



ACUTE MORBIDITIES OF PRESCHOOL TRIBAL CHILDREN IN A DISTRICT OF NORTH KERALA

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ARTICLE INFO

Article History:

Received 10th March, 2017

Received in revised form 16th April, 2017

Accepted 24th May, 2017

Published online 28th June, 2017

Key words:

Acute morbidities, Pre-school children, Acute respiratory tract infections

ABSTRACT

Back ground: Tribal communities are highly disease prone groups. They are most exploited, neglected and vulnerable to diseases. In Kerala 1.3% of the population are tribal. Various studies have demonstrated that tribal children suffer from a higher rate of morbidity like ARI, Skin infections, ADD and sickle cell disease.

Objective: To identify the morbidity pattern and the associated factors among preschool tribal children in the Kozhikode District in North Kerala, India.

Materials andMethods: The study was a community-based, cross-sectional. Study was carried out in randomly selected 10 panchayaths in Kozhikode from July 2011- december 2011 among 264 Tribal children aged 3-6 yrs.. Cluster sampling method was used.

Results: The prevalence of overall morbidity is 59.8%. 42.5% children had ARI, dental caries 39.8% 94 (35.6%) children showed pallor (pale conjunctiva), and skin infections 35.2%, Morbidity pattern was similar in both sexes, unimmunization and absence of deworming were found to be significantly associated with morbidities.

Conclusion: The findings of the present study revealed the widespread prevalence of Morbidities among pre-school tribal children and highlight a need for an integrated approach towards improving the child health in this area.

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INTRODUCTION

Tribes are the aboriginal inhabitants of our country who have been living in a life based on the natural environment and have cultural patterns congenial to their physical and social environment. They are the poorest, most marginalized, oppressed, and deprived people in the country. India has the second largest tribal population in the world after Africa. The first few years of life are the most crucial period of life as this age is known for accelerated growth and development; warranting regular monitoring and any adverse influences during this period may result in severe limitations in their development.² The major diseases affecting this age group are mainly acute respiratory tract infections, diarrheal diseases, anaemia, skin diseases, and ear discharge, etc. Protecting health during childhood is more important than at any other age because poor health during this age is likely to permanently impair them over the course of their life.³

Literature search necessitates the need for community-based information on morbidity patterns among children living in this district, which can be used to assess the overall impact of various ongoing disease control programs as well as in planning resource allocations. The present study was done to address the morbidity among tribal preschool children and its association with various socio-environmental factors.

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Objectives of the Study

1. To study the prevalence and pattern of morbidities among preschool children aged 3-6 years in the study setting.
2. To identify various factors associated with morbidity in children.

MATERIALS AND METHODS

Study design: Descriptive cross-sectional study

Study setting

The study was carried out in randomly selected 10 panchayaths in Kozhikode district, Kerala from July 2011 to December 2011 over a period of 6 months. Data was collected by conducting house visits and the examination done at the preschools and also from the houses for those who were not present at the preschools.

Sampling

List of panchayats with tribal population was taken from the tribal welfare office Kozhikode. Cluster sampling method was used. Each Grama panchayats with tribal population were taken as clusters. There were 33 panchayats having tribals in Kozhikode district. Among these 33 clusters 10 were selected by simple random technique (lottery method). A house-to-house survey was conducted to collect the data and examination of children was done during the house visit and also from the preschools. All preschool children present in

each panchayath was included in the study, response rate was 97.04%.

Sample size

. Sample size was calculated as

$$n = 4 \times \frac{pq}{d^2} \times \text{design effect}$$

$$= 4 \times \frac{59.9 \times 40.1}{8.9 \times 8.9} \times 2 = 243$$

P= 59.9%, In Deshmukh *et al's* study (2009- 'Acute childhood morbidities in rural Wardha: some epidemiological correlates and health care seeking')², the overall prevalence of acute morbidity was 59.9%. q=1- p, the estimated sample size was 243. The children participated in the study was 264.

Data collection

After getting permission from the Institutional ethics committee and tribal officer, with the help of tribal promoter and Anganwady worker each colony was identified. Data collection was done at the household level using a predesigned and pre tested questionnaire. The mothers were briefed about the purpose of the study and informed consent was obtained from them after assuring confidentiality. They were asked about socio-demographic variables (age of child, religion, socioeconomic status, literacy level of mother) .History of present illness and also within last 15 days of the children were recorded. Study subjects were also clinically examined. The children with morbidity were either given treatment or referred to the nearest health canter depending on their morbidity.

Analysis: The data was entered in a Microsoft excel worksheet and the data was analyzed by using SPSS 16.0.1 software package. Chi-square was used to test the association.

Ethical aspects: Study protocol was submitted to the Institutional Research Committee as well as Institutional Ethics Committee of Govt. Medical College, Kozhikode and clearance was obtained for conducting the study. Informed written consent was obtained from District Medical Officer Kozhikode. Written permission was obtained from District Tribal Officer. Willingness of parents was ensured before study

Acute morbidities: The diseases occurred within the last 15 days (from the history) and illness present on the day of examination of the child (by clinical examination).

Preschool children: Children in the age group of 3 to 6 years

Acute respiratory tract infection: Fever with rhinitis or cough present during the examination of the children or present in the last 15 days

RESULTS

Age and sex distribution of study population

The age of the children were obtained from immunization card available in the houses and also from the Anganwadi registers. The children who had completed 3 years but were less than 4 years were grouped as 3-4 yrs and likewise age group were arranged. Males constituted 134 (50.6%) and females were 130 (49.4%) of the study population.

Table no 1 The age and sex distribution of the study population

Age group (years)	Gender		Total n=264
	Male n=134	Female n=130	
	n (%)	n (%)	n (%)
3- 4	48 (18.1)	46 (17.5)	94 (35.6)
4- 5	50 (18.9)	47 (17.8)	97 (36.7)
5-6	36 (13.6)	37 (14.1)	73 (27.7)

Different tribal groups in the study population

Among the 6 groups, Paniyars 122 (46.2%) constituted major group, followed by Karimpalan 70 (26.5%), Kurichiar 34 (12.8%), Muthan 30 (11.4%), Kadavar 6 (2.3%) and Kattunaikan 2 (0.8%).

Environmental details

Among 264 study subjects 169 (64%) were living in concrete houses, 63 (23.9%) in tiled, 20 (7.6%) in houses with asbestos sheets and 12 (4.5%) were in huts. Major source was found as natural spring 60.2%, pipe water 15.9%), own well 45 (17%), common well 10 (3.8%) and 8 (35%) were using neighbour's well. 147 (55.7%) children were using both boiled and un-boiled water for drinking, 90 (34.1%) were using boiled water and 27 (10.2%) were using un- boiled water. Majority 227 (86%) had latrines. Among them 40.1% were not using latrine. Major reasons noted for non use of latrines were damage (85.7%),

Family and parent's details: 71.2% of the study participants were from nuclear families,. Mean family size (SD) was 5.29 (1.77). Socioeconomic status was assessed by using modified UdaiPareek's scale³. Majority (91.3%) belonged to lower socio economic class followed by middle class 23 (8.7%). Out of 264 children, 15(5.6%) had no father (died), and one (0.37%) had no parents. So among 264, only 249 children had father and 263 had mother.

Lower primary education was found to be the major school education among parents. 104 (39.5%) out of 263 mothers and 98 (39.4%) out of 249 fathers had lower primary education. 23(8.7%) mothers and 17(6.8%) fathers had no school education.

Substance abuse among parents

Pan chewing was the most common habit among parents. The overall prevalence of pan chewing was 65.1% among fathers and 49.1% among mothers. Pan chewing was followed by **alcohol use**, 43.7% fathers and 17.5% mothers were alcohol users. Brewing of alcohol in colonies was noted during the survey. This may be the reason for high alcohol intake.

Pattern of acute morbidities detected during survey:

The overall prevalence of acute morbidity was 59.8%, i.e., at least one of the above conditions was present during the 2 weeks preceding the survey or detected during the survey. Acute respiratory tract infection was found to be the major morbidity (42%) followed by Dental carries (39.8%), Pallor (35.6%), Skin infections (35.2%) (The skin infections were Scabies, Pyoderma, and fungal infections). The other diseases noted were Angular stomatitis, chickenpox and Mumps Even though the majority children were using un boiled natural

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spring water for drinking the point prevalence of diarrhoea was very low 3(1.1%).

Table no 1 Acute morbidities

Morbidity	Number	percentage
Acute Respiratory Tract Infection	112	42.5%
Dental Caries	105	39.8%
Pallor (clinical anaemia)	94	35.6%
Skin lesions	93	35.2%
Angular stomatitis	47	17.8%
Chickenpox	4	1.5%
Mumps	4	1.5%
Diarrhoea	3	1.1%

Table 3 Risk factors of morbidity among the children

Sociodemographic factors	Morbidity		P value	Odd's ratio
	Yes no(%)	No no(%)		
Age group				
3-4 (94)	57(60.6%)	37 (39.3%)	0.372	
4-5(97)	62(63.9%)	35(36%)		
5-6(73)	39(53.4%)	34(46.6%)		
Sex				
Male (134)	79(59%)	55(41%)	0.431	
Female (130)	79(61%)	51(39.2%)		
Family size				
≤4 (102)	46(45.1%)	56(54.9%)	0.00	2.72
>4 (162)	112(69.1%)	50(30.9%)		
Number of siblings				
≤2 (225)	127(56.4%)	98(43.6)	0.005	2.99
>2(39)	31(79.5%)	8(20.5)		
Birth weight				
<2.5(36)	26(72.2%)	10(27.8%)	0.072	0.529
>2.5(228)	132(57.9%)	96(42.1%)		
Deworming last 6months				
Not done (185)	128(69.2%)	57(30.8%)	0.000	0.273
Done (79)	30(38%)	49(62%)		
Immunization status				
Unimmunized (15)	14(93.3%)	1(6.7%)	0.004	0.099
Fully/partially immunized(249)	144(57.8%)	105(42.2%)		

There was no significant association found between the age group and morbidity status of the children. Sex of the child was also not showed any significant association. The morbidity was found to be more among the children with more than two siblings the association was significant also. The morbidity was also found to be more among the children with low (<2.5kg) birthweight, but the association is not statistically significant. Absence of deworming and unimmunization among the children were also showed significant association with morbidity status.

DISCUSSION

The overall prevalence of acute morbidity was 59.8%, Acute respiratory tract infection was found to be the major morbidity (42.5%) followed by Dental carries (39.8%), Pallor (35.6%), Skin infections (35.2%). In Giri VC *et al's* study (Childhood Morbidity in a Tribal Area) Prevalence of overall morbidity was 34.7% the prevalence of acute respiratory infections was the highest (25.5%)⁵

Kaushik PV *et al* found that 42.25% children had ARI within a period of preceding 15 days.⁶

Bansal R found that the highest prevalence of ARI (41.3%) in migrant tribal children⁷. These two studies showed similarity to the present study.

Age and sex: There was no significant association found between the age group and morbidity status of the children. Sex of the child was also not showed any significant association. In Deshmukh *et al's* study morbidity did not differ significantly between male (60.7%) and female (58.9%) children ($P>0.05$)². This study showed similarity to the present study.

But in Giri VC *et al,* s study the prevalence of overall morbidities was 34.7% and it was higher in female as compared to male children⁵.

Birth weight

The mean (SD) birth weight was 2.77 kg (0.33). Minimum weight was 1.8 kg and maximum 3.64kg. Majority 226 (85.6%) of the children had 2.5 kg or more and 38 (14.4%) had birth weight of less than 2.5 kg, out of which two had less than 2 kg.

The morbidity was more among the children with birth weight less than 2.5kg, but the association is not statistically significant.

Family size

Mean family size (SD) was 5.29 (1.77) (Median 5, minimum 3 and maximum 11members) in the study group. (The family size was taken as total members in the family including the study subject).the morbidity was more among children with family size more than four 61.9%.

Number of siblings

Mean number (SD) of siblings was 1.64(0.99). (Median2, minimum 0 and maximum was 5) in the study group. Most of the children had 2(41.2%) or 1 (32.6%) siblings. 11.4% had no siblings.

The morbidity was found to be more among the children with more than two siblings the association was significant also.

Deworming in the last 6 months

The disease was found to be less among those have undergone deworming. Deworming within last six months showed a protective effect (Odds ratio .273)

Immunization status

The rate of full immunization was 179 (67.7%), 70 (26.5%) partial immunization and the unimmunized children were15 (5.8%).

The diseases were less in the fully immunized children comparing with the partially or unimmunized. Full immunization showed a protective effect.

In Mane, *et al'* study, the prevalence of morbidity was found to be significantly associated with age but not with gender, the number of siblings, and immunization status of the child⁸.

Balvir R.S. *et al* (2002) from Orissa showed that 34.3% tribal children had visible conjunctival pallor, angular stomatitis of 15.6%, dental caries 20%, and scabies 27.2%.⁹

CONCLUSION

Majority of the study subjects showed illness. In the present study, out of the various risk factors assessed, large family size, deworming and immunization status (fully immunization) were the factors significantly associated with

acute morbidities. While visiting colonies it was noticed that the hygienic condition was very poor in most of the colonies (especially Paniyar). These may cause infections in the children. Frequent awareness programmes can change their poor hygienic conditions.

Limitations:

Few tribes were living in semi urban or urban areas as independent families. Their morbidity status may not be included in this study, this may influence the results.

Acknowledgement

I would like to thank all faculties and staff of Department of Community Medicine for providing valuable help and guidance in the completion of the study. I express my gratitude to the District Tribal Officer Kozhikode, and the District Medical officer Kozhikode, for giving me permission to conduct the study in the tribal children of Kozhikode district. I feel it is my proud privilege to extend my sincere thanks to all tribal promoters, Medical officers and staffs of PHC/ CHC in the tribal area, Anganwadi and ASHA workers, who helped me in this study. I am thankful to all the parents and children for giving consent, study related information and co-operating with the study procedures.

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How to cite this article:

Bindu.V *et al* (2017) 'Acute Morbidities Of Preschool Tribal Children In A District Of North Kerala', *International Journal of Current Advanced Research*, 06(06), pp. 4270-4273. DOI: <http://dx.doi.org/10.24327/ijcar.2017.4273.0479>
