ABSTRACT
Research Question: what is the fortnightly ARI incidence under five children’s in slum Meerut?. Objective: to find out socio-demographic profile of ARI under five children’s. Study design: cross sectional study. Statistical analysis: chi-square test. Results: the overall fortnightly ARI incidence in under five children’s were 59.4%. Majority of the ARI incidence were more in Muslim religion 66.2% as comparsion to Hindu’s children’s 51.1% and more in lower socioeconomic class 72.8%.

KEY WORDS: ARI, Chi squire, fortnightly Incidence, Socio-economic status.

INTRODUCTION
Every year 12 million children in developing countries die in first year of life. Acute Respiratory Infection (ARI) are responsible for 19% these deaths. In India Urban population with concomitant growth of population residing in slum has resulted over stemming of infrastructure and deterioration in public health. In India acute respiratory infection occur more frequently than any other illness including diarrhea. Majority of ARI episode are self limiting infections of viral origin such as cough or cold.

As we planning to achieve “Millennium Development Goals by 2015 A.D to reduced under- five mortality by two – thirds” a control of ARI has assumed a greater importance. At present most of the research in to child health problems is concentrated on rural area and more work is needed in urban slums if the health problems of the future are to be successfully confronted. Keeping in the view in the above factors the present study was carried out with the aims to study the socio-demographic correlates of ARI among the under five children in Meerut slums.

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. 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 predesign 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
Of total 1651 children covered in present study 877 (53.1%) males & 774 (46.9%) were females an under five giving a sex ratio of 822.

In all 981 children were found to have an episode of ARI during last 15 days accounting for the fortnightly incidence of 59.4%. The incidence was significantly higher in children above 2 months of age (60.3%) than children below 2 months of age (26.7%). The ARI incidence was found to be statistically more in male children (61.8%) than female children (56.7%) as shown in table 1.

Religion and cast wise distribution of ARI cases was shown in table-2 revealed a significantly higher incidence of ARI (p<0.001) among the children belongs to Muslims religion (66.2%) as compared to Hindu religion (51.5%). It may further be seen from the table-2 that statistically significant difference was found in incidence of ARI in under five children belongs to
different cast in Hindus as the incidence of ARI was much higher in scheduled caste children (62.5%) as against 29.8% among the children of Savaran caste Hindus as shown in table -2.

The ARI incidence was apparently more in joint families 60.3% than nuclear families 58.8% yet the difference was not found to be statistically significant (p>0.05). However incidence of ARI was found to be increase with increase in family size (p<0.01) as shown in table-3.

It is evident from the table-4 that the incidence of ARI among under five children was minimum in upper middle socio-economic class (39.2%) and maximum in lower class (72.8%). This difference in ARI incidence in relation to socio-economic class was found to be statistically significant (p<0.001).

### Table 1: ARI in relation to age and sex of children

<table>
<thead>
<tr>
<th>Age in months</th>
<th>Male children</th>
<th>Female children</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>ARI cases</td>
<td>Total</td>
</tr>
<tr>
<td>Below 2</td>
<td>25 (2.9%)</td>
<td>7 (28.0%)</td>
<td>20 (2.6%)</td>
</tr>
<tr>
<td>2-11</td>
<td>131 (14.9%)</td>
<td>82 (62.6%)</td>
<td>106 (13.7%)</td>
</tr>
<tr>
<td>12-59</td>
<td>721 (82.2%)</td>
<td>453 (62.8%)</td>
<td>648 (83.7%)</td>
</tr>
<tr>
<td>Total</td>
<td>877 (53.1%)</td>
<td>542 (61.8%)</td>
<td>774 (46.9%)</td>
</tr>
</tbody>
</table>

\[ \chi^2 (1) \text{ (sex) } = 4.38 \text{ (p <0.05) } \]

\[ \chi^2 (2) \text{ (age) } = 20.44 \text{ (p<0.001)} \]

### Table 2: Religion and cast wise distribution of children and ARI cases

<table>
<thead>
<tr>
<th>Religion and cast</th>
<th>Total children</th>
<th>ARI cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Total Hindus</td>
<td>763</td>
<td>46.2</td>
</tr>
<tr>
<td>OBC</td>
<td>327</td>
<td>42.8</td>
</tr>
<tr>
<td>SC</td>
<td>235</td>
<td>30.0</td>
</tr>
<tr>
<td>Savaran</td>
<td>201</td>
<td>26.4</td>
</tr>
<tr>
<td>Muslims</td>
<td>888</td>
<td>53.8</td>
</tr>
<tr>
<td>Total</td>
<td>1651</td>
<td>100.0</td>
</tr>
</tbody>
</table>

\[ \chi^2 (2) \text{ (Hindu caste) } = 53.25 \text{ (p <0.001) } \]

\[ \chi^2 (1) \text{ (religion) } = 34.81 \text{ (p<0.001)} \]

### Table 3: ARI in relation to family composition

<table>
<thead>
<tr>
<th>Family composition</th>
<th>Total children</th>
<th>ARI cases</th>
<th>( \chi^2 )</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Type of family</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nuclear</td>
<td>1008</td>
<td>593</td>
<td>58.8</td>
<td>0.36</td>
</tr>
<tr>
<td>Joint</td>
<td>643</td>
<td>388</td>
<td>60.3</td>
<td></td>
</tr>
<tr>
<td>Family size</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤4</td>
<td>14</td>
<td>3</td>
<td>21.4</td>
<td>8.41</td>
</tr>
<tr>
<td>5-8</td>
<td>1581</td>
<td>941</td>
<td>59.5</td>
<td></td>
</tr>
<tr>
<td>≥9</td>
<td>56</td>
<td>37</td>
<td>66.1</td>
<td></td>
</tr>
</tbody>
</table>

### Table 4: Distribution of children and ARI cases according to socio-economic status of the family

<table>
<thead>
<tr>
<th>Socio-economic status</th>
<th>Total children</th>
<th>ARI cases</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Upper class</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Upper middle</td>
<td>261</td>
<td>15.8</td>
<td>102</td>
</tr>
<tr>
<td>Lower middle</td>
<td>498</td>
<td>30.2</td>
<td>316</td>
</tr>
<tr>
<td>Upper lower</td>
<td>682</td>
<td>41.3</td>
<td>410</td>
</tr>
<tr>
<td>Lower</td>
<td>210</td>
<td>12.7</td>
<td>153</td>
</tr>
<tr>
<td>Total</td>
<td>1651</td>
<td>100.0</td>
<td>981</td>
</tr>
</tbody>
</table>

\[ \text{*Modified Kuppuswamy’s S.E Scale } \chi^2 (3) = 67.53 \text{ (p<0.001)} \]

### DISCUSSION

In the present study incidence of ARI (26.7%) was much lower below 2 months of age in comparison to 60.3% among children among children 2-59 months of age. The lower ARI incidence in below 2 months may probably be related to the protection offered by breast feeding and presence of maternal antibodies. These finding are similarly with finding of Verma et al (1981), typasi et al (1990), chabra et al (1993), kaushik (1993) and Bano (1996). In the present study a significant difference in
the incidence of ARI was observed in males (61.8%) and in female children (56.7%). Dayal et al (1962)10 narien
1.7:1, and 1:4:1 respectively, where a finding of Wallia
tal (1985)13 and Bano (1996)9 did not find significant
difference in the incidence of ARI in two sexes.

ARI incidence were found to be lowest in Savaran
Hindus (29.8%) increased to 56.9% in OBC and highest
in scheduled caste 62.8% and ARI incidence religion
wise was higher in Muslims (66.2%) than Hindus
(51.5%). Similar finding were observed by kaushik
(1993)19 and Bano (1996)9 in urben population of
Meerut.

In the present study, a non significant difference in ARI
incidence was observed in the children belonging to joint
family (60.3%) and children of nuclear families (58.8%) where as kaushik (1993)19 found a higher incidence of
ARI in joint families while Bano (1996)9 found higher
incidence of ARI in nuclear families (58.0%) than children of joint families (45.9%).

The incidence of ARI was found to increase in families
with increase in family size i.e. 21.4%, 59.5% and 66.1%
in children living in families, having ≤4 member, 5-8
member and ≥9 member respectively. Kumar et al
(1983)14 also found higher attack rate of ARI in children
belonging to large families (3.9 episodes per child per
year) than children belonging to small families (2.4
episodes per child per year). Kaushik (1993)19 also
reported that incidence of ARI increase with in the
family size.

The ARI incidence in present study was maximum in
lower class (72.8%) with gradual decline with the
improvement with in socio-economic status being
minimum in upper middle class (39.1%). These findings
are approximate with those of Datta (1967),15 Vasudeva

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