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STUDY OF BIRTH RELATED FACTORS AND INCIDENCE OF ARI AMONG INFANT IN SLUM AREA OF MEERUT

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ABSTRACT

Every year about 12 million children in developing countries die in first five year of life. Acute respiratory infections (ARI) are responsible for 19% of these deaths.[1] The situation in India in very much same as is most other developing countries. Therefore, it is a appropriate that we review the progress that has been made and plan strategies to reduce this high mortality.[2] ***Objective:*** to find out birth related factors and Incidence of ARI in Infants in slum of Meerut. ***Method:*** cross sectional study. ***Results:*** the overall fortnightly ARI incidence in Infants was 55.0%. The incidence of ARI was found to be lower in infants of birth order one (46.0%) compared to infants of birth order four and above (70.3%). Incidence of ARI among infants was higher (64.4%) in those infants having birth weight less than 2.5 kg than those infants having > 2.5 kg birth weight (31.1%) The incidence of ARI was higher in infants born at home (59.3%) than those having institutional delivery (42.6%). The incidence of ARI was minimum (16.4%) in infants who were delivered by doctor and maximum (78.2%) in infants who were delivered by an untrained Dai.

KEYWORDS: ARI, fortnightly Incidence, LBW, birth order, untrained dai.

INTRODUCTION

The disease burden for Acute Respiratory Infections (ARI) is estimated at 94037000 DALYs and 3.9 million deaths ARI are among the leading cause of death in children under 5 years but diagnosis and attribution are difficult and uncertain. Another difficulty is that ARI are often associated with other life-threatening disease such as measles. Study reports 62% of all deaths are excluded the proportion falls to 24%. Better estimates of burden of children pneumonia are needed and should be given high priority. A recent meta-analysis study demonstrated that throughout the world 1.9 million (95% CI 1.6 -2.2 million) children died from ARI in 2000, 70% of them in Africa and South East Asia. The proportion of declines from 50 to 20 and then to 10/1000 per year.[3]

Nearly 25 percent of outpatient visits and 15% of all hospital admissions in young children are for ARI.[4] The link between urbanization, a degraded environment, inaccessibility to healthcare and a deteriorating quality of life is significant and particularly evident in sharp inequities in IMR if one looks at urban specific[5]

MATERIAL AND METHODS

the present cross-sectional study was conducted among the under five children belonging to the slum population of Meerut city through WHO's standard 30 cluster sampling technique. Sample size for estimating the incidence was obtained from WHO's sampling size determination ready Reckoner.[6] Taking the confidence level of 95% with relative precision of 5%, the sample size came to be 1537 children. Taking 5% non response a minimum of 1651 children were covered in the study. 30 clusters were drawn out of 96 slums areas in probability proportion to size. 55 children 0-59 months of age will be covered in each of the cluster, final sample consist of 1650 children in 30 clusters.

Data was collected on predesigned and pretested schedule through house to house visit starting from random house by interviewing mother/other responsible member of the household for ARI morbidity (by two week recall period) and supplemented with anthropometric measurement and general examination of the children.

RESULTS

Table 1 gives the age and sex wise distribution of population. Of the total population 52.6% were males and 47.4% were females giving a sex ratio of 902 females /1000 males A total of 1651 under five children were included in the present study constituting 18.9% of

the total population. Infant constituted 3.2% while 1-4 years children were 15.7% of the population.

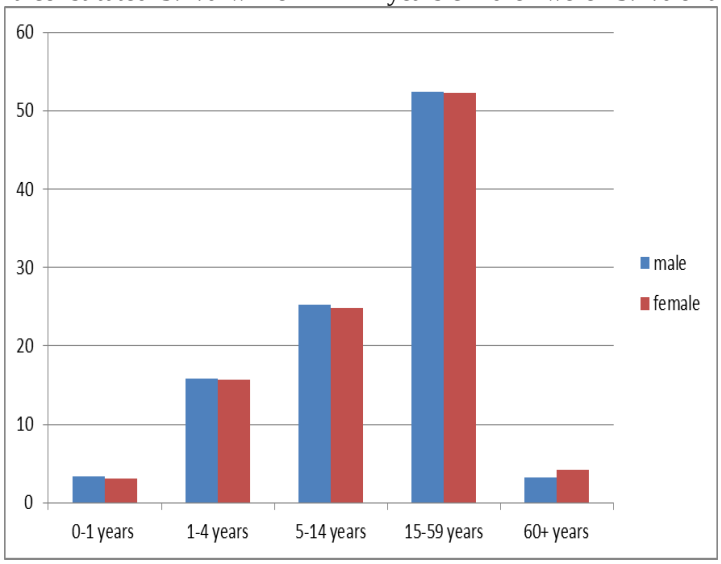

Table: 1 Age and sex wise distribution of population

Age Groups (Years)	Male		Female		Total	
	No.	%	No.	%	No.	%
0-1	156	3.4	126	3.1	282	3.2
1-4	721	15.8	648	15.7	1369	15.7
5-14	1153	25.2	1024	24.8	2177	25.1
15-59	2394	52.4	2155	52.2	4549	52.3
60+	148	3.2	171	4.2	319	3.7
Total	4572	52.6	4124	47.4	8696	100.0

The table-2 shows that the birth weight of 163 (75.5%) infants could not be known while 45 (8.9%) infants had birth weight less than 2.5 Kg and 74 (15.6%) infants had birth weight more than 2.5 Kg. The incidence of ARI had a statistically significant association with the birth weight of infant ($p<0.001$) as the incidence of ARI was only 31.1% among the infants having birth weight > 2.5 kg as compared to 63.2% and 64.4% among the infants whose birth weight was not known and was < 2.5 kg respectively.

Table: 2 Distribution of infants and ARI cases according to their birth weight.

Birth weight	Total Infants		ARI Cases	
	No.	%	No.	Incidence (%)
Not known/ not taken	163	75.5	103	63.2
< 2.5 Kg	45	8.9	29	64.4
>2.5 Kg	74	15.6	23	31.1
Total	**282**	**100.0**	**155**	**55.0**

$\chi^2_{(2)} = 21.23$ ($p < 0.001$)

Table-3 shows the distribution of infants and ARI cases according to their birth order. Maximum children were of second birth order (45.0%) followed by third birth order (32.3%). and 9.6% of infants were of birth order four or more. The incidence of ARI was found to be lower in infants of birth order one (46.0%) or two (44.1%) as compared to infants of birth order three (69.2%) or four and above (70.3%) and this difference in incidence of ARI in relation to birth order of infant was found to be statistically significant ($p< 0.001$).

Table-3 Distribution of infants and ARI cases according to their birth order

Birth order	Total Infants	ARI Cases		
	No.	No.	Incidence (%)	%
One	37	17	46.0	13.1
Two	127	56	44.1	45.0
Three	91	63	69.2	32.3
≥ Four	27	19	70.3	9.6
Total	**282**	**155**	**55.0**	**100.0**

$\chi^2_{(3)} = 17.35(p > 0.001)$

Table-4 shows that only one fourth (25.9%) of infants had institutional delivery and majority (74.1%) of infants were born at home. The incidence of ARI was significantly higher (p<0.02) among infants born at home (59.3%) than in those infants having institutional delivery (42.6%).

Table-4 Distribution of infants and ARI cases in relation to place of birth

Place of Birth	Total Infants		ARI Cases	
	No.	%	No.	Incidence (%)
Institutional	73	25.9	31	42.5
Home	209	74.1	124	59.3
Total	**282**	**100.0**	**155**	**55.0**

$\chi^2_{(1)} = 6.21 (p < 0.02)$

It may be seen from table -5 that about the one third (35.8%) of infants were delivered by untrained Dai while 25.9% and 38.3% infants were delivered by doctor and trained birth attendant respectively.

It is also evident from table-5 that incidence of ARI was minimum (16.4%) in infants who were delivered by a doctor and maximum (78.2%) in infants who were delivered by an untrained Dai and this difference in incidence of ARI among infants in relation to person conducting delivery was found to be statistically significant (p<0.001).

Table-5 Distribution of infants and ARI cases according to person conducting delivery

Delivery conducted By	Total Infants		ARI Cases	
	No.	%	No.	Incidence (%)
By Doctor	73	25.9	12	16.4
Trained birth attended	108	38.3	64	59.2
Untrained Dai	101	35.8	79	78.2
Total	**282**	**100.0**	**155**	**55.0**

$\chi^2_{(2)} = 100.7 (p < 0.001)$

DISCUSSION

The recent cross- sectional study was conducted in the population of slum area of Meerut city. A total of 1526 families, comprising of 8696 individuals were surveyed. There were 4572 males and 4124 females giving sex ratio 902/1000 males which was comparable to sex ratio of 830/ 1000 males in rural area of Meerut Garg (1980)[7] 905/1000 males as reported by Parasher (1995)[8] in different communities of Meerut city.

In the present study there was a significant difference in the incidence of ARI among the infants who had birth weight lower than 2.5 kg (64.4%) and birth weight more than 2.5 kg (31.1%) and in those infant in whom birth weight was not known or not taken incidence (63.2%) in contrast, Bano (1996),[9] found no significant relationship in the incidence of ARI birth weight of infants.

In the present study maximum infants (45.0%) belonged to 2nd birth order in the family followed by 32.3% infants to 3rd birth order and infants 13.1% and 9.6% infants belong to Ist and four or more birth order in the family. Kaushik (1993)[10] reported 27.0%, 18.7%, 23.0%, 16.3% and 15.0% birth order of Ist, 2nd, 3rd, 4th and >5 respectively.

The incidence of ARI was found to rise with increasing birth order. i.e. 46.0%, 44.1%, 69.2% & 70.3% for 1st, 2nd, 3rd and ≥ 4 more birth order. The higher incidence of ARI in children of higher birth order may be contributed to various factors viz. Lesser attention by mother, overcrowding, low per capita income, low spacing of pregnancies etc. Kaushik (1993)[10] also found that incidence of ARI increased with increasing birth order, being 42.9%, 65.9% and 77.0% with 3rd, 4th and 5th birth order respectively.

In present study 25.9% of infants were born in institution and remaining 74.1% of infants had been born at home.

In the present study there was high incidence of ARI in those infants who were delivered at home (59.3%), than (42.5%) in those who were delivered at an institution

In the present study, 25.9% infants were delivered by Doctors, 38.3% by Trained birth attendant and rest 35.8% of infants by untrained Dai.

The incidence of ARI was also maximum (78.2%) in those infants who were delivered by untrained Dai while it was 59.2% and 16.4% in infants who were delivered by trained birth attendant and by doctor respectively. Which may be due to reason that parents of those infants born at home of untrained dai may be more ignorant about proper child rearing.

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