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Original Research Article

Morbidity pattern among primary school children in a tribal area of Maharashtra

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ABSTRACT

Background: A child spends more time at school than anywhere else, except home. The health and well-being of children is a fundamental issue in education. Indeed, active promotion of health is now seen as a priority for schools. Mortality in school age children is low but morbidity and physical defects constitute major problems. With this background the present study was conducted to explore the prevalence morbidity patterns and their socio-demographic co-relates among the primary school children in a Tribal area. The objectives of the study were to study morbidity profile and assess nutrition status of tribal primary school children; to determine factors influencing morbidity profile of tribal primary school children; to suggest recommendations based on study findings.
Methods: This study was a cross-sectional study conducted in Zila Parishad school located in village-Durves, tribal area of District-Palghar. Children enrolled in class 1 to 5 were included using convenient sampling. A thorough clinical examination was carried out to assess the morbidities and nutrition status. Data was entered in Microsoft Excel Spread sheet and analyzed using SPSS.
Results: Out of 126 students, 68 were girls and 58 were boys. The teeth hygiene was most compromised and dental caries was the commonest morbidity. Around 30% were malnourished as per WHO weight-for-age standards. Younger students i.e. those enrolled in class 1–3 had higher proportions of morbidities as compared to their elder counterparts. It was seen that male gender and children enrolled in class 1–3 had more morbidities.
Conclusions: The study showed a poor attendance of merely 40% with 73% of study subjects having one or other kind of morbidities. Health education sessions on personal hygiene and nutrition must be carried out both for students and their parents to improve nutrition status and reduce proportion of morbidities.

Keywords: Primary school, Morbidity, Malnutrition

INTRODUCTION

A child spends more time at school than anywhere else, except home. Schools are sacred since they provide an environment for acquiring skills and development of intelligence, which can be utilized by students to achieve their goals in life and develop as a good human being.[1]

The health and well-being of children is a fundamental issue in education. Indeed, active promotion of health is now seen as a priority for schools. The level of concern is illustrated by the fact that WHO has set up a Global School Health Initiative. 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 in Baroda city.[2] Currently school health services are provided by RBSK in government and government aided schools. The focus is on 4 D's: Defects, Deficiencies, Diseases and Developmental Delays.

Mortality in school age children is low but morbidity and physical defects constitute major problems. Extensive surveys have been carried out in different parts of the country and the findings show that sickness and morbidity rates in India are among the highest in the world. With this background the present study was conducted to explore the prevalence morbidity patterns and their socio-demographic co-relates among the primary school children in a Tribal area.

Objectives

1) To study morbidity profile and assess nutrition status of tribal primary school children.
2) To determine factors influencing morbidity profile of tribal primary school children.
3) To suggest recommendations based on study findings.

METHODS

The study was conducted in Zilla Parishad school located in Village-Durves, tribal area of District-Palghar, under the rural field practice area of a medical college. It is a Cross-Sectional Study. Children enrolled in class 1 to 5 were included. Convenient sampling was used and all students present on the day of check up were included in the study. A thorough clinical examination was made along with anthropometric measurements which were carried out at school premises in one room made available for this purpose. Weight was measured to the nearest 0.5 kg after making the children stand erect on a weighing machine without their foot-wear. For measuring the height, a scale was calibrated on one of the walls of the classroom using a metallic tape. The children were made to stand against the wall after removing the footwear with their heels, buttocks, scapulae and occiput touching the wall. They were made to look straight and the height measured to the nearest 0.5 cm. Diagnosis of worm infestation was made from a history of passing worms in the stool and that of anaemia by the presence of pallor in the tongue, nail beds or conjunctiva. Vitamin A deficiency was diagnosed in the presence of both xerosis and bitot's spots as per the criteria laid down by W.H.O. for field survey. Ear infection was diagnosed by the presence of ear discharge on examination. Visual acuity was assessed by using Snellen's chart. Study period was 2 months starting from January 2016 to February 2016 which included planning and obtaining permissions. Prior permission was taken from school principal and teachers of the respective class. The actual examination was done on one pre-decided day. Data so obtained was entered in a Microsoft Excel Spread sheet and analyzed using SPSS Version 21.0.

RESULTS

A total of 302 children were enrolled in primary school i.e. classes 1st to 5th. However, only 126 students were present on the day of data collection. The cumulative attendance hence was only 41.7%.

Out of 126 students, 68 were girls and 58 were boys. Mean age was 85.8±14.8 months. The gender wise distribution for all classes is shown in Table 1.

Table 1: Gender wise distribution of students with their mean age (in months).

Class	Male	Female	Total	Mean age±SD (months)
Class-1	10	12	22	68±2.1
Class-2	17	14	31	74.1±2.7
Class-3	10	12	22	85.5±3.0
Class-4	11	12	23	94.4±2.8
Class-5	10	18	28	105.8±3.7
Total	58	68	126	85.8±14.8

Table 2 describes the various morbidities found among the study subjects. Most common morbidity found was caries (61.1%) followed by ear wax (38.1%), URTI (19%) and Ear discharge (13.5%). Overall 92 children had some morbidity (73%).

Pallor (23%) was most common presentation on general examination followed by Lymphadenopathy (12.7%) and icterus (7.1%). 6 students (4.8%) were febrile. All children had normal pulse and respiratory rate. On head to toe examination, the personal hygiene of study subjects was found to be good with eye hygiene (93.7%), ears (84.1%), hair (69.8%), nails (43.7%), skin (91.3%) and teeth (38.1%). Clearly, the teeth hygiene was most compromised and dental caries was the commonest morbidity.

Mean height was 120.3±8.8 cm and mean weight was 19.6±4.4 kg. Weight-for-age as per WHO standards was used to classify nutrition status of study subjects. Only 9 (7.1%) were severely underweight, majority (69.8%) were normal.

The subjects were divided into young i.e. classes 1 – 3 and older group i.e. those in classes 4 and 5. The younger students were found to have higher proportions of

malnutrition and this finding was found to be statistically significant. Similarly, male students had higher proportion of malnutrition but this gender-wise difference was not significant.

Table 2: Morbidity profile of study subjects.

System	Morbidities	Number	Percentage (%)
Eye	Conjunctivitis	4	3.2
	Squint	1	0.8
	Spectacles	2	1.6
	Blind (one eye)	1	0.8
Ear	Discharge	17	13.5
	Hearing loss	1	0.8
	ASOM	3	2.4
	Wax	48	38.1
	External abnormality	3	3.2
Skin	Patch	8	6.3
	Scabies	3	2.4
Respiratory	URTI	24	19
Oral cavity	Caries	77	61.1
MSK	Muscular pains	3	2.4
	Joint pain	1	0.8
Vitamin deficiencies	Symptoms/signs	13	10.3
UTI	Symptoms/signs	2	1.6
CVS	Symptoms/signs	2	1.6

Table 3: Gender wise and class wise distribution of malnutrition.

	Normal (%)	Malnourished* (%)	Total	Chi-square
Female	49 (72.1)	19 (27.9)	68	X^2=0.344, p=0.28
Male	39 (67.2)	19 (32.8)	58	
Class 1-3	45 (60)	30 (40)	75	X^2=8.52, p=0.001
Class 4-5	43 (84.3)	8 (15.7)	51	

*For statistical purposes moderate and severe malnutrition was combined.

Table 4: Association of morbidities with various characteristics.

	Morbidities present (%)	Morbidities absent (%)	Total	Chi-square
Malnourished	26 (68.4)	12 (31.6)	38	X^2= 0.583, p=0.45
Normal	66 (75)	22 (25)	88	
Male	47 (81)	11 (19)	58	X^2= 3.5, p=0.046
Female	45 (66.2)	23(33.8)	68	
Class 1-3	62 (82.7)	13 (17.3)	75	X^2=8.7592 p=0.003
Class 4-5	30 (58.8)	21 (41.2)	51	
Total	92	34	126	

Further, the presence and absence of morbidities was compared on the basis of characteristics of study subjects like gender, class studying in and nutrition status. The findings are shown in Table 4.

The astonishing finding here was that while 75% of normal children had some kind of morbidities, but amongst the malnourished children only 68.4% had some kind of morbidity. The reason for such a finding may have been that malnourished children may have been suffering from some major illness and hence they might have been absent on the day of the data collection for this study.

81% of male students had some kind of morbidity as oppose to 66% of female students. This difference in gender was statistically significant. Younger students i.e. those enrolled in class 1–3 had higher proportions of morbidities as compared to their elder counterparts and this difference was again statistically significant.

DISCUSSION

Out of 126 students registered in the study, 68 (54%) were girls and 58(46%) were boys. Similar results were found by Asghar et al in Lucknow where total number of school children enrolled in the study was 170 and among

these 82 (48%) were boys and 88 (52%) were girls.[3] While in a study at Meerut, girls were 46.8% and boys were 53.3%.[4]

Most common morbidity found was caries (61.1%) followed by ear wax (38.1%). Also, 10.3% had signs of vitamin deficiencies. Asghar et al in their study found 37.05% had dental caries and 10% had ear discharge and vitamin A deficiency in 4.70%.[3] Study in rural area of Lucknow showed vitamin A deficiency in 46.3%.[5] Another study in Urban area of Guntur showed 14.85% had dental caries.[6] Study conducted in private school in Pune showed 65.1% were suffering from dental caries, followed by 38.2% having URTI, 29.9% having ear wax and 10.0% having myopia.[7] While study in Uttar Pradesh by Kaushik et al found nutritional deficiencies to be most prevalent (56.9%) followed by diseases of oral cavity (46.0%).[8] Hence, most studies including the current one have showed that dental caries is most common morbidity of primary school children.

Only 9 children (7.1%) were severely underweight and majority of them (69.8%) were found to have normal weight-for-age. However, the study by Asghar et al found proportion of underweight students was 40%.[3] Another study in rural area of Lucknow showed that 77.1% of the children suffered from malnutrition.[5] In this study the proportion of underweight children was much better compared to previous studies.

In this study, malnutrition was equally distributed among girls and boys. However, a study in urban area of Guntur on school children showed that malnutrition was significantly more in boys when compared with girls.[6]

There was no significant difference in presence of morbidities based on nutritional status. However it was seen that male gender and children enrolled in class 1–3 had more morbidities and this was statistically significant. In a study in private school in Pune similar findings were seen.[7]

CONCLUSION

Attendance in school was very low on the day of this study. Just over 30% of study subjects were malnourished. Malnutrition was more prevalent in children enrolled between classes 1 and 3. Around one-fourth of school attendees were anemic on clinical examination and 10% showed signs of other nutritional deficiencies. Also, around three-fourth of the subjects had one or other kind of morbidity like eye/ear/teeth/skin problems. These morbidities were found more commonly in male gender and in students of classes 1–3. Dental caries was the most common morbidity which was followed by ear wax problems and upper respiratory infections.

Recommendations

1. Health education in simple easy language must be delivered on topics like basic personal hygiene of nails, hair, teeth, etc. Parents must also actively be involved in such sessions for better results.
2. Adequate Nutrition supplementation in mid-day meals and simultaneously nutrition education to parents must be given.
3. Measures like community motivation may be tried with intention of improving school attendance.
4. Periodically such cross-sectional studies need to be repeated along with long-term studies to understand the problems of tribal school children.

Limitations

As it was a school-based study, parental involvement and factors like socio-economic status were not included. Prevalence of some kinds of morbidities like respiratory infections may vary with climatic conditions.

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