An assessment of nutritional status of the children of government urdu higher primary schools of Azad Nagar and its surrounding areas of Bangalore

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ABSTRACT

Children are the future of the country. The importance of child health has been described by many ancient Unani physicians. In India, children under 15 years of age constitute about 40 percent of the population. School children constitute a large pool of children of this age group. Nutritional status is a major component of school health services. To assess the nutritional status of government urdu higher primary schools in Azad Nagar and its surrounding area, Bangalore. To assess the anthropometric indices among children. The present study was one time cross sectional, conducted in the three govt Urdu higher primary schools of Azad Nagar and its surrounding area. Total 500 children were included in the study. A complete physical examination of the children was conducted and deviations from the normal were recorded. The overall prevalence of malnutrition in the school children was found to be 52.00%(260). The prevalence of malnutrition among boys was 53.85%(161) and among girls was 49.25%(99). The stunting was 41.47%(124) and 38.81% (78) in boys and girls respectively. The prevalence of stunting was more in boys as compared to girls (41.47% Vs 38.81%). In the present study, nutritional status was found highly related to the personal hygiene and socio economic status. Main emphasis may be given towards nutrition education, personal hygiene education, health education apart from the regular educational activities in the community.

Key words: Nutritional status; School children; Nutrition education.

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INTRODUCTION

The health of children and youth is of fundamental importance. Over $1/5^{th}$ of our population comprises of children aged 5-14 years i.e. the group covering primary and secondary education [1]. As today's children are the citizens of tomorrow's world, their survival, protection and development are the prerequisite for the future development of humanity [2]. Without ensuring optimal child growth and development efforts to accelerate economic development significantly will be unsuccessful. The world summit for children in 1990, in which 159 members

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participated, agreed to end malnutrition and other health problems of children by the end of the decade [3].

A child's entire life is determined in large measures by the food given to him during his first five years. Because childhood period is of rapid growth and development, and nutrition is one of the influencing factors in this period [4]. Malnutrition causes a great deal of physical and emotional suffering and it is a violation of a child's human rights. Malnutrition substantially rises the risk of infant and child deaths, and increases vulnerability to a variety of diseases in later life. Children who are undernourished and underweighed are likely to be less cleaver than if they were well fed. Health of children is of great importance as rapid growth occurs during this period [5]. Good nutrition is a basic requirement for good health and a living organism is a product of nutrition [6].

It is widely accepted that, for practical purposes, anthropometry is the most useful tool for assessing the nutritional status of children. There are many anthropometric indicators in use, such as mid upper arm circumference (MUAC), weight for age, height for age, weight for height, and body mass index of Quetlet. Most of these indicators need to be used along with specific reference tables, e.g. National Center for Health Statistics (NCHS) tables, for interpreting data. This might not be possible in overcrowded outpatient departments of common tertiary care hospitals. Therefore, to estimate the expected weight or height of a child rapidly, especially in emergency situations, many field workers and clinicians use formulae first introduced by Weech, using age as variable.

The principal aim of the nutritional assessment of a community is to mapout the magnitude and geographical distribution of malnutrition as a public health problem, to discover and analyze the ecological factors that are directly or indirectly responsible, and, where possible to suggest appropriate corrective measures, preferably capable of being applied with continuing community participation.

With this recommendation in mind, assessment of the nutritional status of children of govt urdu higher primary schools of Azad Nagar and its surrounding area was carried out. The area contained three schools offering higher primary education i.e. 1st to 8th class standard. The study was conducted in all three schools. The main objective of the study was to assess the nutritional status, anthropometric indices, and to make early diagnosis of nutritional deficiency of govt urdu higher primary schools children in Azad Nagar and its surrounding area.

MATERIALS AND METHODS

Place of study:
The study was conducted in govt. urdu higher primary schools of Azad Nagar and its adjacent area in Bangalore. Total strength of children in the schools were 700. Children between 5-14 years of age were selected for the study.

Study design:
One time observational cross sectional study of urdu higher primary school children was conducted to know the nutritional status in Azad Nagar govt. school children.

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Study period:
January 2010- December 2010

Sample size:
500 children between 5-14 years of age were found in three schools.

Data collection:
Permission was obtained from BSA and as well as from head masters of respective schools for conducting the study. The schools were visited once a week and the data was collected using readymade proforma. The proforma comprised of personal history, personal hygiene aspects and all aspects of clinical examination of the children. The data was collected by interviewing and examining the children with the help of class teacher. The absentees were examined by visiting the school in next consecutive week. The children were assesses for nutritional status by clinical examination and anthropometry. Weight and height of children were measured in situ at the time of interview according to guidelines of W.H.O. The results were analyzed statistically.

RESULTS AND DISCUSSION

Table No.1
Distribution of School Children according to Age

Age Group	No. of Children	Percentage (%)
5+	52	10.40
6+	63	12.60
7+	43	8.60
8+	51	10.20
9+	41	8.20
10+	34	6.80
11+	39	7.80
12+	40	8.00
13+	87	17.40
14	50	10.00
Total	**500**	**100**

Figure No. 1
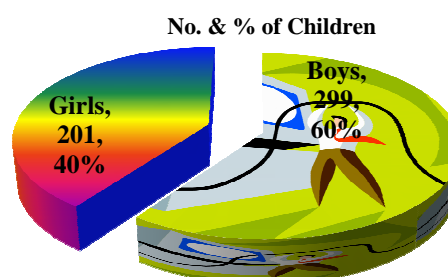**Distribution of School Children according to Age**
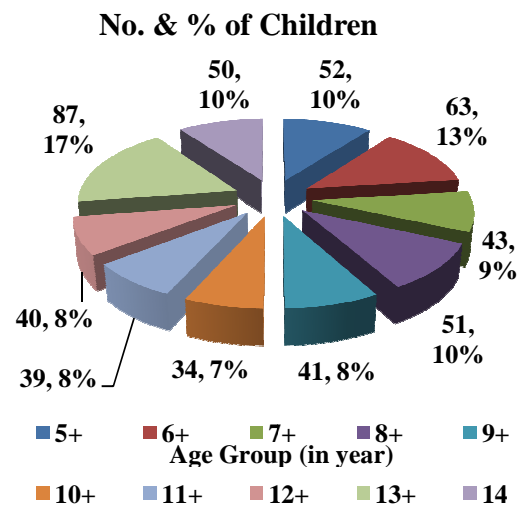
Age:

In present study 500 children were included from govt. higher primary urdu school. They were belonging to 5 to 14 age group. Out of 500 children 52(10.40%) children were belonging to 5+ age group, 63(12.60%) were belonging to 6+ age group, 43(8.60%) were belonging to 7+ age group, 51(10.20%) were belonging to 8+ age group, 41(8.20%) were belonging to 9+ age group, 34(6.80%) were belonging to 10+ age group, 39(7.80%) were belonging to 11+ age group, 40(8.00%) were belonging to 12+ age group, 87(17.40%) were belonging to 13+ age group, and 50(10.00%) were belonging to 14 age group. Results are summarized in Table & figure no. 1.

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Sex:
In the present study both boys and girls were included. Out of total 500 children 299(59.80%) were boys and 201(40.20%) were girls. The number of boys was more than the number of girls. The ratio of Girls:Boys was 1:1.49. The difference may be due to the more inclination of parents towards boys education. The report of the Directorate of economics and Statistics, Bangalore (2000-2001) revealed less literacy rate in females as compared to males in Bangalore (77 % in females Vs 88%) in males [7]. This data supports the findings of the present study revealed the enrolment of less number of females in comparison to males in schools in Bangalore. The results are summarized in Table & figure no.2.

Table No.2

Sex	No. of Children	Percentage
Boys	299	59.80
Girls	201	40.20
Total	**500**	**100**

Figure No. 2

No. & % of Children

Religion:
Religion wise distribution of school children revealed that out of the total 500 children in the study 73(14.60%) children were Hindu and 427(85.40%) were Muslim. The area of the study was Muslim dominated and schools were urdu medium so Muslim preference was inevitable.

Family:
In the present study out of total 500 children 277(55.40%) children were belonging to nuclear family, 206(41.20%) were belonging to joint family and 17(3.40%) were belonging to three generation family. Maximum numbers of 277(55.40%) children were belonging to nuclear family.

Parent's educational status:
In the present study 73(14.60%) children had their mother education up to High School, 14(2.80%) children had up to Intermediate, 126(25.20%) had up to primary school, and 287(57.40%) had illiterate mothers.

In the study 58(11.60%) children had their father education up to Intermediate or PUC or Post High School diploma, 79(15.80%) had up to High School, 95(19.00%) had up to primary school and 268(53.60%) had illiterate fathers.

The number of children who had illiterate mother was more as compared to children having illiterate fathers (57.40% Vs 53.60%). The illiteracy in the mothers was more than illiteracy in fathers. This may be due to the population in the study area showing less interest in female education in comparison to male education. As per the report of the Directorate of Economics and Statistics, Bangalore (2000-2001), the female literacy rate was less as compared to male

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literacy rate in Bangalore (77% Vs 88%) [7]. In present study literacy rate was lower than reported. This may be because of lower, middle socioeconomic status of the under study population area Azad Nagar. The results are summarized in Table no.3.

Table No.3

Educational Status	Mother		Father	
	No. of Children	Percentage	No. of Children	Percentage
Intermediate or PUC or Post High School Diploma	14	2.80	58	11.60
High School Certificate	73	14.60	79	15.80
Primary School or Literate	126	25.20	95	19.00
Illiterate	287	57.40	268	53.60
Total	**500**	**100**	**500**	**100**

Parent's Occupation:
In the present study 224(44.80%) children had occupationally skilled father, 154(30.80%) had occupationally semi skilled father, 94(18.80%) had occupationally unskilled father and 28(5.60%) had occupationally unemployed father. Maximum number of 224(44.80%) were having occupationally skilled father and minimum number of 28(5.60%) were having occupationally unemployed father.

In the present study 31(6.20%) children had occupationally skilled mothers, 79(15.80%) had occupationally semi skilled mothers, 78(15.60%) had occupationally unskilled mothers and 312(62.40%) had occupationally unemployed mothers. Maximum number, 312(62.40%) had occupationally unemployed mother and minimum number of 31(6.20%) were having occupationally skilled mothers. The unemployment was more frequent in mothers in comparison to fathers of the children (62.40% Vs 5.60%) which might be due to the lower literacy rate and less opportunities of job for uneducated. The results are summarized in Table no.4.

Table no.4

Occupation	Mother		Father	
	No. of Children	Percentage	No. of Children	Percentage
Skilled worker	31	6.20	224	44.80
Semi Skilled worker	79	15.80	154	30.80
Unskilled worker	78	15.60	94	18.80
Unemployed (Females- Housewife)	312	62.40	28	5.60
Total	**500**	**100**	**500**	**100**

Socioeconomic status (SES):
Out of total 500 children in the study 42(8.40%) children were belonging to upper middle (II) SES, 238(47.60%) children were belonging to lower middle (III) SES, and 220(44.00%) children were belonging to upper lower (IV) SES. Maximum numbers, 238(47.60%) children were belonging to lower middle (III) SES. This can be attributed to lower educational and occupational status of parents, especially of fathers' of under study children. The results are summarized in Figure no.3.

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Figure No. 3 Distribution of School Children according to Socioeconomic Status

No. & % of Children

- Upper Middle (II)
- Lower Middle (III)
- Upper Lower (IV)
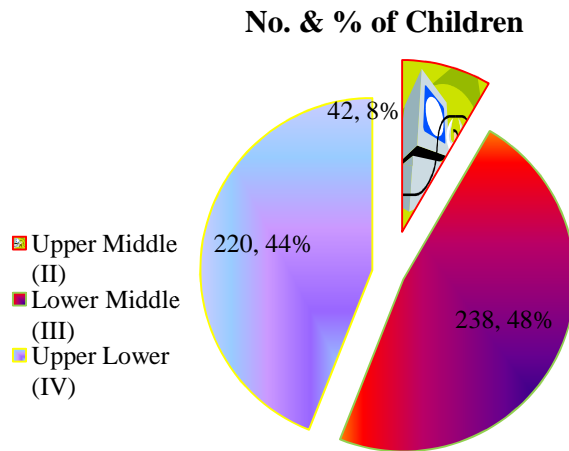
Underweight:

The overall prevalence of underweight in the studied school children was 58.20%(291). The prevalence of underweight in boys was 65.55%(191) and in the girls, it was 47.26(95). The prevalence of underweight was more among boys compared to girls (65.55% Vs 47.26%). This may be due to improper dietary habits, lack of knowledge of importance of balanced and nutritious diets in boys and their parents. Inclination of boys towards the snacks may be a factor. A study conducted by Patwari A, Aneja S, Jasrotia JS, Gandotra VK in Kathua district of Jammu and Kashmir reported the prevalence of underweight as 60.4% from study population [8]. In another study Josheph B, Rebello A, Kullu P, Raj VD from rural areas of Karnataka state reported prevalence of underweight as 60.4% [9].

Figure No. 4 Prevalence of Underweight according to Sex in School Children
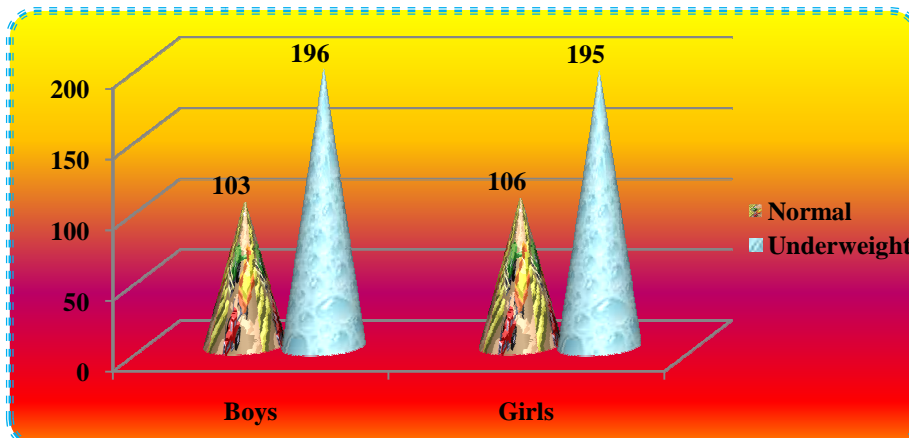
The prevalence of underweight in present study was lower as compared to reference studies. Both the reference studies were conducted in private as well as Govt. School with a huge sample size as compared to sample size of the present study. Apart from sample size difference, underweight may be attributed to the increasing knowledge and consciousness about over

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weight. High social class tries to maintain weight at minimum. The results are summarized in Figure no.4.

Malnutrition:
The overall prevalence of malnutrition in the under study school children was 52.00% (260). The prevalence of malnutrition among boys was 53.85% (161) and among girls it was 49.25% (99). The prevalence of malnutrition was more in boys as compared to girls (53.85% Vs 49.25%). This may be due to low economic status and poor dietary habits among boys. Dhingra DC, Anand NK, Gupta S in their study from the school children of Delhi reported prevalence of malnutrition as 50% [10]. In another study Sundaram MV, Sankarnarayan VS, Susila R, Varalakshmi Sarasa in Madras city reported prevalence of malnutrition as 79%.[11] Indira Baik, Ratna Malika D.P.N.M in their study from school children of Tirupathi city reported the prevalence of malnutrition as 47%.[12]

In present study prevalence of malnutrition was found to be 52%. This may be due to improper dietary habits and unawareness of balanced diet in the children and their parents. A part from these boys suffered more from malnutrition than girls in early age group. This may be due to high frequency of early age group paediatric diseases in boys than girls. Bakeries items also predispose to malnutrition as maximum of them provide only energy and are deficient in both macro and micronutrients, and boys are provided with these items preferably. The results are summarized in Figure no.5.

Figure No. 5 Prevalence of Malnutrition according to Sex in School Children
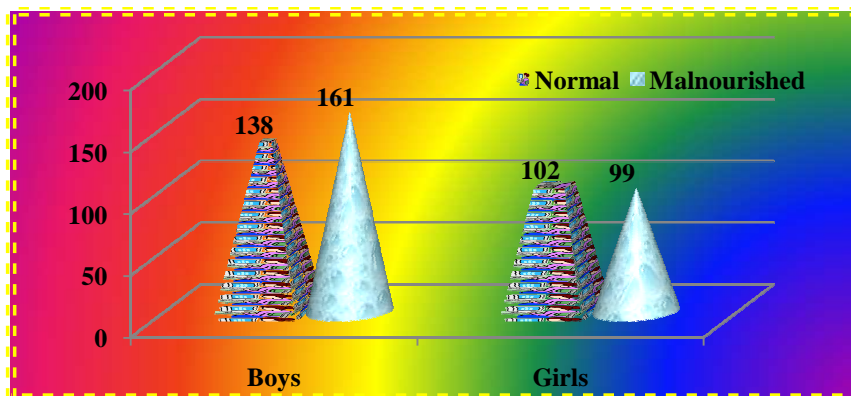
Nutritional grading:
In the present study out of total 500 children 48%(240) children had normal nutritional status. 21.60%(108) had grade I malnutrition status. 26.60%(133) children had grade II malnutrition status, and 3.80%(19) children had grade III malnutrition status. Grade IV malnutrition status was not seen in any child.

Among the boys 46.15%(138) had normal nutritional status. 18.39%(55) boys had grade I malnutrition status. 30.78%(92) boys had grade II malnutrition status and 4.68%(14) had grade III malnutrition status.

Among the girls 50.75%(102) girls had normal nutritional status. 26.37%(53) had grade I

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malnutrition status. 20.40%(41) girls had grade II malnutrition status and 2.49%(5) girls had grade III malnutrition status.

A study conducted by Sundaram MV, Sankarnarayan VS, Susila R, Varalakshmi Sarasa in school children of Madras city reported prevalence of grade I malnutrition as 30.5%, of grade II malnutrition as 42.5%, and of grade III malnutrition as 21.5%.[11]

In present study the prevalence of malnutrition was lower than the above study. This may be due to that above study includes a large sample comprising the both private and government schools and the children belonging to lower SES may be more compared to our study. The results are summarized in Figure no.6.

**Figure No. 6 Nutritional Grading of School Children according to Sex**
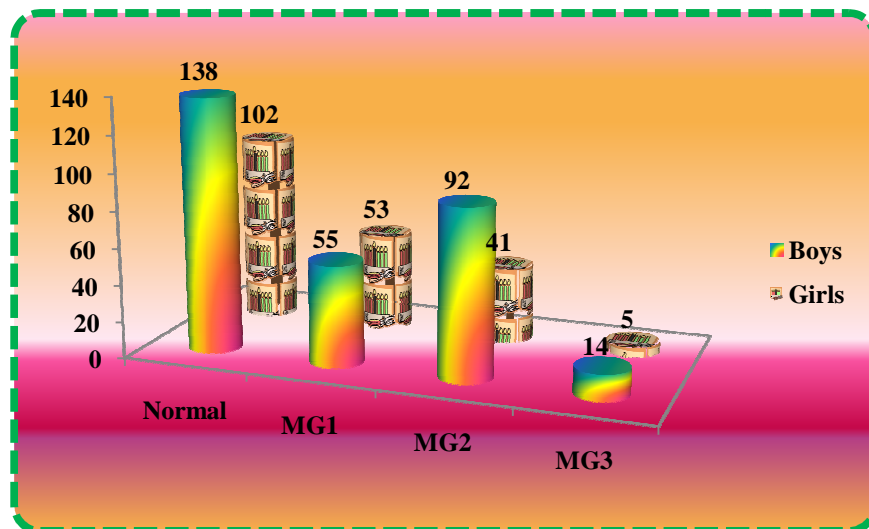
Stunting:
The overall prevalence of stunting in the under study school children was 40.4%(202). The prevalence of stunting in boys was 41.47%(124) while in girls it was 38.81%(78). The prevalence of stunting was more in boys as compared to girls (41.47% Vs 38.81%). This may be due to improper dietary habits, lack of knowledge of balanced diet in boys and their parents.

A study conducted by Panda P, Benjamin AI, Shavinder S, Zachariah P in school children of Ludhiana city reported prevalence of stunting as 26.28%.[13] A study conducted by Joseheph B, Rebello A, Kullu P and Raj VD in rural Karnataka reported prevalence of stunting as 38.6%. [9] In present study the prevalence of stunting was more compared to the above studies. This may be due to improper dietary habits, lack of knowledge of balanced diet in children, in parents, and lack of availability of protein rich diets to the children. The results are summarized in Figure no.7.

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Figure No. 7 Prevalence of Stunting according to Sex in School Children
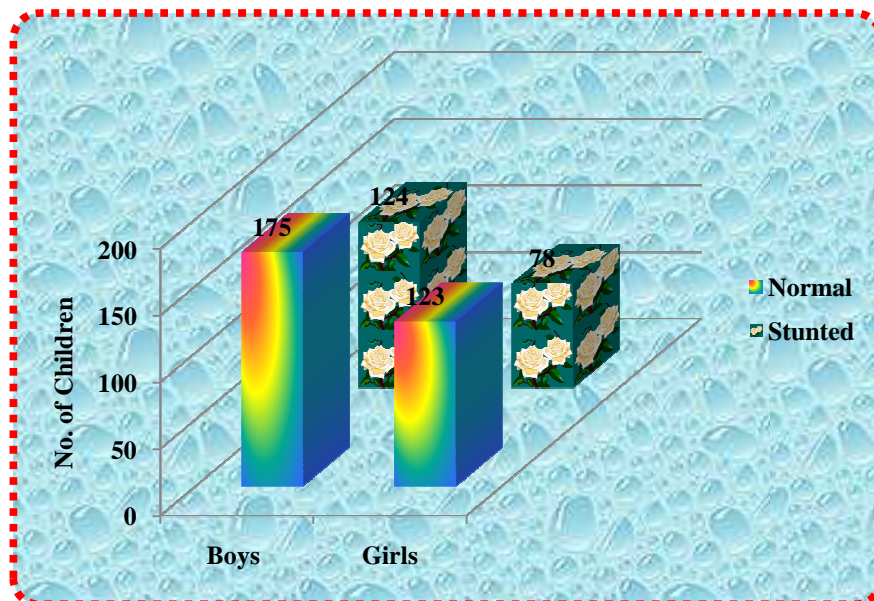
CONCLUSION

Out of total children 48% children had normal nutritional status, 21.60% children had grade I malnutrition status, 26.60% children had grade II malnutrition status, and 3.80% children had grade III malnutrition status. The prevalence of malnutrition is more in the lower middle (III) SES children than the other SES children. The health status is found highly related to the personal hygiene.

Recommendation
The recommendation to improve the health status of the school children may be…
- Health education, personal hygiene education, nutrition education may be made as part of the school curriculum apart from the regular educational activities in the community.
- Improvement of home hygiene and health services.
- Alleviation of poverty.
- Better school health services may be planned periodically for the school children.
- Production of local fresh food.
- Protected water supply, better drainage facilities, daily garbage clearance are to be done.
- Creation of facilities for improving economic status of the population in the study area.

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