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Original Article

Health profile of school children in Bhaktapur

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Abstract
Objectives: To find out the existing common health problems among school children and to arouse health consciousness among the children. **Material and methods:** All the students studying in Mandev Amrit Smriti School, Jhaukhel VDC of Bhaktapur District were included in the sample. The methods used were the interview, clinical history and check-up for provisional diagnosis. A semi-structured questionnaire was used to record information regarding name, age, sex, standard in which s/he was studying, physical examination/ personal hygiene, anthropometric measurements, clinical findings, provisional diagnosis etc. The medical instruments used in the survey were: weighing machine, measuring tape, and thermometer. Common medicines like Jeevanjal packets, Albendazole tablets for deworming, Metron, amoxicyllin, paracetamol, Tagyl etc were also distributed to the needy students. **Results and Conclusion:** The physical examination of all 118 students in age group ranging from 3 to 13 years of Mandev Amrit Smriti School situated at Jhaukhel VDc of Bhaktapur district was carried out. Thirteen health related problems were detected in this study. The most important three problems were ear problems (22.03%), worm infestation (16.10%) and dental caries (13.56%). Thus school health education should mainly aim at these problems and the care and cleanliness of ears and teeth by proper and regular brushing should be stressed. Applying Water low classification, 33% males were found normal as per their weight for age. 61.9% males were stunted and 4.8 % males were wasted. Likewise, 54.6% females were found normal as per their weight for age. 43.6% females were stunted and 1.8 % females were wasted.

Key Word: School health, Health problems

School health programme is an important aspect of any community health programme. About 42% of the total population are children below the age of 16.[1] Eighty-six percent of the boys and 74.6% of the girls are enrolled in the country's 28,000 primary schools.[2] As children occupy the major portion of population of the country and also belong to age group in which good healthful living style could be inculcated; it is all the more important to impart them with right knowledge at right time. Children are the one who disseminate the knowledge in the community.

School health services provide an ideal platform to detect the health problems early and treat them. The three main components of school health programmes are health education, maintenance of health giving environment and comprehensive health care.

According to modern health concepts school health service is an economical and powerful means of raising community health as a whole and more important the health of future generations. Effective school health programs are a sustainable way to promote healthy practices. It is one of the most cost-effective ways to reach school age children, adolescents and the broader community.

School health programs are the essential sequel and complement to early childcare and development programs. Continuing good health at school age is essential if children are to sustain the advantages of a healthy early childhood and take full advantage of what may be their only opportunity for formal learning.

School health programmes and services help link the resources of the health, education, nutrition, and sanitation sectors in an existing infrastructure, the school. Health problem of the school children vary from one place to another, surveys[3-14] carried out indicate that the main emphasis will fall in malnutrition, infectious diseases, intestinal parasites, disease of skin, eye and ear and dental caries.

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Malnutrition may adversely affect the child's intellectual development and consequently, health and productivity in later life[15,16]. The consequences of stunting caused by malnutrition include increased morbidity and mortality, poor physical and mental development and school performance, and reduced body size and capacity for physical growth- all of which have long-term economic and societal implications. School health programmes that target poor health and nutrition are therefore an investment in health of country's people and their capacity to thrive both economically and socially.[3]

Objectives

- To find out the existing common health problems among the students.
- To arouse importance of personal hygiene and healthful living through information, education and communication (IEC).

Material and methods

All the 118 students of Mandev Amrit Smriti School, Jhaukhel VDC of Bhaktapur District were included in the sample. Interview and physical health check-up were conducted to gather the necessary information. Semi-structured questionnaire were used as study tools to acquire information regarding student's name, age, sex, standard in which he/ she was studying, physical examination/ personal hygiene, anthropometry, clinical history, provisional diagnosis etc. The medical instruments used in the survey are weighing machine, measuring tape, thermometer, Jeevan Jal packets and albendazole tablets for deworming. Some other medicines like metron, amoxycillin, paracetamol, tagyl etc. were also used. Data were analyzed using Statistical Package for Social Science (SPSS).

Results

The Mandev Amrit Smriti School is located in the ward no 3 of the Jhaukhel VDC of Bhaktapur district. It is a primary school established in 2045 B.S. It is a private school aided by NGO from 2058 B.S. the total number of students studying in this school was 118 out of which 63 were boys and 55 were girls.

A total of 118 students were examined physically. The age and the sex distribution of the school children are shown in Table 1.

Table 1: Distribution of school children by age

Age in years	Male		Female		Total	
	Number	%	Number	%	Number	%
03	1	1.6	-	-	1	.8
04	2	3.2	2	3.6	4	3.4
05	2	3.2	5	9.1	7	5.9
06	15	23.8	9	16.4	24	20.3
07	9	14.3	3	5.5	12	10.2
08	13	20.6	9	16.4	22	18.6
09	2	3.2	10	18.2	12	10.2
10	4	6.3	9	16.4	13	11.0
11	7	11.1	5	9.1	12	10.2
12	5	7.9	2	3.6	7	5.9
13	3	4.8	1	1.8	4	3.4
Total	63	100.0	55	100.0	118	100.0

Height in centimetre and weight in kilogram were recorded. Vital signs such as pulse, temperature, pallor, oedema, glands, eyes, throat, teeth, ears, heart, lungs, liver, spleen and skin diseases were clinically examined. The mean height and weight are shown in Table 2.

Table 2: Distribution of school children as per their mean weight

Age in years	Male			Female		
	No.	Mean weight	SD	No.	Mean weight	SD
03	01	15.0000	00	00	-	-
04	02	15.0000	1.4142	02	14.5000	0.7071
05	02	15.5000	0.7071	05	17.8000	1.9235
06	15	17.0667	2.3135	09	18.7778	3.4197
07	09	17.8889	1.6159	03	20.0000	0.8165
08	13	22.5385	2.6018	09	21.1111	2.1473
09	02	24.5000	0.7071	10	24.0000	2.1082
10	04	26.7500	2.2174	09	26.8889	2.2608
11	07	25.2857	2.0587	05	25.2000	3.0332
12	05	28.0000	2.0000	02	36.5000	4.9497
13	03	34.6667	8.3267	01	36.0000	00
Total	63			55		

Table 3: Distribution of school children as per their mean height

Age in years	Male			Female		
	No.	Mean height	SD	No.	Mean height	SD
03	01	98.0000	00	00	-	-
04	02	99.2500	1.7678	02	103.0000	18.3848
05	02	94.2500	1.7678	05	103.9000	3.8955
06	15	101.8000	6.6783	09	107.9444	8.0446
07	09	104.5000	3.9370	03	111.0000	2.5000
08	13	121.2692	12.0599	09	113.8333	5.1051
09	02	133.0000	18.3848	10	117.9000	3.8500
10	04	117.8750	11.8700	09	124.5556	4.2826
11	07	125.6429	9.5512	05	124.8000	4.3818
12	05	134.3000	7.6207	02	133.2500	14.4957
13	03	140.1667	7.2169	01	143.5000	00
Total	63			55		

The Family Health Survey done by Ministry of Health in 1996 showed that on the basis of height for age there is considerable chronic malnutrition among Nepali children. Overall 48% of children under the age of 3 are stunted and 20% are severely stunted. Female children were more likely to be stunted i.e. 50% and severely stunted i.e. 22% than male children (47% and 19% respectively). [17]

In the present survey, on an average, at the age of 5, 6, 7, 10, 12 and 13 the girls weighed more than the boys. The boys were weighed more than the girls at an age of 3, 4, 8, 9, 11. (Table 2). Similarly, on an average the girls at the age of 4, 5, 6, 7, 10 and 13 were found taller than boys of these ages. The boys of age 8, 9, 11, 12 were taller than girls of these ages. (Table 3)

Nutritional status

The mean weight and height of the students according to age and sex were compared with the median weight for age and height for age. Nutritional status of the students was assessed through the weight for age (wasting) and height for age (stunting) according to Waterlow classification. (Table 4 and 5)

Table 4: Nutritional status of children (wasting & stunting) as per sex

Nutritional status	Wt /Ht	Ht/ Age	Findings					
			Male		Female		Total	
			No.	%	No.	%	No.	%
Normal	>80%	>90%	21	33.3	30	54.6	51	43.2
Wasted	<80%	>90%	3	4.8	1	1.8	4	3.4
Stunted	>80%	<90%	39	61.9	24	43.6	63	53.4
Wasted & stunted	<80%	<90%	00	00	00	00	00	00

33.3% males were found normal as per their weight for age. 61.9% males were stunted and 4.8 % males were wasted. Likewise, 54.6% females were found normal as per their weight for age. 43.6% females were stunted and 1.8 % females were wasted. The detail nutritional status of school children was shown in the Table 5.

Table 5: Nutritional status of children (wasting & stunting) as per age and sex

Age in years	Nutritional status													
		Male							Female					
		Normal		Wasted		Stunted			Normal		Wasted		Stunted	
	No.	No	%	No.	%	No	%	No.	No.	%	No.	%	No.	%
03- 5	**5**	3	60	0	00	2	40	**7**	5	71.4	1	14.3	1	14.3
06-10	**43**	15	34.88	2	4.65	26	60.47	**40**	23	57.5	00	00	17	42.5
11-13	**15**	3	20	1	6.67	11	73.33	**8**	2	25	00	00	6	75
Total	**63**	21	33.3	3	4.8	39	61.90	**55**	30	54.6	1	1.8	24	43.6

Disease pattern

Among 118 students, 27 (22.88%) students are found having unsatisfactory oral hygiene. Almost all students were found combed their hair and trimmed their nails. Twenty six (22.03%) students were having ear problems. Of the total 22.03%, 25.4%were male and 18.18% were female. Among them 92.30% had wax in their ear, 3.85% each had otitis externa and otitis media. Sixteen students (13.56%) had problem of dental caries. Out of which 15.9% were male and 10.9% were female. Nineteen students (16.10%) had worm infestation, which constitute 11.1% male and 21.8% female. Likewise, 5.08% had tonsillitis, 1.69% had eye problem with poor vision, 0.84% had undescended testis, 0.84% had chest infection, 1.69% had dandruff, 1.69% had gland enlarged, 2.54% had skin disease, 0.84% had discharge from ear, 0.84% had conjunctivitis and 0.84% had eruption. (Table 6)

Table 6: Disease pattern of school children by sex

Diseases	Male (N=63)		Female (N=55)		Total (N=118)	
	No.	%	No.	%	No.	%
Ear problem	16	25.4	10	18.18	26	22.03
Wax	15	93.8	09	90	24	92.30
Otitis Media	00	00	01	10	01	3.85
Otitis externa	01	6.2	00	00	01	3.85
Dental caries	10	15.9	06	10.9	16	13.56
Worm infestation	07	11.1	12	21.8	19	16.10
Tonsillitis	04	6.4	02	3.6	06	5.08
Eye problem with poor vision	01	1.6	01	1.8	02	1.69
Conjunctivitis	01	1.6	00	00	01	0.84
Gland enlarged	00	00	02	3.6	02	1.69
Dandruff	00	00	02	3.6	02	1.69
Eruption	01	1.6	00	00	01	0.84
Skin diseases	02	3.2	01	1.8	03	2.54
Discharge from ear	00	00	01	1.8	01	0.84
Chest infection	01	1.6	00	00	01	0.84
Undescended testis	01	1.6	00	00	01	0.84

Discussion and conclusion

According to UNICEF study, Nepal has more than 90% under 1-year children were found suffering from Iron deficiency anaemia. Likewise 70% lactating mothers were found suffering from Iron deficiency Anaemia. About 50% of under 5 years children were found malnourished and 11% are severely malnourished among them.[4]

The Nepal multiple indicator surveillance (NMIS) have conduct a survey in 1995 and found 63% of children below 3 years to be chronically malnourished and 49 % of children grouped to be under weight.[18]

According to Nepal Demographic and Health Survey, 2001, the percent prevalence for underweight and wasted children of under five years of age are 48.3 and 10 percent. Around 50% of the under five children are stunted. Children in rural areas are more likely to be stunted (52%) than in urban area (37%). [19]

There has been little improvement in the nutritional status of children as measured by stunting over the last 23 years. The prevalence of stunting among children 6 - 59 months has reduced by only 15.3% points from 69.4 to 54.1%. [20] Nepal Micronutrient Status Survey[20], 1998 (6 – 59 months) indicate that 54.1 % were stunted, 6.7% showed wasting and 47.1% were underweight.

National Family Health Survey (NFHS, 1996) in a nationally representative sample of children (6 – 36 months) showed that overall, 54.8% were stunted, 12.7% showed wasting and 54.2% were underweight.[17] The first national nutritional survey in 1975 also showed similar findings of 48.1% stunted, 2.8% wasted and 50% underweight.[4]

In 1977/78, 749 children, between 1-5 years of age, of Bara and Parsa districts were surveyed and found 11.8% have severe malnutrition, 36.4% have mild malnutrition and 51.6 % with good nutrition.[5]

Rana et al carried out nutritional status survey of under six year olds of Bode, Bhaktapur. Their survey shows that there was chronic under nutrition in more than 80% of the children above one year of age.[6]

Malnutrition in school children has been studied in small surveys in Madras school children[7], rural Punjab school children[8], school children of Kerela[9] and Ludhiana school children[10]. These studies show the prevalence of malnutrition being 32.6%, 87.4%, 34.2%, and 52.2% respectively.

Data from several studies show that the prevalence of stunting increased with age showing a higher proportion of stunted school-aged children. In

addition, studies have shown that linear growth continues beyond the normal puberty growth period.

The prevalence of wasting and stunting in the school children (age group 4 – 15 years) of six government primary school of Pokhara valley were found 10.3% and 14.9% respectively. Among the different morbidity, dental caries (41.5%), worm infestation (33.7%) and pediculosis (32.6%) were found to be high in both sexes.[11]

Health surveys in most of the Indian schools yielded more or less similar results on general prevalence of morbidity like dental ailments 70-90%, malnutrition 40-75%, worm infestation 20-40%, skin diseases 10%, eye diseases 4-8% and pulmonary tuberculosis 4-5%.[12]

Good health is essential for learning and cognitive aptitude. Ensuring that children are healthy and able to learn is an indispensable constituent of an effective education system. It is the school-aged child who is at the greatest risk from infection with one or more of the most common parasites. For girls and boys aged 5 to 14 years in developing countries, intestinal worms account for an estimated 12 and 11 percent of the total disease burden respectively.[13] Population dynamic theory has estimated that focussing treatment effort on this age group would considerably reduce transmission in the population as a whole.[14]

In this study, it was found that 33.3% male children and 54.6% female children were found normal as per their weight for age. Similarly, 61.9% male and 43.6% female children were found stunted. Likewise, 4.8 % male and 1.8 % female children were found wasted.

The most important three problems detected in this study were ear problems (22.03%), worm infestation (16.10%) and dental caries (13.56%). So it seems necessary to conduct school health education on hand washing, keeping ear clean and on personal hygiene especially brushing technique to prevent dental caries.

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