hospital and 4.28% were born at home. 65.71% mothers are primary education and 55.71% fathers are also primary education.

Findings related to signs and symptoms of ARI: 80% children were suffering from fever, 81.42% children have sneezing, 72.85% children having, 62.85% children have blocked nose, 45.71% children have nasal flaring, 94.28% children are having cough, 65.71% children have wheezing, 28.57% children are having hoarseness of voice, 72.85% children are unable to eat, 51.42% children have body fatigue,10% children are having sore throat, 4.28% children have ear discharge, 4.28% children have grunting sound, 11.42% children are have rapid breathing, 2.85% children have chest in drawing, 1.42% children have cyanosis.

Findings related to associated factors of ARI: There were significant associations between the following

- Height, term of gestation and father's education with immunization status.
- Age and mother's education with breast feeding,
- Term of gestation, place of birth and father's education with exclusive breast feeding,
- Term of child at birth with number of family members,
- Birth weights of the child with history of contact,
- Heights of the child with type of fuel used in cooking,
- Height of child, term of child at birth and mother's education with technique used to prevent mosquito bite,
- Mother's education and gender of child with economic factor,
- Age of child and father's education with hereditary factor, weights of the child and gender of the child with nutritional status

As evidence by the tabulated chi-square value were lower than the calculated value at o.o5 level of significance. So the null hypothesis was accepted

IV. Conclusion

The following conclusions were drawn based on the findings of the study- The study findings revealed that associated factors such as ventilation status, overcrowding, type of fuel used, nutritional status, area of living, history of contact, immunization status etc are responsible for developing Acute Respiratory Infection among children under 5 years of age. Findings also signified that demographic characteristics like age of child, birth weight, education of parents also responsible for the occurrence of ARI in those children.

References

[1]. Islam.F.Sarma.R.Debroy.A.Kar.S.Pal.R.Aeross settonal on profiling acute respiratory infection in children under 5 age group. Journal of Global Infectious disease 2013.8.14.
[2]. Sharma.P.Kuppusshamy.K.Bhoorasamy.A. Prevalence of acute respiratory infection and their determinants in under 5 age group children in urban and rural areas of Kanchipuram district in South India .Institute of Medical sciences and Research 2013.513-558
[3]. Walked.P.Das.R.Aernarya.AA.Pemde.H.K.A Prospective study on incidence, pattern and severity of ARI.International Scholar Research 2014.
[4]. Digunakan.E.Kumar.K.Raj.G.A cross sectional study of acute respiratory tract infection among under 5 children's, Journal of Global infectious disease 2014.95-98
[5]. Ujuncoa.F.Ezeona. Risk factors for acute respiratory tract infections in under 5 children's .Annual of Medical and Health sciences Research 4(1)-2014:95-99
[6]. General .S.A.Worku.A.Berhane .Factors associate with acute respiratory infections in children under 5 age group .Paediatric health, medicine and therapeutic 2014.9.13.
[7]. Galit.A.kumar.S.Somenath Maharaja .ARI in under 5 children with associated risk factors .Med Science 201t:1-5.
[8]. Alemjhu.S.Kidanu.K.Kassa.M.Risk factors of acute respiratory tract infections among under 5 children.BMC Paediatric 2016-2017:380
[9]. Islam.F.Saruna.R.Debroy.A.Kar .S.Pal. Profiling acute respiratory infection in children from Assam, India .Journal of Glob
[10]. Nirmolia. N. Talik.G.Baruah.M.Rasaily.R.Kotoky.R.P. Prevalence and risk factors of pneumonia in under 5 age group .Clinical epidemiology and global health 6(2017)1-4.
[11]. 11)Ramanik.V, Pathankar.J, A longitudinal study of ARI among under five age group children at urban slums of Gulbarga city (journal of clinical and diagnostic research.2016) JCLIN OOAGN RES,2016, M af;10(5)ICO8-IC13

[12]. Kumar.S.G.Majumder.A.Kumar.V.Prevalance of ARI among under five children in urban and rural areas of Puduchery, India. [Journal of natural science Jan-Jun; 6(1):3-6
[13]. Goel.K.Annand.S.Agarwal.G.Goel P.A cross sectional study on prevalence of ARI in under five children of Meerut district .India community mod health Education.
[14]. Savitha.A.K.Gopalakrishna.S.Determinant of acute respiratory infections among under five children in a rural area of Tamilnadu,
[15]. India.Jfamily.MedPriv.2018 nov-dec; 7(6):1268-1273
[16]. Shivaprakash.NC.Kutty.DN.Magnititude of acute respiratory infections in 6 months -6 years in a rural hospital in BG Nagra: a cross sectional study .Adichuchanagiri Institute of Medical sciences .2017
[17]. Tanzinja.A, Halle Khan, E, Thenese.M.Risk factors of acute respiratory infections in children under 5 years BMC pulmonary medicine (2018)18:7
[18]. Denge.H.Anualn.Z.Tadddese.AA.Acute respiratory infection and its associated factors among children under 5 years, a cross sectional study.3MC Paediatrics (2020)120:93.
[19]. Gebert.SA.Worku.A.Berhane.y.factors associated with acute respiratory infection in children under five age.Pediatric health, Medicine and Therapeutic.2014.9-13.
[20]. Gahlot.A.Kumar.S.Somnath.Mahaja pc.ARI in under five children with associated risk factors med sci .2015:1-5.
[21]. Hassen.S.Sisay.T.Determinants of acute respiratory infections among under five children: A matched case-control study .International journal of infectious disease.2019.688-699
[22]. Akinyemi.JO.Monakngo.OM.Household environment and symptoms of childhood acute respiratory tract infctions.BMC infectious disease (2018).296
[23]. Cox.M.Rose.L.Kaula.K.A cross sectional study on the prevalence and risk factor for ARI.Euorope PMC.2017, 11(6):489-496
[24]. Dutta. P. Paediatric Nursing.3rd Ed. New Delhi: Jaypee Brothers Medical Publishers Ltd; Haryana: 2014
[25]. Swarnakar. K. Community Health Nursing.3rd edition. Indore: N R Brothers Publishers; 2017.pg-530-531
[26]. Manivanam. SD. Textbook of community Health Nursing ii.1st edition. New Delhi: CBS; Publishers and Distribution private ltd; 2018.pg 43
[27]. Perk. K. Preventive and social medicine.24th edition. Jabalpur: M\S Banarasidas Bhanot publishers; 2017.pg-177-184
[28]. Sharma K S. Nursing Research and statistics.3rd ed.Haryana: ELSVIER; 2018 Pg. 163,354,364
[29]. Kurian S. Textbook of Paediatric Nursing .1st Ed .Bangalore: EMMESS; 2016.Pg 212-215

Ms. Shreejita Maity, et. al. "To assess the incidence and associated factors of ARI among under five children in a rural community." *IOSR Journal of Nursing and Health Science (IOSR-JNHS)*, 10(06), 2021, pp. 01-06.