

Morbidity Pattern among the Children: A Cross Sectional Study

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Abstract

Introduction: Nutritional status plays a vital role in deciding the health status particularly in children. Nutritional deficiencies give rise to various morbidities, which in turn, may lead to increased mortality. Undernutrition is a known factor closely associated with child mortality rates. **Methodology:** The sample size was estimated to be 372 according to online sample size calculator at 95 percent confidence interval (CI) with 5 percent precision. Thus 500 children from each tribal and nontribal area were covered from HD Kotetaluk of Mysore district. **Results:** The present study shows that higher percentage of history of fever 16% among tribal children and 5.2% among non tribal children during last one month. Respiratory Infection, Diarrhoea, Measles, worm infestation, chicken pox, skin Infection, TB, Jaundice, Dengue are more prevalent in tribes. **Conclusion:** Clinical nutritional deficiency signs like pallor (80%), Bitots spot (15%), angular stomatitis (37%), thyroid enlargement (6%) which indicates iron deficiency, Vitamin A deficiency, Vitamin B complex deficiency, iodine deficiency respectively were found among tribal children while in non tribal children pallor (53.6%), Bitots spot (2.4%), angular stomatitis (4.8%), thyroid enlargement (0.6%) were found.

Keywords: Morbidity; Children; Nutritional Deficiency.

Introduction

Pre-school children constitute the most vulnerable segment of any community. Their nutritional status is a sensitive indicator of community health and nutrition [1]. Undernutrition among them is one of the greatest public health problems in developing countries. About 128 million (70%) of the world's 182 million stunted children aged under five years live in Asia [2].

Nutritional status plays a vital role in deciding the health status particularly in children. Nutritional deficiencies give rise to various morbidities, which in turn, may lead to increased mortality. Undernutrition is a known factor closely associated with child

mortality rates [3,4]. An analysis of six longitudinal studies by World Health Organization (WHO) revealed a strong association between severity of weight for age deficits and mortality rates: 54 per cent deaths of under five children in developing countries were accompanied by low weight for age [5]. Attempts to reduce child mortality in developing countries through selective primary health care have focused primarily on the prevention and control of specific infectious diseases, with less effort being directed to improving children's underlying nutritional status⁶.

The subject gains more importance in tribal children, due to certain adverse realities like insufficient food intake, frequent infections, lack of access to health services, illiteracy, unhygienic personal habits, adverse cultural practices, etc.

Prevalence of hunger and malnutrition among the tribal children are always there in their hamlets for years together because of their forest habitats, extreme poverty and taboos.

Health and nutrition form a major thrust area of investigation among the tribal population. Health and nutrition are areas where people influenced by the relationship between biology and culture. Food habits are influenced by social and cultural factors but the consequences of food habits are biological.

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There has been number of studies on health as well as nutritional status of the people, who are residing in remote areas which are deprived of the basic facilities.

Myriad number of studies has enunciated about tribal health and nutritional status but a study that provides a comprehensive comparative analysis about the nutritional pattern & health status is the need of the hour.

Methodology

Study Site

This study was conducted in H.D Kote Taluk of Mysore District.

Study Design

Cross sectional community based exploratory study.

Source of Data

A house-to-house survey was conducted in study to examine tribal and nontribal children of 1-5 years of age in HD Kote..

Sample Size

The sample size was estimated to be 372 according to online sample size calculator at 95 percent confidence interval (CI) with 5 percent precision. Thus 500 children from each tribal and nontribal area were covered from HD Kotetaluk of Mysore district.

Inclusion Criteria

Children in the age group of 1-5 years in H.D Kote Taluk.

Exclusion Criteria

Children below 1 years and above 5 years of age.

Results

The present study shows that higher percentage of history of fever 16% among tribal children and 5.2% among non tribal children during last one month. Respiratory Infection, Diarrhoea, Measles, worm infestation, chicken pox, skin Infection, TB, Jaundice, Dengue are more prevalent in tribes. History of Dysentery is equal among tribal and non tribal where as urine infection and typhoid are more in non tribes than tribes.

Table 1: Comparison of morbidity pattern among children

	Fever	Resp Infection	Diarrhea	Measles	Dysentry	Jaundice	Worm Infestation	Chicken Pox	Urine Infection	Typhoid	Dengue	Skin Infection	TB
Tribal	58	36	26	2	1	2	32	1	1	0	1	36	6
Non Tribal	26	17	4	0	1	0	8	0	2	1	0	13	0

Table 2: Distribution of study population according to Modified BG Prasad Classification

	Tribals	Non Tribals
Class-I	0	56(11.2%)
Class- II	0	153(30.6%)
Class-III	5(1%)	145(29%)
Class-IV	64(12.8%)	118(23.6%)
Class-V	431(86.2%)	27(5.4%)

According to modified BG Prasad classification 86.2% of tribal children belong to Class V,12.8% to Class IV and 1% to Class III. Among non tribal population 5.4% belong to Class V, 23.6% to Class IV, 29% to Class III,30.6% to Class II and 11.2% to Class I.

Clinical examination has always been and remains as an important practical method for assessing the nutritional status of the community.It provides valuable objective information regarding the

malnutrition ,especially related to various deficiencies of nutrients .The following table provides the information on nutritional deficiency by different clinical features on the body.

Lack of lustre ,sparseness ,discoloured and easy pluckibility of hair are various clinical features that indicate the presence of protein energy malnutrition or protein calorie malnutrition.Present study reveals that majority of tribal children have lack of lustre,

sparseness, discoloured and easy pluckibility of hair than non tribal children.

The pale conjunctiva, koilonychias, bitot spots, conjunctivalxerosis, cornealxerosis are the clinical reflection of vitamin A and Iron deficiency. It is evident from the table that 80% of tribal children against 53% of non tribal have pale conjunctiva. Vitamin A deficiency signs like Bitots spot (15.45), conjunctivalxerosis (50%), corneal xerosis (0.2%) are more among tribal than non tribal children indicating more prevalence of vitamin A deficiency among tribal children.

Angular stomatitis, cheilosis of lips, bald tongue

are the various clinical features that indicate the presence of vitamin B deficiency. About 15.4% of tribal children are suffering from angular stomatitis, 25.2% by cheilosis, 46.2% by bald tongue.

When compared with the children having mottled enamel, more number of tribal children suffer from dental caries which indicates poor knowledge of brushing the teeth.

Thyroid enlargement refers to Iodine deficiency. Total of 6% tribal children and 0.6% non tribal children were found to have thyroid enlargement indicating more prevalence of iodine deficiency among tribal than non tribal children.

Table 3: Comparison between clinical signs among children

Variables	Tribal children		Non tribal children		P
	No	%	No	%	
Pallor	403	80.6	268	53.6	<0.0001
Lymphadenopathy	67	13.4	40	8	<0.0001
Icterus	2	0.4	0	0	>0.05
Edema	8	1.6	8	1.6	>0.05
Lustreless hair	377	75.4	173	34.6	<0.0001
Sparse hair	55	11	15	3	<0.0001
Discolored hair	360	72	148	29.6	<0.0001
Easy pluckibility	22	4.4	11	2.2	<0.05
Pigmentation	371	74.2	134	26.8	<0.0001
Scabies	100	20	27	5.4	<0.0001
Pyoderma	152	30.4	27	5.4	<0.0001
Xerosis	251	50.2	126	25.2	<0.0001
Angular stomatitis	77	15.4	24	4.8	<0.0001
Cheilosis	126	25.2	51	10.2	<0.0001
Mottled Enamel	141	28.2	34	6.8	<0.0001
Caries	272	54.4	132	26.4	<0.0001
Bald Tongue	231	46.2	129	25.8	<0.0001
Koilonychia	60	12	15	3	<0.0001
Platynychia	184	36.8	50	10	<0.0001
Clubbing	4	0.8	2	0.4	<0.0001
ConjunctivalXerosis	250	50	70	14	<0.0001
Bitots spot	77	15.4	12	2.4	<0.0001
Thyroid enlargement	30	6	3	0.6	<0.0001

Discussion

Man today is an agent of his own disease and his state of health is determined by what he does himself. Disease is defined on the basis of mal adjustment of the human organism, psycho-social environment

resulting from misperception, misinterpretation and misbehaviour. According to Indian council of Social science Research and Indian council of Medical research studies diseases arising from poverty, ignorance, malnutrition, bad sanitation, lack of safe water supply, drainage, adequate housing are still the most common.

Table 4: Prevalence of Morbidity Pattern in Various studies

Morbidity Pattern	Jai Prabhakar et al ⁷	Laxmaiah et al ⁸	Giri et al ⁹	Balgir et al ¹⁰	Ghosh et al ¹¹	Present study Tribal	Non Tribal
Fever	28%	12.60%				11.60%	5.20%
Respiratory Infection	8%	6.70%	25.50%	2.40%	13.80%	7.20%	3.40%
Diarrhea	12%	1.70%	5.80%	2.10%	3.70%	5.20%	0.80%

As per the above table there is lot of variations in prevalence of morbidity pattern in the present and past studies. Our study among tribal children is comparable to study done by Laxmaih et al on tribes and NFHS3. It is evident that tribal children of present study fall ill frequently because of their irregular food pattern and unhygienic condition.

Clinical signs has always been and remains as an important practical method for assessing the nutritional status of the community. Essentially the method is based on changes believed to be related to inadequate nutrition that can be seen or felt in the superficial epithelial tissues especially the skin eyes hair and buccal mucosa.

Table 5: Clinical Nutritional deficiency among Children in various study

Nutritional signs	Jai Prabhakar et al ⁷	Rao HD et al ¹²	Tienboon et al ¹³	Rao VG et al ¹⁴	Present study
Pallor	78.10%				81%
Lustreless hair	94.10%				75.40%
Discolored hair	42.20%				72%
Angular Stomatitis	37%	1.40%	10%	2.80%	15.40%
Cheilosis	12.60%				25.20%
Mottled Enamel	9.60%				28.20%
Caries	30.40%				54.40%
Bitots spot	5.20%	0.30%		1.60%	15.40%
Scabies	69.60%				20%
Thyroid enlargement	9.60%	4%			6%
Dry skin	65.90%		97%		50.20%

In the present study about 81% of tribal children were found to be anemic. In NFHS-3, all over the country, about 72.2% of children up to the age of three in urban areas and 80.9% in rural areas had anemia and in a considerable proportion the anemia was of a moderate to severe degree. A study from Jenukuruba tribes of Mysore by Jai Prabhakar et al reported a prevalence of 78.1% of pallor which is comparable to our study.

There is evidence of appreciable secular decline in clinical vitamin A deficiency in under five children in the country. Data from tribal children is scant. A study from Jenukuruba tribes of Mysore by Jai Prabhakar et al reported a prevalence of 5.2% of Bitots spot which is less comparable to our study (15.4%).

This can be explained as they have taken 6-10 years of age group where prevalence vitamin A deficiency signs are less. In a cross-sectional study from 1000 slum children in Bhopal, the prevalence of clinical vitamin A deficiency was 23%. In a recent cross-sectional study in 1094 children (6 years) from 2 randomly selected urban slums of Nagpur, 9% of the children had xerophthalmia. There are certain studies which suggested that 36% of those not having clinical vitamin A deficiency had evidence of subclinical vitamin A deficiency.

Data from small scale individual studies indicate that the prevalence of various other nutritional deficiencies like vitamin B, vitamin C, vitamin D and micronutrients too is significant in Tribal populations.

Conclusion

Our study shows that higher percentage of history of fever 16%, Respiratory Infection 7.2%, Diarrhoea 5.2% than in the non tribals who gives history of fever 5.2%, Respiratory Infection 3.8%, Diarrhoea 0.8% during the last one month.

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