Original Research Article

Sociodemographic Status and Housing Conditions Affecting Morbidity Pattern among Children between 6 Months to 5 Years of Age in Slums of Rourkela

Sofia Noor[1], G Krishna Babu[2], A. Hani Rajesh[3]

[1]Associate Professor, [2]Professor and HOD, [3]Post graduate,
Department of Community Medicine, Rangaraya Medical College, Kakinada, Andhra Pradesh.

Corresponding Author: Sofia Noor

ABSTRACT

Background- Period between weaning and 5 years of age are more vulnerable because of rapid growth & development, waning of passive immunity and development of immune system against infection .Slums are generally unserved and underserved pockets within an urban settlement. There are around 116 slums in the combined city of Rourkela that provides shelter to 1, 32000 (census 2011) people which is around 31.8% of the city's combined population. Congestion of so many people in few spots breed extreme health and environment conditions. Children between 6 months to 5 years of age suffer from a host variety of diseases like diarrhea, RTI and anaemia with a host of socio demographic factors affecting it.
Objectives- 1.To know the prevalence of morbidity, socio demographic factors and immunization status affecting morbidity pattern in children of slums.2.To know the nutritional status of the children under study.
Materials and methods- 6 slums areas were included in this study by random sampling technique. A predesigned semistructured schedule was used while collecting information from the mother or any close relative who took care of the child. This was a cross sectional study conducted for a period of 6 months. 195 children were included in this study belonging to the age group of 6 months to 5 years. The immunization card of the child along with other health records present was checked. A detailed clinical examination was also done at the time of visit to the house .Basic amenities provided in the slum areas as well as the housing condition were noted. Results were expressed in percentages and association was tested using chi square test.
Results- Prevalence of morbidity was maximum in 1-3 years age group may be due to waning of passive immunity and exposure to development of active immunity. Immunisation status of the child, partial or fully also had a significant role in morbidity prevalence.
Conclusion - Several factors are known to influence the morbidity in slum dwellers and these factors need to be addressed to promote better child health.

Keywords- morbidity, slums, socioeconomic determinants

INTRODUCTION

Period between weaning and 5 years of age are more vulnerable because of rapid growth & development, waning of passive immunity and development of immune system against infection. These are a vulnerable group as 50% of the deaths occur during the first 5 years of life in the developing world [park's textbook 21st edition. [1] The preschoolers have to cope with the killer triad of Respiratory tract Infection, Diarrhoea and Malnutrition resulting in high morbidity and mortality. [Ramani KV etal 2010. [2] Slums are generally unserved and underserved pockets within an urban settlement. It projected that more than half of the Indian population will live in urban areas by 2020 and nearly one third of this urban population will be of slum dwellers. The ongoing process of rapid urbanization has deleterious repercussions on health and nutrition especially for children. Undernutrition in young children has long-term negative effects on physical and cognitive development. Addressing nutritional problems of urban poor is therefore a must for overall development of the country. There are around 116 slums in the combined city of Rourkela that provides shelter to 1,32000 (census 2011) people which is around 31.8% of the city's combined population. Congestion of so many people in few spots breed extreme health and environment conditions. Children between 6 months to 5 years of age suffer from a host variety of diseases like diarrhea, RTI and anaemia. These diseases have a variety of socio demographic factors predisposing it. The present study was conducted with the following objectives.

1. To know about the prevalence of various morbidity
2. Its association with various socio demographic factors.
3. To know about the association of immunization status and morbidity
4. To know about the nutritional status of the children
5. To know about the housing conditions of these children

MATERIALS & METHODS

Rourkela is divided into two separate townships as per the census of India as Steel township and Rourkela. The steel township of Rourkela having 18 sectors is well planned with all civic amenities. The other part of Rourkela is widely spread with slums coming up because of rapid construction going on in nearby areas and hence more of employment oppurtunities. 6 slums areas were included in this study by random sampling technjque. A predesigned semistructured schedule was used while collecting information from the mother or any close relative who took care of the child. This was a cross sectional study conducted for a period of 6 months. 171 children were included in this study belonging to the age group of 6 months to 5 years. The immunization card of the child along with other health records present was checked. A detailed clinical examination was also done at the time of visit to the house .Basic amenities provided in the slum areas as well as the housing condition were noted. IAP classification was used to find out malnutrition in children. Children with any morbidity not taking treatment were asked to visit the nearby government hospital. 16 children not having immunization card were not included in the data analysis. Results were expressed in percentages and association was found using chi square test. P value less than 0.05 was taken as significant.

Inclusion Criteria-
All children living in the selected slum area having completed 6 months of age and less than 5 years of age whose parents and caretakers were willing to participate in the study and were ready to share the

immunization card and other hospital records if any.

Exclusion criteria-
Less than 6 months old or more than 5 year old and not willing to participate in the study.
Not having immunization card
However if requested by parents health examination of the children beyond the age group was done and appropriate advise was given .These children were excluded in the data analysis.

RESULTS

Socio demographic characteristics of the mothers showed that max 158(92.3%) of them were in the age group 19-29 years. 98(57.3) were hindus, 70(40.9%)were christains. 81(47.4%) belonged to lower socioeconomic class as per B G Prasad classification .Looking at the literacy status maximum 128(74.9%) were illiterate, only a small fraction 11(6.4%) were literate i.e had primary schooling.

I Age, and sex composition of the children under study

Age group	Males	Females	Total
6 months -1year	16 (14.9)	11 (17.1)	27 (15.79)
1yr-3yr	62 (57.9)	33 (51.6)	95 (55.6)
3yr-5yr	29 (27.1)	20 (31.3)	49 (28.7)
Total	107(62.5)	64(37.4)	171(100)

The children of slum areas were divided into three age groups as shown in the table. Males were 62.5% and females 37.4%. Mean age of the children was 2.38yrs±0.07 yrs. 55.6% were in 1-3 years age group

II Morbidity Pattern of the Children under Study

Age group	RTI	Diarrhoea	Anaemia	Total	Chi square	P value
6 months -1year	5(18.50)	3(11.11)	19(70)	27 (15.79)	22.68	1.2-.05[s]
1yr-3yr	56(58.94)	9(9.47)	30(31.58)	95 (55.6)	9.389	0.002 [S]
3yr-5yr	27(51.46)	17(34.69)	5(10.20)	49 (28.7)	22.85	1.1-.05[s]
Total	88(51.46)	29(16.95)	54(31.58)	171(100)		

Prevalence of Respiratory tract infection was maximum in 1-3 years age group 58.94%,p value 0.002which was significant, followed by anaemia which was 55.6%. This could be attributed to incorrect weaning practices i.e. not giving iron rich food .70% of diarrhoea cases were seen in 6 months to 1 year of age. This finding was also statistically significant, p value 1.2-.05. Prevalence of diarrhea may be more in this age group because of unhygienic weaning practices. Overall prevalence of Respiratory tract infection was maximum followed by anaemia and then diarrhea.

III Prevalence of Morbidity as per Literacy Status of Mother

Literacy Status	RTI	Diarrhoea	Anaemia	Total	Chi Square	P value
Illiterate	66(51.6)	21(16.4)	41(32)	128 (74.9)	0.017	0.99[ns]
Just Literate	17(53.1)	6(18.8)	9(28.1)	32 (18.7)	0.244	0.88[ns]
Literate	5(45.5)	2(18.2)	4(36.4)	11 (6.4)	0.178	0.94[ns]
Total	88(51.46)	29(16.95)	54(31.58)	171(100)		

74.9% of the ailments were found in children of illiterate mothers followed by just literate and then literate mothers .However the results were not significant. Mothers of children having trimmed nails p value 0.028 and following hand washing p value 0.012 suffered less both from diarrhea and respiratory tract infections which is significant.

IV   Prevalance of Morbidity as per Socio Economic Status of the Family

SES	RTI	Diarrhoea	Anaemia	Total	Chi Square	P value
Class I	2(50)	1(25)	1(25)	4 (2.3)	0.214	.89[ns]
Class II	45(68.2)	15(22.7)	26(15.2)	66 (38.6)	0.148	.93[ns]
Class III	4150.6)	13(16.0)	27(33.3)	81 (47.4)	0.246	.88[ns]
Total	88(51.46)	29(16.95)	54(31.58)	171		

Again children of low and middle socioecomic status families suffered from from the ailments as compared to those belonging to class I. The results were not statistically significant. Though socioeconomic status does play a role in prevalence of various disorders awareness regarding handwashing and general hygienic practices also prevents diseases.

V   Prevalence of Morbidity as per Occupation of Parent

Occupation	RTI	Diarrhoea	Anaemia	Total	Chi square	P value
Daily labourer	65(59.6)	16(14.70	28(25.70	109 (63.7)	8.13	.02[s]
Vendor/ Shop keeper	14(40)	5(14.3)	16(45.7)	35 (20.5)	4.094	.129[ns]
Rickshaw puller	5(31.3)	5(31.3)	6(37.5)	16(9.4)	3.723	.155[ns]
Auto driver	4(36.4)	3(27.3)	4(36.4)	11 (6.4)	1.343	.510[ns]
Total	88(51.46)	29(16.95)	54(31.58)	171(100)		

Morbidity pattern was not much affected by occupation of the parent. Most common occupation was daily wage earner and hence max children in each group belonged to this group.

VI   Housing condition of the children under study

Ventilation	Number	Percentage
Present	76	44.4
Absent	95	55.6
Overcrowding		
Present	110	64.3
Absent	61	35.7
Fuel used		
LPG	35	20.5
Firewood	36	21.0
Kerosene	100	58.5
Separate kitchen		
Present	86	50.3
Absent	85	49.7
Water Purification		
No filteration	111	64.9
Filters used	54	31.6
Boiling/Cl tablets	6	3.5

66% of the houses were kutcha and another 34% were semipucca.

More than half of the children suffering from ailments belonged to families staying in unhealthy housing condition.

Immunisation status and morbidity pattern has a strong association p< 0.0001. Children partially immunized are likely to suffer more from infectious diseases, respiratory tract infections and Diarrhoea. In the present study 144 (84.2%) of the children were partially immunized compared to 27(15.8%) who were fully immunized. Majority of the partially immunized children had not taken measles vaccine and others required beyond the age of 10 months. Measles vaccine along with vitamin A has a major role in preventing both Respiratory tract infection and Diarrhea and hence factors responsible for drop out of this vaccine needs further investigations.

VII   Housing condition and morbidity

Housing condition	RTI	Diarrhoea	Anaemia	Total	Chi Square	P value
Unhealthy	40(45.5)	18(20.5)	30(34.1)	88(51.5)	2.939	.229[ns]
Acceptable	28(56)	4(8)	18(36)	50(29.2)	4.064	.131[ns]
Healthy	20(60.6)	7(21.2)	6(18.2)	33(19.3)	3.424	.180[ns]
Total	88(51.46)	29(16.95)	54(31.58)	171(100)		

VIII   Nutritional Status of the Children and Morbidity

Morbidity Malnutrition	RTI	Diarrhoea	Anaemia	Total	Chi Square	P value
Mild	64(72.7)	12(41.37)	27(50)	103(60.2)	13.941	0.0009(S)
Moderate	20(22.7)	12(41.37)	25(46.3)	57(33.3)	9.383	0.0092(s)
Severe	4(4.54)	5(17.2)	2(3.7)	11(6.4)	6.818	0.0331(s)
Total	88	29	54	171		

Nutritional status is an important co morbid condition for any illness. The nutritional status of the children under study showed that 60.2% had mild form of malnutrition which could be easily corrected at home by improving the dietary habits. Only 6.4% had severe form of malnutrition. No child in the present study was found to be very severely malnourished. The chi square results show a significant association of the degrees of malnutrition with the morbidities of the children under study.

DISCUSSION

Morbidity during childhood is a sensitive indicator of the health care progress of any community. Preventive variables such as health education, socioeconomic status, literacy status of mothers, nutrition social support, accessibility to health care services, are important aspects of health care of a child. Risk identification can effectively reduce child morbidity and mortality as found by Stoll BJ et al in their study in 2007. [3]

It is seen from the study by Dhone [4] that the prevalence of childhood morbidities was 43.4%. This finding emphasizes the role of infections in the causation of malnutrition. Rao, Joshi and Kelkar [5] in their longitudinal study in three slums of Pune found that fever, gastrointestinal, and respiratory illness was the major illnesses. The combined prevalence of all the morbidities was 57.5%. Mishra [6] in her study in Orissa found that 19.8% children had diarrhea, 17.40% had upper respiratory tract infection, 17.46% had dental caries, and 2.40% had skin infection.

The prevalence of ailments was decreasing with increasing socioeconomic and literacy status of the family which is similar to the findings in the study conducted by Banik et al in Delhi. [7] In a study conducted by Shafikul Islam et al in 2014 [8] overall morbidity were found to be significantly higher in children of lower socioeconomic status i.e. class IV and V. Studies conducted by Sachdeva S et al in 2010[9] also tell us about micro environmental and co morbid factors associated with malnutrition and related illness showing similar results as the present study. Prevalence of Malnutrition and subsequent illness is more in lower socioeconomic and poorer sections of the society as found by Kumar D Goel et al in 2006. [10]

Respiratory Tract Infections can also affect children because of poor housing condition, indoor air quality, dampness, indoor allergens, seasonal variations of temperature and also immunization status of the child. In the present study significant prevalence of this infection was seen in 1-3 years age group. It could be because of exposure to allergens, pollutants, poor housing condition, overcrowding, type of fuel used or incomplete immunization of the children.

Diarrhoeal diseases were more common in children whose mother did not have their nails trimmed or did not follow hand washing techniques properly. This stresses the importance of personal hygiene in combating diseases. This is similar to the findings of the study conducted by Nitin Joseph et al in 2013 [11] which also showed a

significant reduction in Diarrheal episodes in children whose mothers had their nails trimmed.

Immunisation status and morbidity pattern had a strong association p< 0.0001 as per the findings of the present study. This is again similar to the findings of the study conducted by Nitin Joseph et al in 2013 [11] which also showed a significant association of partially and fully immunized children with incidences of infectious diseases.

Malnutrition a common ailment of children especially mild form goes unnoticed unless associated with co morbidities. Malnutrition under 1 year of age occurs commonly in children who are not exclusively breastfed or weaned with diluted formula feeding before 6 months of age. In a study conducted by Shafikul Islam et al in 2014, [8] the difference in malnutrition in various age groups were found to be statistically significant p value <0.05. The same study reports significant association of prevalence of all forms of malnutrition with the literacy status of parents. In the present study there was no significant association of literacy status of mother with other morbidities. Study by Kapur D et al. [12] in 2006 also shows malnutrition to be more common in lower socioeconomic status children.WHO report march 2000 [13] says faulty feeding practices compounded by nutritionally inadequate and frequently contaminated food often introduced too early in (developing and developed countries) or too late in (developing) countries remain a major cause of malnutrition. Mittal A et al. [14] in their study found that 56.5% were underweight and their study showed a significant association of nutritional state with age.

CONCLUSIONS

Based on the observations of this study it was found out that morbidity is influenced by sociodemographic pattern of the slum dwellers. Thus health education targeting these aspects, schemes for poverty alleviation and awareness creation regarding all aspects of life will help in preventing morbidities in children. Several studies say that morbidity affects the nutritional status and vice versa and hence nutrition is also an important content of health education to prevent morbidity as well as mortality in slum dwellers. Complete immunization upto 5 years of age should be encouraged with special emphasis on measles vaccination as dropout rate of measles is high which makes the children more prone to suffer from infectious diseases. Housing condition and environmental sanitation in slum areas should also be taken care of by the responsible authorities.

REFERENCES

1. Park K. Parks textbook of preventive and social medicine. Chapter 10; Preventive Medicine in Obstetrics, Paediatrics and Geriatrics.21 st ed. p. 481.
2. Ramani KV, Mavalankar D, Joshi S, Malek I, Puvar T, Kumar H. Why should 5000; children die in India every day? Major causes of death and managerial challenges. Vikalpa 2010;35:9-19
3. Stoll BJ. Overview of mortality and morbidity. In: Kliegman RM, Behrman RE, Jenson HB, Stanton BF, editors. Nelson text book of pediatrics. 18 th ed. Philadelphia: Saunders; 2007. p. 671.
4. Dhone AB, Chitnis UB, Bhawalkar JS, Jadhav SL. Epidemiological study of under nutrition among under five years children in an urban slum. Med J DY Patil Univ 2012;5:110-3
5. Joshi SB, Rao S, Kelkar RS. Changes in nutritional status and morbidity over

time among preschool children from slums in Pune India India Indian Pediatrics 2000;37 1060-71

6. Mishra S Assesment of malnutrition and remedial measures to improve the quality of life of children of central Orissa Indian J of Prev Soc Med 2006;37 25-31

7. Banik ND, Krishna R, Mane SI, Raj L. Longitudinal study on morbidity and mortality pattern of children in Delhi during the first two years of life: A review of 1000 children. Indian J Med Res 1967;55:504-12

8. Shafikul Islam, Tulika Goswami Mahanta, Ratna Sarma Saikia Hiranya Nutritional status of under 5 children belonging to tribal population living in Riverine areas of dibrugarh district, Assam Indian j community Medicine2014; 39;168-74

9. Sachdeva S, Amir A, Ansari MA, Khalique N, Khan Z, Alam S. Potentially modifiable micro-environmental and co-morbid factors associated with severe wasting and stunting in children below 3 years of age in Aligarh district. Indian J Community Med 2010;35:353-

10. Kumar D, Goel NK, Mittal PC, Misra P. Influence of infant-feeding practices on nutritional status of under five children. Indian J Pediatr 2006;73:417-21.

11. Nitin Joseph, Vijaya a naik,Niranjana S et al Factors associated with morbidities among infants in 3 subcenter areas of Belgaum District of South india Ind J of Community medicine vol 38 sept 2013

12. Kapur D, Sharma S, Agarwal KN. Dietary intake and growth pattern of children 9-36 months of age in an urban slum in Delhi. Indian Pediatr 2005;42:35

13. World health organization. World health report 1998. Life in the 21st century: A vision for all. Geneva: WHO. Available from: www.who.int/whr/1998/en/whr98en.pdf [Last accessed on 2012 Sept 12].

14. Mittal A, Singh J, Ahluwalia SK. Effects of maternal factors on nutritional status of 1-5 year old children in urban slum population. Indian J Community Med 2007;32:264-7.

How to cite this article: Noor S, Babu GK, Rajesh AH. Sociodemographic status and housing conditions affecting morbidity pattern among children between 6 months to 5 years of age in slums of Rourkela. Int J Health Sci Res. 2015; 5(6):22-28.

****