A cross sectional study to assess the morbidity pattern among under five year old children in urban Chitradurga, South India

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ABSTRACT

Background: Children under 5 years of age constitute approximately 15% of the country’s total population. First 1000 days of life is the most crucial period, as this age is known for high growth rate and development. They constitute most vulnerable section of the society and suffer from highest morbidity. Good personal hygiene and sanitary condition of living now forms a part of primary health prevention strategy and it is found to be effective for reducing morbidity and mortality in children.

Methods: It’s a community based cross sectional study among 150 children of less than five years of age for a period of 4 months from November 2018 to February 2019 in the urban field practice area of Basaveshwara Medical College and Hospital, Chitradurga.

Results: In our present study we found respiratory tract infection is the predominant ailment followed by gastrointestinal clinical features accounting for 39% and 33% respectively. Though the factors like birth weight, immunisation of majority of population were fair but in later years of life found that weight for height was not achieved as per standard protocol among major of the study population.

Conclusions: By health education for the caretaker regarding mother-crafting and satisfactory environmental condition can reduce the prevalence of morbidity.

Keywords: Morbidity pattern, Under five year, Urban

INTRODUCTION

Children under 5 years of age constitute approximately 15% of the country’s total population and are the most vulnerable section of the society and suffer from highest morbidity. First 1000 days of life is the most crucial period, as this age is known for high growth rate and development.1 The growing children are nutritionally vulnerable and they are future citizens of the country, the strength and pride of the nation depends on their health.2 The major diseases affecting this age group are acute diarrheal diseases, acute respiratory infections, anaemia, and diseases of skin, eye, ear, etc.3 Children are at greater risk of these diseases, if they are born in rural areas, poor household or to mothers with poor basic education. Several environmental targets and indicators include water, sanitation, and air pollution are also relevant to this group.4 These diseases can easily be prevented by promotion of nutrition, personal hygiene, early diagnosis and treatment.5 Good personal hygiene now forms a part of primary health prevention strategy and it is found to be
effective for reducing morbidity and mortality in children.\(^6\)

According to National Family Health Survey-IV (NFHS-IV) in Karnataka, 1.2% and 4.5% of mothers of children under the age of 5 years reported that their children suffered from acute respiratory infection (ARI) and diarrhoea, respectively. And only 76.9% of ARI children and 69.7% of diarrhoea children were taken to a health facility.\(^7\)

Due to lack of epidemiological data about morbidity pattern among under 5 year old children in the study area, a need was felt to carry out survey among children in urban areas of Chitradurga district of Karnataka.

**METHODS**

The study was a community based cross-sectional study carried out for a period of 4 months from November 1\(^{st}\) 2018 to February 28\(^{th}\) 2019 in urban field practice area of Basaveshwara Medical College and Hospital, Chitradurga. Sample size was calculated using the formula \(4pq/d^2\). Where, \(p=\)prevalence=4.5% (NFHS-IV), \(q=(100-p)=95.5\) and \(d\) (absolute error) was taken as 5% (\(p=68\)). Considering design effect of 2, and 15% of non-respondents a total sample size of 148 (rounded off to 150) was calculated.

Data was collected by cluster sampling from 10 clusters using semi structured, pretested questionnaire. On house to house visit the care taker of the child was given the questionnaire which had socio demographic factors and past medical history with regards to respiratory, gastrointestinal and other ailments. Anthropometric measurements were taken by following standard techniques.

The data thus collected was entered in Microsoft excel and analysed using SPSS software version 20.

**RESULTS**

A total of 150 children were approached. We observed that, 81 (54%) were boys and 69 (46%) were girls. Except for 0-6 months, the number of boys predominated the number of girls in all age group. The number of Hindus (84%) was invariably more when compared to Muslims (14%) and others (1%).

In our study majority of the fathers of study population were skilled and semiskilled labourers (65%) and 86% of mothers were homemakers. It was evident from our study that the family welfare program was efficiently running in urban Chitradurga as 52% of the families followed the two child norm. Table 1 shows the socio-demographic profile of the study population. And Table 2 shows the various factors and their association with acute respiratory and gastrointestinal illness. The morbidity pattern of our study population is depicted in Figure 1.

![Figure 1: Morbidity pattern among less than five years of age.](image-url)

| S. no. | Socio-demographic correlates | Variables       | No. (%)          |
|--------|------------------------------|-----------------|------------------|
| 1      | Age                          | <6 months       | 5 (3.3)          |
|        |                              | 6 months to 1 year | 15 (10)         |
|        |                              | 1 year--3 year  | 57 (38)          |
|        |                              | 3-5 years       | 73 (48.7)        |
| 2      | Type of family               | Nuclear         | 100 (67)         |
|        |                              | Joint           | 42 (28)          |
|        |                              | Three generation | 8 (5.3)          |
| 3      | Socio-economic status        | Class I         | 17 (11.3)        |
|        |                              | Class II        | 29 (19.3)        |
|        |                              | Class III       | 38 (25.3)        |
|        |                              | Class IV        | 47 (31.4)        |
|        |                              | Class V         | 19 (12.7)        |
| 4      | Mother’s education           | Illiterate      | 10 (7)           |
|        |                              | Schooling       | 108 (72)         |
|        |                              | Graduate        | 32 (21)          |
| 5      | Father’s education           | Illiterate      | 14 (9)           |
|        |                              | Schooling       | 73 (49)          |
|        |                              | Graduate        | 63 (42)          |

**Table 1: Sociodemographic factors of the study population.**
Table 2: Various factors and their association with acute respiratory and gastrointestinal illness.

| S. no. | Variables                        | Respiratory ailments | P value | Gastrointestinal ailments | P value |
|--------|----------------------------------|----------------------|---------|---------------------------|---------|
|        |                                  | Present | Absent |                | Present | Absent |                |
| 1      | Birth weight                     | <1.5kg  | 2      | 1           | 0.163   | 2      | 1           |
|        |                                  | 1.5-2.5kg | 60 | 4           |         | 37     | 27          |
|        |                                  | >2.5kg  | 73     | 10          |         | 42     | 41          |
| 2      | Breast feeding initiated         | Within half an hour | 68 | 9           | 0.741   | 37     | 40          |
|        |                                  | Within 6 hours      | 50 | 4           |         | 34     | 20          |
|        |                                  | After 6 hours       | 17 | 2           |         | 10     | 9           |
| 3      | BMI                              | <18.5   | 116    | 14          | 0.677   | 65     | 65          |
|        |                                  | 18.51-24.9         | 15 | 1           |         | 14     | 2           |
|        |                                  | >25      | 4      | 0           |         | 2      | 2           |
| 4      | Housing                          | Pucca    | 38     | 5           | 0.46    | 21     | 22          |
|        |                                  | Semi-pucca         | 93 | 9           |         | 56     | 46          |
|        |                                  | Kutcha    | 4    | 1           |         | 4      | 1           |
| 5      | Lighting                         | Adequate         | 60 | 2           | 0.026   | 35     | 27          |
|        |                                  | Inadequate        | 75 | 13          |         | 46     | 42          |
| 6      | Ventilation                      | Adequate         | 58 | 1           | 0.005   | 30     | 29          |
|        |                                  | Inadequate        | 77 | 14          |         | 51     | 40          |
| 7      | Water source                     | Municipality      | 110 | 11          | 0.44    | 62     | 59          |
|        |                                  | Borewell          | 25  | 4           |         | 19     | 10          |
| 8      | Water storage                    | Steel with closed lid | 52 | 10          | 0.448   | 36     | 26          |
|        |                                  | Plastic with closed lid | 83 | 5           |         | 45     | 43          |
| 9      | Overcrowding                     | Present           | 62 | 8           | 0.5    | 40     | 30          |
|        |                                  | Absent            | 73 | 7           |         | 41     | 39          |
| 10     | Smoking                          | Father            | 23  | 3           | 0.786   | 17     | 9           |
|        |                                  | Guest             | 10  | 0           |         | 5      | 5           |
|        |                                  | No one            | 102 | 12          |         | 59     | 55          |

*Fischer exact test.

DISCUSSION

Age and sex

Among 150 children studied, 48.7% were 3-5 years of age; similar observation was made by Ujwala and Dhruv in Andhra Pradesh. The finding is in line with the study done in Kolkata by Pradyut et al, where they found 42% were 3-5 years. Being a developing nation, male predominance was observed in studies done by Narkhede et al (51%) and Arepalli et al (52%). A similar finding was observed in our study where 54% were males.

Socio-economic status

In the present study, majority were from class IV and V accounting for 56.6% and least were class I (11.3%) according to modified B G Prasad classification. This was in agreement with study at Tripura conducted in 2012 where 75% were class IV and V.

Type of family

In our study, we found 67% of children belonged to nuclear family and 28% to joint family. Similar study conducted by Karmakar in Tripura found 60.4% and 39.6% were from nuclear families and joint families’ respectively. This was contradictory to the finding made by Yamuna in the urban slums of Karnataka where they found that joint families (50%) were more than nuclear families (23.5%).

Family planning

The rate of contraceptive prevalence among married women in Karnataka decreased from 63.6% to 51.8% according to NFHS-3 to NFHS-4 (National Family Health Survey). Family planning methods was practiced by 52% of our study population whereas in a study conducted by Rasheed in Aligarh, U.P. it was 43.6%. According to the study conducted by IJMR in 2014, it was found that 21% of the married couple practiced family planning in Karnataka.

Morbidity pattern

In our study, among 150 children, 90% developed respiratory tract infection which was much more than the findings by Gupta at Jammu; it was 47.26%. Even in North Karnataka, Nayak et al observed only 15.9% suffered respiratory tract infections. According to our study 86.7% of children with respiratory ailments visited...
doctors similar observation was made by Khalid at Lucknow (87.6%) which depicted good health seeking behaviour.18

In a study conducted by Gupta in Jammu, and Rakesh in South India found that 30.10% and 3.5% suffered from diarrhoea respectively while in our study population it was comparatively high (54%).16,17

In our study 24% of children developed fever in last 6 months whereas only 4.9% of children had fever in North Karnataka- revealed by Rakesh.17 In our study 5.15% suffered from accidental injuries which was in correlation with study conducted by Karmakar at Tripura accounting for 4.1%.12

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