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ANALYSING THE MORBIDITY PROFILE AND ASSOCIATED RISK FACTORS OF CHILDREN IN A RURAL AREA OF MUZAFFARPUR, BIHAR

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ABSTRACT 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. During this period about 40% of physical growth and 80% of mental development occurs. Any adverse influences during this period may result in severe limitations in their development. A cross-sectional study was conducted in the area of Rural Health Training Centre, Kanti, Muzaffarpur, Bihar. Mothers of children between 0-3 years of age were enquired about the morbidity in the past two months. Diarrhea (47.7%) followed by ARI (22.21%), Pica (13.39%), Worm Infestation (8.9%), Measles (7.3%) and Dental caries (0.5%) were the commonest morbidities found in the study population. Morbidities were found to be common in males as compared to females. Amongst the nutritional deficiencies anemia & Vitamin B deficiencies were the commonest. There was considerable sickness load amongst the toddlers. Morbidity can be reduced by improvement in the health care system at peripheral level.

KEYWORDS : Morbidity, Nutritional deficiencies, Anemia

INTRODUCTION:

Morbidity can be defined as any deviation from the state of normal physical and mental well-being. India is one of the many developing countries, which have high levels of morbidity.[1] In absolute terms, the infectious diseases are still highly prevalent in all sections of the society while the proportion of non-communicable diseases (NCDs) in the morbidity profile has been increasing. As per the WHO estimates, NCD accounted for 53 % of all deaths in the age group of 30–59 years, and it is projected to be higher in the years to come. [2] According to NFHS-4, the prevalence of diabetes, as reported by respondents, is 2 % among both men and women age 15–49 years. About 2 % had asthma, goiter or any other thyroid disorder was 2%, 1% had heart disease, and disorders (22,944) account for the large disease burden. Falls (10,898) and road traffic accidents (7204) contribute to the largest disability burden among injuries.[2] About 42 million people in India suffer from thyroid diseases.[3] Morbidity rates are one of the important indicators of the health status of a population along with mortality and life expectancy at birth.[4] There has been a general decrease in mortality leading to significant gains in life expectancy. [5] While there are various studies and data on mortality and expectancy of life, there are not many studies on estimates of morbidity rates in the population. A condition of low morbidity should indicate that the health status is better. However, this need not be true as low morbidity can occur from an actual reduction in the incidence of illness or due to underreporting also. [6]

As very little information is available about the disease profile of different population groups in India and periodic change in morbidity pattern in the population, present study was planned with the objective to Analysing the Morbidity Profile and Associated Risk Factors of Children in a Rural Area of Muzaffarpur, Bihar, so that our services and health education activities can be planned according to the needs of the population.

AIMS AND OBJECTIVES:

i. To study the morbidity status of under-three children.
ii. To determine the association between various risk factors and morbidity profile.
iii. To assess the treatment seeking behaviour of their parents during illness.

MATERIAL AND METHODS:

The cross-sectional study was conducted in children below three years of age from six villages of Rural Health Training Centre, under the administrative control of Department of Community medicine, Sri Krishna Medical College, Muzaffarpur, India. Duration of the study was from 1st September 2020 to 30th October 2021. A list of households having the study subjects from all the six villages was prepared & a total of 1112 under three children were enlisted from these six villages. The estimated sample size was calculated according to the formula: $N=4pq/d^2$ where p is the prevalence of malnutrition, q=1-p, and d is relative error. Taking malnutrition as a proxy indicator for morbidities, the prevalence of malnutrition in children under three years of age was found to be p=45.9% and relative precision d as 10 % of p, the sample size was calculated to be 518. Considering a no-response rate of 5% it was estimated to be 541 & hence the sample size was rounded off to 600 children.

To conduct this study, a predesigned pretested structured questionnaire was developed and all the questions were framed keeping the study objectives in mind to obtain the necessary information. This questionnaire was tested with a pilot study of 60 mothers of the same area, who had children less than three years of age. The researcher herself interviewed the mothers at the time of pilot testing. The objective of this pilot study was to test the data collection tool's wording, as well as the clarity of stated questions & hence, reliability of these questions were checked in the pilot study and suitable modifications were made, before finally administering them to respondents.

An informed consent was taken prior to the interview and mothers were assured of the maintenance of confidentiality of their given information. After ensuring the confidentiality and building a rapport, in depth interview of mothers was undertaken and information regarding child's age, sex, immunization status etc. was collected. Ages of most of the children were also estimated and cross- checked with reference to the local events such as some important festivals, siblings in the family, horoscopes etc. Information on the occurrence of any illness the child had in the preceding three months was obtained on recall basis. Morbidity Profile was taken keeping in mind the important under five illnesses (diarrhea, URTI, measles), along with history of Pica & worm infestation.

Inclusion Criteria:

All under-three children including neonates, except those meeting the exclusion criteria were included in the study.

Exclusion Criteria:

Pre-term newborn, congenital anomalous child and severely ill child were excluded from the study.

Fully Immunized children: An infant who has received BCG; three doses of DPT, OPV and and measles before one year of age.

RESULTS:

During the cross sectional study, a total of 600 under three children

were surveyed for the pattern of illnesses. Diarrhea (47.7%) followed by ARI (22.21%), Pica (13.39%), Worm Infestation (8.9%) %), Measles (7.3%) and Dental caries (0.5%) were the commonest morbidities found in the study population [Table- 1].

Table 1: Morbidity profile of study subjects

Variable	Percentage of study population
Diarrhoea	47.7
ARI	22.21
Measles	7.3
Worm infestation	8.9
Pica	13.39
Dental caries	0.5

There were a total of 869 acute spells of sickness & hence, each child suffered with almost 3 illnesses per child. Morbidities were found to be common in males as compared to females [Table -2].

Table 2: Sex-wise morbidity pattern among the study subjects

Variable	Distribution of children		Total
	Male	Female	
Diarrhoea**	210 (51.72)	201 (48.38)	410
ARI**	103 (55.97)	81 (44.03)	184
Undernourished	148 (51.38)	140 (48.61)	288
Measles	27 (51.92)	25 (48.08)	52
History of Worm infestation/ Perianal itching	38 (54.28)	32 (45.72)	70
History of Pica	55 (53.39)	48 (46.61)	103
Dental caries	3 (60)	2 (40)	5
Total	584	528	1112

The overall prevalence of sparse hair was found to be 1.6%, depigmentation of hair (0.8%), easy pluck ability of hair (0.4%) & muscle wasting (1.0%) respectively. Vitamin A deficiency (conjunctival xerosis) was reported at 0.4%, while night blindness and bitot's spot were not present. Vitamin B complex deficiency, mainly angular stomatitis, cheilosis and glossitis had a higher prevalence (11.2% of glossitis, 6.8% of angular stomatitis and 6.2% of cheilosis) [Table -3].

Table 3: Prevalence of nutritional deficiency signs

Clinical Signs	No. of Children	Frequency
Signs of Protein Energy Malnutrition – 19 (3.8)		
i)Sparse hairs	8	1.6
ii)Dispigmentation of hair	4	0.8
iii)Easy pluckability of hair	2	0.4
iv)Muscle wasting	5	1.0
Vitamin A deficiency – 2(0.4)		
i)Night Blindness + Bitot's spots	2	0.4
Vitamin B-Complex deficiency – 121 (24.2)		
i)Angular Stomatitis	34	6.8
ii)Cheilosis	31	6.2
iii)Glossitis	56	11.2
Rickets -3 (0.6)		
Bowlegs + knock knees	4	0.8
Anaemia	124	24.8

528 (88 %) of the study population was completely immunized and only 22 (4.4%) of the children did not receive any vaccine. Morbidity was found to be higher (75%) in children who were unimmunized as compared to those who were fully immunized (50.94%) [Table -4].

Table 4: Distribution of Morbidity on the basis of nutritional status and immunization

Type of Subject	Total Children	Morbidities	
		Present	Absent
Nutritional Status			
Well Nourished	252	110(43.6)	142(56.4)
UnderNourished	348	203(58.4)	145(41.6)
X2 = 14.37 df= 1 p=<0.001			
Immunization Status			
Complete	528	269(50.94)	259(49.06)
Partial/Unimmunized	50	54(75)	18(25)
X2=15.91 df=1 p=<0.001			

DISCUSSION:

It was a descriptive type of cross-sectional study. It was aimed to find out the morbidity pattern of under three children and health-seeking behavior of mothers of under three children. Diarrhoeal diseases were number one morbidities in children during 1990s and Acute respiratory infections in 2000s as revealed by different authors whereas in the current study, diarrhea (47.7%) remains as number one morbidity followed by ARI (22.21%), Pica (13.39%) and Worm Infestation (8.9%). [7] The prevalence of diarrhea (47%) was comparable to rural villages of South Pakistan (51%) but was much higher as reported previously from West Bengal (31.67%). [8] The higher prevalence of diarrhea may be due to the harmful effects of poor hygiene and practice of open-field defecation. Direct comparison of findings between different studies is difficult because of differences in study design, study populations, timing & regional differences.[9]

In the current study, episodes of Diarrhoea, ARI & measles were more common in males as compared to females [10 - 12] where majority of the females were either suffering from or have a history of one or more illness within the previous two weeks. The reflections of poor nutritional status were also observed through high prevalence of PEM, vitamin B complex, and other nutritional deficiencies among preschool children. Vitamin B complex deficiency, had a higher prevalence compared to other nutritional deficiency signs, which might be due to the influence of socio- economic and environmental factors. This may be because of the fact that diet was deficient in pulses and green leafy vegetables, and hence the deficiency of vitamins was apparent.[13]

The present study also found a significant association between morbidity and nutritional status. Similarly, in Aligarh, presence of measles, vitamin deficiency and worm infestation were significantly associated with malnutrition.[14] Further, during illness partial or complete restriction of solid foods in the diet, which if repeatedly followed with recurrence of episodes is likely to affect the nutrition of the child. The immunization status of the study population was good. The coverage of the vaccines was in general comparable to that reported for migrant tribal children in slums of Orissa. [15]Morbidity was found to be higher (75%) in children who were unimmunized as compared to those who were fully immunized (50.94%) as the unimmunized children are at risk of developing these infections similarly, a significant association was found between ARI and Immunization. It was observed that preference to seek treatment in the govt. hospitals was higher (57.6%) than other facilities. Treatment of the child by local indigenous practitioners was another preferred treatment observed in the study area which prolonged the course of illness.

CONCLUSION:

Morbidities like diarrhea, respiratory diseases, anemia, under nutrition, various vitamin deficiencies among under three children in the present study was very common. The underutilization of the Government Health facility was also quite evident. These preliminary findings indicate that there is a need to improve utilization of Primary health care services including the vital MCH services for better child health and survival. The regrettable side to the issue is that most of the morbidities are largely preventable by simple interventions like immunization, adequate nutrition promotion of hygienic practices, through proper health education to their parents. Community health workers should also be trained adequately so that they are able to pick up signs of illness and encourage people in the community to seek treatment. Micronutrient supplementation and health education of the caregivers through simple health packages would go a long way in alleviating the co-morbidities.

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