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Research Article

Prevalence of morbidity and morbidity pattern among primary school children in rural area of Jalna, Maharashtra, India

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ABSTRACT

Background: Children are nation's greatest asset. School children constitute around 25% of total population of India. They are more vulnerable to infections and malnutrition than rest of the population. The objective of the study was to find the prevalence of morbidity among school children and assessment of the morbidity pattern among school children.
Methods: The present cross sectional study was carried out from January 2015 to march 2015 in randomly selected primary schools of rural area of Jalna, Maharashtra. The study subjects were school going children, total number of 352 children studying from grade I to V who were present on the day of examination were included the study. The children were examined for the presence of different morbidities.
Results: Total three hundred and fifty two children were included in the present study. Total 60% of school children were found to have one or other morbidity. Prevalence of morbidities among girls was more than boys. The prevalence of nutritional deficiency diseases was the most common 52.27% followed by respiratory infections15.34% and then infective and parasitic diseases 12.78%. Ear discharge was present in 7% of children more in boys than girls but it was not statistically significant. The prevalence of dental caries was 6.66% in boys and 5.34% in girls. Lymphadenopathy was present in 4.2% of children.
Conclusions: Prevalence of morbidities found to be 1.89 morbidities per sick child and 1.13 morbidities per child. The prevalence of nutritional deficiency diseases was the most common followed by respiratory infections and then infective and parasitic diseases. Prevalence of eye, ear and skin problems were low in this study. Most of the diseases among school going children were preventable.

Keywords: Morbidity, School children, Morbidity pattern, Rural area

INTRODUCTION

Children are nation's greatest asset. School children constitutes around 25% of total population of India.[1] They are more vulnerable to infections and malnutrition than rest of the population.[2] Health of the child is viewed as absence of disease and not as comprehensive health in developing countries.[3] Children are the country's biggest human investment for development.[4] School a convergence center for health and education is a setting that plays an important role in physical, social, mental and emotional development of children.[5] Beginning of school health services in our country dates back to 1909, when for the first time medical examination of school children was carried out.[6]The WHO expert committee on school health services noted as long as 1950 that ' to learn effectively children need good health'.[7] After the family schools are the most important places of learning for children. A survey among the school children in India revealed that about half of the ailments found are related to unsanitary condition and lack of personal hygiene.[8]health problems of school children vary from

one place to another. Surveys carried out indicate that the main emphasis will fall in malnutrition, infectious diseases, intestinal parasites, diseases of the skin, eye and ear and dental problems.[3] Childhood is the best time for children to learn health seeking behavior. Education that provides basic academic skill, specific knowledge, attitude and skill related to their physical , psychological and social well-being.[9] According to modern concepts, school health service is an economical and powerful means of raising community health and more important in future generations. By simply doing periodic medical examination and daily morning inspection of students, we can detect many more problems and treat accordingly.[10] The present study was conducted as part of the school health services to assess the common existing health problems of school children and to arouse health consciousness among the children.

The objective of the study was to; (1) to find the prevalence of morbidity among school children; and (2) to assess the morbidity pattern among school children.

METHODS

The study was started after ethical clearance and study was approved by institutional ethical committee in Indian institute of medical science and research, Warudi, Badnapur, Maharashtra, India.

The present cross sectional study was carried out in the rural area of Badnapur taluqa of Jalna district, Maharashtra, from January 2015 to March 2015. The study subjects were school going children. There were seventy primary school present in Badnapur taluqa ; one school from village name Shekta and two school from Warudi village were selected by simple random sampling. Prior permission was taken from the principal of the school after explaining the aims and objectives of the study. From these selected schools, a total number of 352 children studying from grade I to IV, who were present on the day of examination were included the study.

The children were examined for the presence of different morbidities by ophthalmologist followed by dentist and a pediatrician and basic information of the child was taken from class teacher. General examination included head to toe examination than systemic examination was done. Visual acuity was assessed using snellen's chart. The information was collected on pre designed and pretested proforma.

The collected data entered in Excel sheet and analyzed using appropriate statistical test.

RESULTS

Total three hundred and fifty two children were included in the present study out of which one hundred and sixty five were boys and one hundred and eighty seven were girls. The mean age was 8.36±1.73. Maximum number of children was in the age group of 9-10 years (Table 1).

Total 60% of school children were found to have one or other morbidity. Total 352 children were suffering from 399 morbidity, 1.89 morbidities per sick child and 1.13 morbidities per child. Prevalence of morbidities among girls was more than boys in this study but it was not found to be statistically significant. (X^2= 1.14; d.f=1, P>0.05) (Table 2).

Table1: Distribution of children according to age and gender.

Age (years)	Boys		Girls		Total (percentage)
	Number	Percentage	Number	Percentage	
5-6	33	20	40	21.4	73 (20.74)
7-8	61	36.96	51	27.3	112 (31.82)
9-10	54	32.7	79	42.3	133 (37.78)
11-12	17	10.3	17	9.09	34 (9.66)
Total	165	100	187	100	352 (100)

Table 2: Distribution of children according to morbidity.

Morbidity	Boys		Girls		Total (percentage)
	Number	Percentage	Number	Percentage	
Present	94	56.96	117	62.6	211 (60)
Absent	71	43.04	70	37.4	141 (40)
Total	165	100	187	100	352 (100)

(X^2= 1.14; d.f=1; P>0.05).

The prevalence of nutritional deficiency diseases was the most common 52.27% followed by respiratory infections 15.34% and then infective and parasitic diseases 12.78%. Nutritional deficiency diseases and respiratory infections were slightly more in girls 54.54% and 15.5% than boys 49.69% and 15.15%. Infective and parasitic diseases was

more in boys 16.96% than girls 9.09%. The prevalence of ear, eye and diseases of oral cavity was 12.12%, 8.48% and 8.48% respectively among boys while the corresponding figure among their female counterpart was found to be 7.48%, 9.62% and 8% respectively. Diseases of the digestive system was slightly more in girls 4.27% than boys 3%. Prevalence of skin disease among boys and girls revealed to be almost equal (Table 3).

Table3: Distribution of children according to prevalence of morbidities.

ICD code	Diseases	Boys		Girls		Total (Percentage)
		Number	Percentage	Number	Percentage	
A00-B99	Infective and parasitic	28	16.96	17	9.09	45 (12.78)
E50-E64	Nutritional deficiency	82	49.69	102	54.54	184 (52.27)
H00-H59	Eye diseases	14	8.48	18	9.62	32 (9.09)
H60-H95	Ear diseases	20	12.12	14	7.48	34 (9.65)
J00-J99	Respiratory diseases	25	15.15	29	15.5	54 (15.34)
K00-K14	Diseases of oral cavity	14	8.48	15	8.02	29 (8.23)
L00-L99	Skin diseases	4	2.42	4	2.13	8 (2.27)
R10- R19	Diseases of digestive system	5	3.03	8	4.27	13 (3.69)

Table 4: Distribution of children according to type of morbidities.

Disease	Boys		Girls		Total (Percentage)	Test of significance
	No.	%	No.	%		
Anemia (clinically)						
Present	28	16.96	52	27.8	80 (22.72)	X^2=5.86; d.f= 1
Absent	137	83.04	135	72.2	272 (77.27)	P – 0.007
Lips						
Angular stomatitis	3	1.81	2	1.06	5 (1.4)	X^2=0.35; d.f= 1
Normal	162	98.18	185	98.93	347 (98.57)	P – 0.5
Dental caries						
Present	11	6.66	10	5.34	21 (5.96)	X^2=0.27; d.f= 2
Absent	154	93.33	177	94.65	331 (94.03)	P – 0.6
Skin diseases						
Scabies	2	0.56	3	1.6	5 (1.4)	X^2=0.56; d.f= 2
Others	2	0.56	1	0.53	3 (0.85)	P – 0.7
Normal	161	9.69	183	97.72	344 (97.72)	
Ear discharge						
Present	15	9.09	10	5.34	25 (7.1)	X^2=1.86; d.f= 1
Absent	150	90.9	177	94.65	327 (92.89)	P – 0.08
URTI						
Present	24	14.54	27	14.43	54 (15.34)	X^2=0.008; d.f= 1
Absent	141	85.45	160	85.56	298 (84.65)	P – 0.4
Diseases of eye						
Refractive error	13	7.87	15	8.02	28 (7.95)	X^2=0.76; d.f= 2
Conjunctivitis	1	0.6	3	1.6	4 (1.13)	P – 0.6
Normal						
Lymphadenopathy						
Present	9	5.45	6	3.2	15 (4.2)	X^2=0.066; d.f= 1
Absent	156	94.54	181	95.73	337 (95.73)	P – 0.3
Hepatomegaly						
Present	1	0.6	2	1.06	3 (0.85)	X^2=0.011; d.f= 1
Absent	164	99.39	185	98.93	349 (99.1)	P – 0.4
Splenomegaly						
Present	1	0.6	1	0.53	02 (0.56)	X^2=0.38; d.f= 1
Absent	164	99.39	186	99.46	350 (99.43)	P – 0.2

Among the different types of morbidities nutritional anemia was most common 22.72%, followed by URTI 15.4%.the prevalence of anemia was more in girls 27.8% than boys 16.96% it was statistically significant (X^2=5.86,d.f= 1,P – 0.007), URTI was almost similar in boys and girls. Among eye diseases refractive error was common 7.95% and prevalence of conjunctivitis was 1.13%. Ear discharge was present in 7% of children more in boys than girls but it was not statistically significant (X^2=1.86; d.f= 1; P – 0.08). The prevalence of dental caries was 6.66% in boys and 5.34% in girls. Lymphadenopathy was present in 4.2% of children. Total 1.4%of children had angular stomatitis. Hepatomegaly and splenomegaly was present in less than 1% of children each (Table 4).

DISCUSSION

In this study the prevalence of total morbidity was 60%. This prevalence was less than in a study by Kaushik et al who found 85.3%, Sharma et al who found 77.9% and saluja et al found 67.8% total morbidity, and more than study by Rani et al who found 41.52% and Shinde et al found 54.83% total morbidity in their study.[4,11-14] Nutritional deficiency diseases were most common in present study 52.27% and 22.72% children were anemic clinically. Anemia was more in girls than boys and it was statistically significant. A study by Kaushik et al found 56.9% children had nutritional deficiencies, Shinde et al found 15.69% children had anemia and Kulkarni et al found 15.8% children were anemic and 8.18% in a study by Nigudgi et al.[3,5,11,14] In a study by Harish Chandra et al found 33.9% anemia prevalence and Rani et al found 26.9%, these anemia prevalence were more than this study.[2,4] Following nutritional deficiencies respiratory infections was common with 15.34% prevalence, this prevalence was less compared to 42.78% in a study by JP Singh et al while Kulkarni et al, Sayed et al and Shinde et al found 14.3%, 12.11% and 3.77% prevalence of URTI respectively.[5,8,10,14] Total 12.7% of children had worm infestation, this was more than findings of Sharma et al, Shinde et al [14] and JP Singh [10] et al who found 5.27%, 4.94% and 2.5% respectively.[10,12,14] The present study found 7.95% refractive error, this prevalence was less than 10.12% in a study by Deshpande et al and 10.41% in a study by Kulkarni et al.[5,15] Total 1.13% of children had conjunctivitis in this study, Kaushik et al found 4% and Deshpande et al found it 2.57% which was more than this study.[11.15] Ear discharge was present in 7.1% of children that was more than 2.6% in a study by Sayed et al and Sharma et al found 5.59% of children had ear problems.[8,12] In this study 5.96% of children had dental caries, less prevalence compared to 31.86% in study by Kulkarni et al, 24.86% in study by Sharma et al and 22.8% in study by Saluja et al.[5,12,13] The prevalence of angular stomatitis was low in this study compared to 27.5% in a study by Kaushik et al.[11] The present study found 4.2% children had lymphadenopathy, this was slightly lower than findings of Sharma et al who found it 5%.[12] In this study the prevalence of skin infections was 1.4%, low compared to 11.4%in study by Kaushik et al and 6.53% in study by Sharma et al.[11,12] In this study less than 1% of children had hepatomegaly and splenomegaly each, Kaushik et el found 2.9% children had hepatomegaly and 1.1% children had splenomegaly.[11]

CONCLUSION

In this study the health status of school children was not satisfactory, more so in girls than boys. Prevalence of morbidities found to be 1.89 morbidities per sick child and 1.13 morbidities per child. The prevalence of nutritional deficiency diseases was the most common followed by respiratory infections and then infective and parasitic diseases. Prevalence of eye, ear, skin problems were low compared to other studies. Most of the diseases among school going children were preventable.

Recommendations

Prevention, early recognition and prompt treatment of diseases by regular screening of students would definitely reduce morbidity so that they can attain their full potential in the course of their education.

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