**Original Article**

# RURAL URBAN DIFFERENTIALS OF TREATMENT SEEKING BEHAVIOUR FOR ACUTE RESPIRATORY INFECTION AMONG CHILDREN IN PUDUCHERRY

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## ABSTRACT

**Purpose:** To explore the rural-urban differentials with respect to treatment seeking behaviour and cost incurred for Acute Respiratory Infection (ARI) among under-five children.

**Methodology:** A community-based cross-sectional study was conducted in Puducherry among 270 under-five children. Data on treatment seeking behaviour and cost incurred was collected from the parents using a semi-structured questionnaire.

**Results:** The perceived severity of ARI episode was significantly higher among rural areas compared to urban (p=0.04). For consultation, majority preferred the government sector (63%) in rural and private sector in urban areas (51.2%). Main reasons for preferring type of consultation were proximity (61.1%) and trust (51.2%) in rural and urban areas respectively. Rural parents were significantly less satisfied with outside consultation (p=0.003). Home remedies were preferred by 17.9% and 10% parents in rural and urban areas respectively. Median direct cost incurred in both areas was Rs 250.

**Conclusion:** Differences in treatment seeking behaviour should be kept in mind while designing interventions.

**Key words:** ARI, Treatment seeking behaviour, rural-urban, under-five

## INTRODUCTION

Treatment seeking behaviours of parents for ARI are important factors in determining the course and outcome of an ARI episode in a child. NFHS – 3 data showed that in rural areas of India, only 67.5% of children who had ARI/fever in the last two weeks were taken to a health facility.[1] Up to 90% of childhood illnesses are first perceived, defined, and treated at home, mostly by the mothers, before being referred elsewhere for treatment.[2]Willis et al found that 26% of rural mothers do not seek treatment at a health care centre for the illness of their new-born child. 37% follow only home remedies and only 28% of mothers approach health care centre for treatment.[3]Reasons for these observations are usually a poor socio-economic status, lack of accessibility, cultural beliefs and perceptions, low literacy level of the mothers and large family size.

Supernatural concepts also play a role in treatment seeking behaviour for childhood illnesses. It was shown that in case of many illnesses, which were considered to be due to supernatural causes, approaching a health care centre was not preferred.[4] A study conducted in rural South India showed that health seeking altitude among mothers differed according to the disease.[5] Traditional healers were preferred for diarrhoea, home remedies for malnutrition and measles, and both home remedies and physician (either from private or government hospital was preferred for acute respiratory illness).

There hasn't been much focus on research regarding the rural-urban differentials of ARI in terms of important factors like cost of treatment and health seeking behaviour. Identifying these differentials along with the factors associated with care seeking in ARI will help the policy makers to make necessary changes in policies for urban and rural areas before implementa-

tion of programmes. This will in turn help in proper allocation of resources according to the felt need of the people. Understanding the common symptoms of ARIs is important for development of a simple triage system for case management (for example symptomatic relief) and referral by health providers at the grass root level.

The objective of the present study was thus to explore the rural-urban differentials with respect to treatment seeking behaviour and cost incurred for Acute Respiratory Infection (ARI) among under-five children.

## METHODS

The present study was a community-based cross-sectional study conducted among parents of under-five children residing in the urban and rural field practice areas attached to a medical institution in Puducherry.

Considering prevalence of ARI as 42.3% (from an earlier study conducted in India),[6] and taking an absolute precision of 7%, the sample size was 199. Considering a refusal rate of 20%, final calculated sample size was 239. To achieve this, one out of four urban slums was selected randomly by lottery method. Similarly two out of four villages were selected randomly. Hence one urban slum and two villages were finally selected. To attain the required sample size, it was planned to recruit 120 children from urban slum and 120 form rural area. Children aged less than 5 years of age, with parents living in the respective areas for at least 6 months, were included in the study.

Purposive sampling was used to select the sample of children from the respective areas. The study was conducted by house-to-house survey. The parents (mothers or fathers) of under-five children were interviewed. Mother of the child was approached first. If mother was not present at the time of visit/dead/refused to the interview, the father was interviewed. If both parents were unavailable, then a close relative was chosen as the key informant. If within a household, more than one child were present at the time of visit, one of them was selected randomly and recruited in the study.

Information for an ARI episode was obtained using a pre-tested semi-structured questionnaire by the medical interns who were supervised by the faculties throughout the process. In the present study, the operational definition of an ARI episode used was a child having at least one of the four recognisable symptoms of ARI within the preceeding two weeks of the home visit by the researchers (which might be associated with fever, chest retractions and fast breathing) i.e. cough, runny nose, ear discharge, and sore throat. The study elicited data on a single episode of the most recent illness within this period.

Informed consent was taken from all the parents who participated in the study before administering the questionnaire. All parents were given health education regarding preventive and curative aspects of ARI. Children having ARI were given proper management and referral to the respective urban and rural health centres when needed.

### Statistics

Data were entered in Microsoft excel 2007 and analysis was done using SPSS (Statistical Package for Social Sciences) software version 20.0. Chi-square test was used to find the out if any significant difference existed between rural and urban areas in terms of the parameters studied. p value for significance testing was set at the level of 0.05.

## RESULTS

A total of 270 children were finally recruited in the present study. Mothers were the key informant in 95.9% cases (259 out of 270), fathers in 10 cases, and grandmother in one case. Out of 270, 133 (49.3%) children were from urban slums and 137 (50.7%) from rural areas. Overall prevalence of ARI was found to be 50.4% (136/270). Urban prevalence was 60.2% (80/133) and rural prevalence was 43.1% (56/137).

Table 1 shows that median age of children suffering from ARI in urban slums was higher than that in rural areas. Among rural children with ARI, males constituted the majority, whereas in urban slums, females were more in number. Mother's education and median total family income did not differ much between urban slums and rural areas. Runny nose followed by cough were the commonest symptoms in both urban slums and rural areas.

Table 2 shows that greater proportion of parents living in rural areas perceived an ARI episode to be severe as compared to parents in urban slums (p=0.04). But the influence of this on treatment seeking behaviour did not vary much among the rural and urban. Resorting to home treatment was 17.9% and 10% in rural areas and urban slums respectively. Commonly used home remedies were Thulasi and Neem leaves.

For consultation, majority preferred the government sector (63%) over private sector in rural areas and private sector over government in urban slums (51.2%)[Table 3]. Main reasons for preferring type of consultation were proximity (61.1%) and trust (51.2%) in rural areas and urban slums respectively. 95% of parents of children with ARI in urban slums were satisfied with the outside consultation whereas 77.8% of rural parents were satisfied (p = 0.003). Median direct cost incurred by the parents' in both areas was Rs 250.

Median consultation fees, investigation cost and medication fees were Rs 100, Rs 1225 and Rs 150 respectively. Where all the consultation fees and medication costs were there for all the children going for private consultation, only two children had paid for investigation. There was no significant difference with respect to these expenditures between rural areas and urban slums (Data not shown).

**Table 1: Socio-demographic details and profile of ARI symptoms among study participants**

| Variables | Rural (n=56) | Urban (n=80) | Total (n=136) |
|---|---|---|---|
| **Age (in months)** | | | |
| Median (IQR) | 24 (12-42) | 33 (12-48) | 30 (12-46.5) |
| **Gender** | | | |
| Male | 35 (62.5%) | 43 (53.8%) | 78 (57.4%) |
| Female | 21 (37.5%) | 37(46.2%) | 58 (42.6%) |
| **Mother's Education** | | | |
| Illiterate | 1(1.8%) | 4 (5%) | 5 (3.7%) |
| Class (1-8) | 22 (39.3%) | 30 (37.5%) | 52(38.2%) |
| Class (>8) | 33 (58.9%) | 46 (57.5%) | 79(58.1%) |
| **Total Income** | | | |
| Median(IQR) | 5000(3000-5000) | 5000(4000-8000) | 5000(4000-6000) |
| **Symptoms** | | | |
| Cough | 48 (85.7) | 71 (88.8) | 119 (87.5) |
| Runny Nose | 56 (100) | 80 (100) | 136 (100) |
| Sore Throat | 0 (0) | 2 (2.5) | 2 (1.5) |
| Ear Discharge | 1 (1.8) | 0 (0) | 1 (0.7) |

**Table 2: Rural-urban differentials among parents of children with ARI with respect to perception of risk and treatment seeking behaviour (N=136)**

| Variables | Rural (n=56) | Urban (n=80) | Odd's Ratio (CI) | P value |
|---|---|---|---|---|
| **Perceived Severity of ARI episode** | | | | |
| Severe | 28 (50) | 26 (32.5) | 2.077 (1.029 -4.192) | 0.04 |
| Not Severe | 28 (50) | 54 (67.5) | | |
| **Influence of perceived severity on treatment seeking behaviour** | | | | |
| No Influence | 36 (64.3) | 43 (53.8) | 1.549 (0.768 – 3.123) | 0.22 |
| Influence | 20 (35.7) | 37 (46.2) | | |
| **Initial Type of treatment resorted to** | | | | |
| Home Remedies | 10 (17.9) | 8(10) | 1.757 (0.719 -5.32) | 0.18 |
| Consultation with a healthcare provider | 46 (82.1) | 72 (90) | | |

**Table 3: Treatment seeking behaviour among parents of children with ARI with respect to healthcare consultation (N=134)***

| Variables | Rural (n=54) | Urban (n=80) | P value |
|---|---|---|---|
| **Sector preferred for consultation** | | | |
| Private | 20 (37) | 41 (51.2) | 0.11 |
| Govt | 34 (63) | 39 (48.8) | |
| **Reasons for preference of particular consultation** | | | |
| Proximity | 33 (61.1) | 29 (36.2) | - |
| Trust | 15 (27.8) | 41 (51.2) | |
| Comfortable Timings | 3 (5.6) | 1 (1.2) | |
| Provision of free treatment | 0 (0) | 7 (8.8) | |
| Availability of Specialist | 3 (5.6) | 2 (2.5) | |
| **Satisfaction with consultation** | | | |
| Satisfied | 42 (77.8) | 76 (95) | 0.003 |
| Dissatisfied | 12 (22.2) | 4 (5) | |
| **Cost Incurred for the last episode of ARI (n=60)$** | (n=19) | (n=41) | |
| Expenditure in Rupees per/AR episode [(Median (IQ Range)] (Investigations, medications, consultation fees) | 250 (200-300) | 250 (175-355) | 0.75 |

* Out of 18 patients who resorted to Initial treatment by home remedies, 16 eventually took outside consultation. Parents of two children in rural area never went for outside consultation, thus parents of 134 children were asked regarding outside consultation; $ Data on expenditure was missing for one participant among the 61 parents who preferred private sector for consultation.

**Table 4: Persistence of symptoms after first consultation and treatment seeking behaviour among parents of children with persisting symptoms***

| Variables | Rural(n=56) | Urban(n=80) | P value |
|---|---|---|---|
| **Persisting symptoms** | | | |
| Absent | 37 (66.1) | 51 (63.8) | 0.78 |
| Present | 19 (33.9) | 29 (36.2) | |
| **Perceived requirement for seeking treatment among children with persisting symptoms (N=48)** | | | |
| No | 0 (0) | 6 (20.7) | - |
| Yes | 19 (100) | 23 (79.3) | |
| **Preference for consultation for children with (N=42)** | | | |
| Govt | 11 (57.9) | 15 (65.2) | 0.63 |
| Private | 8 (42.1) | 8 (34.8) | |

* If any one of the four studied symptoms persisted even after the first

There was not much difference among parents living in rural areas and urban slums, with respect to perceived requirement of seeking treatment and type of second consultation preferred, for children with persisting symptoms. (Table 4)

## DISCUSSION

In the present study, a larger number of parents living in rural areas perceived the ARI episode to be more severe as compared to parents living in urban slums. Similar to this, in a study from urban and rural South East Africa, 66.3% urban mothers and 79.8% rural mothers were aware of the severe symptoms of ARI.[7]

Page et al found that 6.6% of rural Nigerian mothers followed home remedies for their child's illness, whereas in the present study it was 13.2% for both urban and rural combined.[8] The availability, belief and greater influence of elderly people in child care within the Indian family set up might have contributed to this higher proportion.

The preference for treatment of ARI in private set up was higher in urban slums than in the rural areas, though difference was not significant. Similar results were reported by Rotti S et al and Dongre AR et al.[9,10]

The trust on the health care provider, availability, and proximity to the health centre/health care provider are important factors as under-five children have frequent ARI manifestations, which in turn require frequent heath care visits. Excessive referral also leads to lack of building of trust. Previous studies have shown that referral from government hospital to higher centre was a hindrance for health centre preference.[11,12,13]

In our study, about 5% (Rs 250) of the total median monthly income (i.e. Rs 5000) was spent on a single ARI episode, which is quite high, knowing that there are other health related expenditures in the family. In urban slums of Lucknow, mean out of pocket expenditure of 161.4 rupees and 79.7 rupees spent in each episode of Pneumonia and upper ARI respectively.[14]

One of the strengths of the present study is that it gives data for direct comparison between rural areas and urban slums in terms of treatment seeking patterns Most of the research done earlier on ARI in India has given data on treatment seeking behaviours from either rural or urban areas.

One of the limitations was that only direct health expenses were considered for the present study. Another point is that because of the lower subsample for urban and rural comparisons, many variables were not found to be statistically significant. Nevertheless, the clinical significance of the findings cannot be overlooked.

## CONCLUSION

We found that a greater proportion of parents of children with ARI living in rural areas perceived the last episode as severe when compared to urban parents. Similarly, there was a significant difference among rural areas and urban slums with respect to satisfaction resulting fromconsultation with a healthcare provider, with rural parents being significantly less satisfied. These factors should be kept in mind when designing child health programmes and Information Education Communication campaigns in rural areas and urban slums.

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