A Study on Morbidity Pattern in Under-Five Children between Urban and Rural Field Practice Areas of a Tertiary Care Hospital, Andhra Pradesh

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Abstract

Background: First few years of life are most crucial for the physical and psychosocial development of the child. The care in these few years almost reflects the entire life of a person both physically and mentally. The objective is to compare the morbidity pattern in under-five children in urban and rural field practice areas of a tertiary care hospital in Andhra Pradesh.

Methodology*:* A cross-sectional study in under five age children (6 months to 5 years) in urban and rural field practice areas.

Results & Conclusion*:* The prevalence of acute respiratory tract infections, acute diarrhoeal diseases and fever were found to be 34 %,5.3 % and 11.3 % respectively in rural areas and 26.7 %,1.3 % and 2.7 % respectively in urban areas. The difference is significant ($p = 0.003$). The significant difference($p<0.05$) was found between urban and rural areas in morbidity pattern, mothers' education, mothers' occupation, defecation practice ,indoor air pollution, initiation of breastfeeding, exclusive breastfeeding, water purification practices, birth weight of the children, immunization status.

Keywords: acute respiratory tract infections , morbidity, under-five children ,urban rural gap

Introduction

Children constitute most of the vulnerable groups of the population and constitute the majority of the population who are more prone for the morbidities, especially infections. Any adverse influences during this period may result in severe limitations in this age group is most affected by various common and easily treatable illness. Three in four episodes of childhood illnesses are caused by one of these conditions - acute respiratory tract infections (pneumonia), diarrhoea, measles, malaria, malnutrition or a combination of these conditions. These causes became the most common causes of morbidity and mortality in under five-year children. (1)

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Child mortality or the under-five mortality rate refers to the probability of a child dying between birth and exactly 5 years of age, expressed per 1,000 live births. In 2020, 5.0 million children under 5 years of age died. This translates to 13,800 children under the age of 5 dying every day in 2020. Globally, infectious diseases, including pneumonia, diarrhoea and malaria, remain a leading cause of under-five deaths, along with preterm birth and intrapartum-related complications.

The global under-five mortality rate declined by 61 per cent, from 93 deaths per 1,000 live births in 1990 to 37 in 2020. Despite this considerable progress, improving child survival remains a matter of urgent concern. In 2020 alone, roughly 13,800 under-five deaths occurred every day, an intolerably high number of largely preventable child deaths. [2]

More than half of under-5 child deaths are due to diseases that are preventable and treatable through simple, affordable interventions. [3] Infectious diseases like diarrhoea, acute respiratory infections, malaria and whooping cough are the world's leading cause of morbidity and premature death especially in children in developing countries. 6.9% of deaths in children were attributed to respiratory infections, 2.2% to malarial fever and 2.0% to other childhood diseases. [4]

Finally, to help understand the changing urban-rural gap in child health and nutritional status, the investigator tries to examine possible linkages: whether urban children are better off than rural children in terms of nutritional status, socioeconomic profile, proper health care utilization and how these two factors between urban and rural areas are changing the trends in child health.

Aims & Objectives

To compare the morbidity pattern in under-five children in urban and rural field practice areas of a tertiary care centre ,Andhra Pradesh.

Methods

Study Design: Cross-sectional study **Study population:** Under-five (6 months to 5 years) age children in urban and rural field practices Study period : 6 months (November 2019 – April 2020)

Inclusion criteria: Children from six months to five years of age

Sample size: Taking into consideration of National Family Health Survey - 4 factsheet of Andhra Pradesh, number of diarrhoea cases in under five children reported to health facility in last two weeks preceding the survey in urban areas and rural areas respectively is P1=83.2 % and P2 = 69.4 % .

$$n = \{(1-\alpha/2) + z\_(1-\beta)\} \times 2 \times p\,(1-p) / (p1-p2)^2$$

Where $(1-\alpha/2) = 1.96$

$(1-\beta) = 0.84$

$p1 = 83.2\ \%$

$p2 = 69.4\ \%$

$p = (p1 + p2)/2 = 76.3$

$n = 149$

Thus the sample required for each group group is 149

Total sample size is 298 rounded off to 300.

Exclusion criteria:

1. Children below six months
2. Congenital anomalous child
3. Severely ill child
4. Children who were absent for at least three consecutive visits
5. A non-cooperative child while taking anthropometry
6. Parents who did not give consent.

Sampling method: Systematic random sampling was followed. Every 10th house was selected for the study.

Ethical considerations: The study population will be explained the purpose of the study, and consent will be taken from the subjects in the local language. This study is purely descriptive in nature, and no drug intervention is included. Ethics committee approval is obtained from the institution.

Study tools:

A pre-tested questionnaire was used for collecting the required information. Data was collected from the mothers of the children under five years of age

regarding socio-demographic profile, any existing illness, past morbid conditions of the child and clinical examination along with anthropometric measures was done in urban and rural field practice areas .

Results

Table 1. Prevalence of morbidity among the study population

MORBIDITY	URBAN		RURAL	
ADD	2	1.30%	8	5.30%
ARI	40	26.70%	51	34%
FEVER	4	2.70%	17	11.30%
UTI	5	3.30%	3	2%
NO HISTORY	99	66%	71	47.30%
TOTAL	150	100.00%	150	100.00%

*ADD – Acute diarrhoeal diseases , ARI – Acute respiratory tract infections ,

UTI – Urinary Tract Infections

Chi-square = 18.217 df = 5

p value = 0.003

Prevalence of acute respiratory tract infections, acute diarrhoeal disease and fever are higher in rural areas when compared to urban areas, and the difference observed is found to be significant statistically.

Table 2. Nutritional status of the study population.

GRADING OF MALNUTRITION BASED ON MID UPPER ARM CIRCUMFERENCE	PLACE OF STAY	
	URBAN	RURAL
Severe malnutritiion (<11.5 cm)	43(28.7%)	49(32.7%)
Moderate malnutrition (11.5 - 12.5 cm)	65(43.3%)	60(40%)
Mild or no malnutrition (>12.5cm)	42(28%)	41(27.3%)
TOTAL	150	150

Chi-square = 0.603 df = 2

p value = 0.740

There is no significant difference in the grading of malnutrition (according to MUAC) between urban and rural areas.

Table 3. Association of the utilization of Anganwadi services among the mothers of study population and place of stay

ANGANWADI SERVICES	PLACE OF STAY	
	URBAN	RURAL
TAKEN	96(64 %)	108(72 %)
NOT TAKEN	54(36 %)	42(28 %)
TOTAL	100 %	100 %

Chi-square = 2.206 df = 1

p value = 0.137

In this study, among 150 study population each in rural and urban areas,39.3% belong to the age group of 12 – 23 months and 44.7 % respectively. Female children outnumber male children in both urban and rural areas.

In the urban area, 55.3% of the study population belongs to Hindu religion, 22.7 % of the study population belong to the Muslim religion, 22 % of the study population belong to Christianity as compared to in the rural area, 60% of the study population belong to Hindu religion, 22.7% of the study population belong to the Muslim religion, 18 % of the study population belong to Christianity.

Most of them, i.e., 35.3% belong to the middle socioeconomic class in both urban and rural areas, 32 % belong to the upper-middle class in urban and rural areas. The difference is not significant.(p=0.766)

In urban areas,50.7% of the fathers have education above the intermediate, and above and in rural areas, it is 43.3%. Illiteracy is higher in rural areas (14%) than in urban areas (6%). The difference in the fathers' education is not significant between urban and rural areas.(p=0.223)

In the rural area, 90% of the fathers are employed, and 10% are unemployed as compared to in the urban area where 94.7% are employed, and 5.3 % are unemployed. (p=0.129)

In urban areas, 36% of the mothers' have education up to primary school, and in rural areas, it is 28.7%. Illiteracy is higher in rural areas (16.7%) than in urban areas (5.3%). The difference in the mothers' education is significant between urban and rural areas.(p= 0.034)

In the rural area, 46.7 % of the study population have overcrowding, 51.3 % of the study population have no overcrowding as compared to in the urban area, 46 % of the study population have overcrowding, 54% of the study population have no overcrowding.

Table No 4 . Association of immunization status and place of stay

IMMUNIZED UP TO DATE	PLACE OF STAY	
	URBAN	RURAL
YES	123 (82%)	136(90.7%)
NO	27 (18%)	14(9.3%)
TOTAL	150 (100%)	150 (100%)

Chi-square = 4.774 df = 1

p value = 0.043

Discussion

In this study, the prevalence of acute respiratory tract infections, acute diarrhoeal diseases and fever were found to be 34 %,5.3 % and 11.3 % respectively in rural areas and 26.7 %,1.3 % and 2.7 % respectively in urban areas. The difference is significant (p = 0.003). In rural areas, the social factors like overcrowding, sanitation, indoor air pollution etc. may contribute to the increased prevalence of infectious diseases than the urban areas.

In a study conducted by Goel et al. (2012) [5] , the prevalence of ARI was found to be 52%. It was higher in children with lower socioeconomic status (35.89%), illiterate mother (49.14%), overcrowded conditions (70.94%), inadequate ventilation (74.35%), and use of smoky chullah (56.83%), malnutrition (26.49) and parental smoking (78.20%)

In a study conducted by Ahmed et al. (2008) [6] , period (last 15 days) and point (24 hr), prevalence rates of diarrhoeal diseases among children under the age of 5 years were calculated which came to the order of (25.2%) and (9.3%) respectively. Prevalence of diarrhoea decreased significantly with increased age and in summer months.

In this study, in a rural area, 32.7% of the study population suffer from severe malnutrition, 40 % have moderate malnutrition and 27.3 % have mild or no malnutrition. In the urban area, 28.7 % of the study population suffer from severe malnutrition, 43.3 % have moderate malnutrition and 28 % have mild or no malnutrition. The difference is not significant (p = 0.740).

In a study conducted by Gaurav et al. (2014) [7] in Nepal, seventeen per cent of under- 5 children were moderately, and 10.4 % were severely underweight.

In this study, the prevalence of low birth weight of the children is higher in rural areas than in urban

areas, and the difference is significant (p=0.000).

In a study conducted by Kaur et al [8], the prevalence of low birth weight infants was 6.38%. Rural mothers had more low birth weight infants than urban women (9.8% vs 2.0%, $p = 0.03$).

Low birth weight depends on both maternal, placental and foetal factors right from the intrauterine life. Prevalence of low birth weight is more in rural areas than in urban areas due to poor maternal nutrition during the antenatal period in rural areas.

There is a significant difference between urban and rural areas in the immunization status of the study population due to the availability of immunization services is easy in rural areas. (p=0.043).

In a study conducted by Bhatt et al. (2015) [9], proportions of fully immunized children (12 – 23 months) were 86.4% (urban) and 83.4% (rural) and those "not vaccinated at all" were 2.3% (urban) and 1.6% (rural). DPT/ OPV booster coverage (24 – 35 months) were 87.5% (urban) and 74% (rural) were main hurdles in completing immunization. Reasons for missing doses were sickness of a child, and no felt need, fear of adverse effects following immunization (AEFI), unawareness about session site etc.

Summary and Conclusion

Being the majority of the Indian population belong to rural areas, the accessibility, affordability of the health services is still doubtful in remote regions of the country.

This study gives an explicit knowledge of the urban-rural disparities in the under-five children health status, and the findings may help out to move towards the erasing the gap.

The following strategies should be followed to reach the target:

1. Consideration of maternal and child component of health as a single entity.
2. Strengthening of existing maternal-child services through proper implementation of the plan and programme.
3. Identifying at-risk children and prompt intervention.
4. Overall improvement of the socioeconomic, environmental factors responsible for the urban-rural gap.

Conflict of interest: Nil

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