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Assessment of Nutritional Status among (12-16years) Children and Sanitation Facilities among Government, Sarva Shiksha Abhiyan and Private Schools

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ABSTRACT

1. Objectives of study: To assess the Nutritional status of Government school, Sarva Shiksha Abhiyan schools and Private school children of age 12 – 16years.
2. To analyse the sanitation condition in Government schools, Sarva Shiksha Abhiyan schools and Private schools.

Materials and methods: A cross sectional study was conducted among 413 subjects from 11 schools of which 137 children from government schools, 137 children from SSA (Bhavitha centres), 138 Children from private schools age 12 – 16 years. Samples were taken from selected schools in Hyderabad and subjects were randomly selected from class 7^{th} to 9^{th} standard. A questionnaire consisting of food frequency table, physical activity, sleeping pattern, weight and height of children, family history of obesity and sanitation check list for schools. Data was collected in school premises. WHO Anthro plus soft ware was used for determining underweight, normal weight and overweight. Data was analyzed using chi-square in Excel.

Result: The analysis shows that in in 12 to 16 years old children, under weight children were-34.86%, normal weight children were- 32.68%, overweight children were- 32.44%. Distribution of gender: In male children- underweight-24.69%, normal weight – 18.15%, over weight – 15.01%. In female children – underweight – 10.16%, normal weight – 14.52%, over weight- 17.43%. The nutritional status of 12 to 16 years age children shows that, in females, the over weight is high in 13 years age and in males under weight is high in 14 years age. From chi-square analysis, the significant factors found were, junk food, family history of obesity and type of school.

Out of 11 schools surveyed- washable floor, water facility, hand wash facility, soap and soap substitutes, dustbins were adequate and separate washrooms for male and female children and teachers, menstrual hygiene disposable bins and disable friendly toilets were not adequate.

Conclusion: Underweight and Overweight among the school going children is currently a health problem faced by school going children. There is need to be taken address these problems in order to prevent nation from nutritional deficiency among school going children and build a strong and healthy nation in future. It is necessary to develop a comprehensive campaign for schools to improve sanitation and nutritional conditions at schools.

Terms Used:

1. **Assessment:** the act of judging or decidin g the amount, value, quality, or importance of something, or the judgment or decision that is made
2. **Nutritional Status:** requirement of health of a person convinced by the diet, the levels of nutrients containing in the body and normal metabolic integrity. Normal **nutritional status** is managed by balance food consumption and normal utilization of nutrients.
3. **BMI:** Body Mass Index
4. **Government schools: Government schools** are primary or secondary **schools** mandated for or offered to all children without charge, funded and controlled by the local, state or national **government**.
5. **SSA:** Sarva Shiksha Abhiyan
6. **Private schools:** an independent school supported wholly by the payment of fee
7. **Sanitation:** conditions relating to public health, especially the provision of clean drinking water and adequate sewage disposal.

I. INTRODUCTION:

In India education is provided by the public sector and private sector. The funding is done on 3 levels, i.e., the central, the state, and local levels. In terms of increasing primary education to children, India made a progress in last

few years by expansion of attendance rate and literacy.

SSA: Program in run by Indian government. The aim was to universalise elementary education, "In time bound manner," making free and compulsory education to children between the ages 6 to 14. SSA is an attempt to provide an opportunity in improving human capabilities to all the children by provision of community owned quality education. SSA makes certain that every child with special needs, regardless of the kind, degree and the category of the disability, provide meaningful and quality education to children.

SANITATION:

India being one of the largest countries with diverse population, in cultural and geographical context. It has always been a challenge in Indian universities, institutions and schools to provide safe drinking water and sanitation facilities.

According to 2001 census, the rural sanitation coverage was 22%. In 2011 under (Total Sanitation campaign TSC) government of India declared that the coverage was 68%. But the recent census data of 2011 have revealed that the coverage was only 31%.

School water supply, Sanitation and Hygiene Education Program (SSHE) was initiated by government of India. This was included in Millennium Development Goals. The government has scaled up SSHE program by including all the government schools with water, toilet facilities with the special focus on girl children.

BMI/ANTHROPOMETRIC MEASUREMENT:

Currently, India is amidst of nutritional transition, socioeconomic transition and epidemiological transition. Related to nutrition, various issues such as undernutrition is continued to effect large population, overnutrition is emerging as a public health issue.

For the estimation of under or over nutrition of child by physical methods is done taking anthropometric measurements – weight, height and (MUAC, waist and hip), four skin folds (biceps, triceps, subscapular, suprailliac), body fat measurement by (skin fold thickness) is done.

The BMI value is derived from weight(mass), and height of an particular individual. BMI only provides a simple numeric measure of an individual's thinness or thickness.

Surveillance of BMI is to measure and identify the underweight, healthy weight and over weight in school children.

Screening of BMI provides parents with the information of their children if they are under weight, healthy weight or over weight.

Growth standards appropriate Indian population are:

WHO, ICMR, International Standards.

NEED FOR STUDY:

- School going children constitute one-fifth of the total population and are the future of the nation.
- The health supervision of the school children is necessary and can help identify the magnitude of under nutrition and over nutrition in community
- Millennium Development Goal 2.A is to "ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling" .
- Inadequate water and sanitation facilities in the school environment have been reported as a major hindrance towards achievement of this goal.

Ojectives:

3. To assess the Nutritional status of Government school, Sarva Shiksha Abhiyan schools and Private school children of age 12 – 16years.
4. To analyse the sanitation condition in Government schools, Sarva Shiksha Abhiyan schools and Private schools.

II. LITERATURE REVIEW:

Joylyn Kurian et.al in 2014, conducted a study to determine the nutritional status of high school children in rural field practice area of medical college. The study was to determine the prevalence of overweight and underweight in Nagavalli government high school children and also to assess determinants of nutritional status. Cross sectional study was carried out using a questionnaire, 100 high school children from 8^{th}, 9^{th}, 10^{th} standard. Anthropometric measurements were carried out. Result of the study were, majority of students were under weight and very few were over weight and no cases of obesity were found, but some children were found to have central obesity. 40% of female students were under weight when compared to 36% of under weight male students. 3% girls were over weight when compared to 4% over weight boys.

Koushik Bhowal et.al in 2015 studies on the assessment of BMI and its association with IQ among rural primary school children in West Benagl, India. The objective of the study was to investigate the association between body mass index and IQ of rural primary school children.

Across sectional study and descriptive study was done in government school children in shimulpur, salka, kumarhut, ramnagar in 24 parganas north and south, West Bengal, among 560 school children aged 6 to 8 (class 2 to 4). Results were given as 28.03% and 28.75% of rural primary school children wasted and severely wasted respectively. 3.39% and 1.08% were over weight and obese according to BMI 3.7% and 50.71% of rural children had 95th (intelligent superior) and 5th (intelligent impaired) percentile of IQ grades. Higher body mass index is associated with low IQ grades in rural school children.

Meenu Dhingra et.al in 2008 studied on comparision of height, weight, and BMI of Indian school children (6-14) years of age with two new growth standards, in Delhi. With the objective of assessing the nutritional status of school children, an anthropometric survey of 711 children of 6 to 14 years of age in which 398 boys and 313 girls. Results showed that z-score for weight for age, height for age, BMI for age indicated that boys fall in over weight category with shorter height in all age groups except at age group 8, where the boys are significantly taller than reference values. In girls, weight for age and BMI for age indicate that girls are over weight in all age groups except age 6 and height for age scores reflect that they are shorter than the reference values across all age groups.

Nitin Joseph et.al in 2012 studied on environmental sanitation and health facilities in schools of an urban city of South India. The aim of the study is to assess the school environment, sanitation and health related facilities and to compare the availability of there facilities between, government schools and aided schools and private school. A cross sectional study was done in 30 schools. In Mangalore city. Results showed that 12 aided and 14 private. The minus desks was lacking in 23(76.7%) and chairs with back rest lacking in 11(36.7%) schools. More than a quarter of schools doesnot have drinking water purification facility. Water storage units not cleaned periodically in 6(20%) schools. Quarter of government schools and 12 of aided schools does not have dining halls for serving of mid day meals. Toilets were not adequate in 10(33%) and it was not separated from boys and girls in 8(26.7%) schools. Four schools had no medical examination was done to students in 13(43.3%) schools, daily morning inspection by teachers was not done. Only few schools had staff trained to deal with medical emergencies and counselling activities. No surveyed schools had immunization register.

JP Majra et.al in 2010 studied on school environment and sanitation in rural India. The aim of study was to study the status of school environment and sanitation in rural India in government schools in rural Karnataka. A cross sectional study was done and 20 schools were randomly selected for the study. Minimum standards for sanitation of the school and its environment in India were taken as guidelines. The results showed as Out of 20 schools selected, one fourth of the schools were located/ sited at inappropriate places. Only half of the schools had appropriate/ adequate structure. Eighteen (90%) of the schools were overcrowded. Ventilation and day light was adequate for 12(60%) and 14(70%) of the schools respectively. Cleanliness of school compound/classrooms was adequate in 80% of the schools. There were no separate rooms for serving the midday meals in any of the schools under study. Eighteen (90%) of the schools were having drinking water points. Liquid and solid waste disposal was insanitary in six (30%) and eight (40%) of the schools respectively. Only half of the schools had adequate latrines for boys and 60% for girls. Only two (10%) of the schools had adequate hand washing points with soap.

Ramachandra Kamath et.al in 2015 studies on Nutritional status assessment of school children in Bellary district, Karnataka. The objective was to assess Nutritional status of school children in Bellary district**.** A total 27,544 students from 169 schools were enrolled for the study. Sample size was calculated by taking 20% of total enrolled school children in Bellary district. The body mass index, Z score and World Health Organization Multicenter Growth Reference Study growth charts was used for analysis. The study population of 27,544 students comprised of which 13,519 (49.1%) male and 14,025 (50.9%) female. On the analysis, 4447 (16.1%) found to be undernourished. More male students were found to be undernourished 2237 (16.9%), but obesity was common in females 1723 (12.3%).

N C Shivaprakash et. al in 2014 studied on Nutritional Status of Rural School-Going Children (6-12 Years) of Mandya District, Karnataka. To assess the nutritional status of rural school-going children (6-12 years) of Mandya district, Karnataka. conducted an observational cross sectional study of children of age group 6-12 years, studying in BGS Model Public School, BG Nagara, Nagamangala Taluk, Mandya district, Karnataka. The children were assessed for nutritional status by clinical examination as well as anthropometric assessment and were compared with the standard national data. A total of 484 children were studied.

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The overall prevalence of underweight was 30.3% (147) and stunting was 27.9% (135). Pallor was noted in 123 (25.4%). Hair changes were seen in 19 (3.9%). Eye changes noted in the form of conjunctival xerosis in 100 (20.7%) and bitot's spots in 10 (2.1%). Teeth changes were noted in the form of dental caries in 137 (28.3%) and enamel mottling in 19 (3.9%). Skeletal changes were noted in 7 (1.4%) children. Flat nails or koilonychia were noted in 57 (11.8%).

Maj R Mukherjee in 2007 studied on Determinants of Nutritional Status of School Children. A cross sectional study was carried out to determine the nutritional status of school children in Army School, Pune. : Anthropometric survey of 760 school children was carried out and compared against the NCHS/WHO reference standards to determine their nutritional status. Associations of nutritional status with socio-economic status, education status of parents, mothers working status and family size were determined. The prevalence of stunting was 13.81%, wasting 6.71% and under nutrition 9.87%. Mothers' educational level, wasting, socio economic status and family size were significantly associated with the nutritional status of the child. Conclusion: Maternal educational status, socio-economic status and family size are important determinants of nutritional status of school children.

III. MATERIALS AND METHODS:

RESEARCH DESIGN: Cross sectional study

SAMPLING TECHNIQUE: Simple Random Sampling technique. List of schools will be taken from the District Education office and randomly 2 schools from each group will be picked randomly. And a few sections or classes from the selected schools will be selected randomly and all the students from selected class or section who have given consent will be included in study.

SETTING:

1. Government schools in randomly selected district
2. SSA specially needed schools in Hyderabad
3. Private schools in randomly selected district

SAMPLE: School children from 12 to 16 years of age and sanitation facilities at schools

SAMPE SIZE: Sample size is taken as 500

1. Government schools: 2 schools will be assessed with sample size 200 students. Which will be taken by simple random sampling at schools
2. SSA Specially needed schools: 2 schools will be assessed with sample size of 100 students. Which will be taken by simple random sampling at schools.
3. Private schools: 2 schools will be assessed with the sample size of 200 students. Which will be taken by simple random sampling at schools.

INCLUSION CRITERIA: school children of age 12 to 16 years

-EXCLUSION CRITERIA: Uncooperative children will be excluded

INSTRUMENTS: A checklist will be used for assessing the sanitation facilities. A questionnaire on nutritional status of school children and weight scale and height scale for BMI measurement.

DATA ANALYSIS: SPSS

ETHICAL ISSUES: Permission of IEC clearance will be taken before starting of project from University of Hyderabad. Permission will be obtained from respective school authorities and informed consent will be obtained from concerned teachers.

CONFIDENTIALITY: All the information collected during the study period will be kept confidential during the study and after the study.

Statistical analysis:

Data analysis is done by using specific statistical analysis tools. BMI analysis was done using WHO Anthro plus software. Microsoft Excel is used in the analysis. Chi-square tests were used to make comparison between the groups. For all the tests, $p \leq 0.05$ was set for statistical significance.

Data collection:

Government schools, SSA (Bhavathi centres), Private schools were randomly selected. The school principals of the selected schools were described about the study and permission for the study was granted, the same day the study was conducted respectively. The consent for conducting the study was obtained from the school principals. The respective school teachers help was provided. The study carried out in the respective classrooms, randomly selected of age group 12 to 16 years. Well structured questionnaire was administered to the children. The questionnaire was explained to the children. The weight and height measurement was taken after the completion of answering the questionnaire using weight scale and height scale. The informed consents, assents and questionnaires were translated to telugu and hindi languages and were distributed to the students according to students comfort.

The nutritional assessment study consisted of two components.

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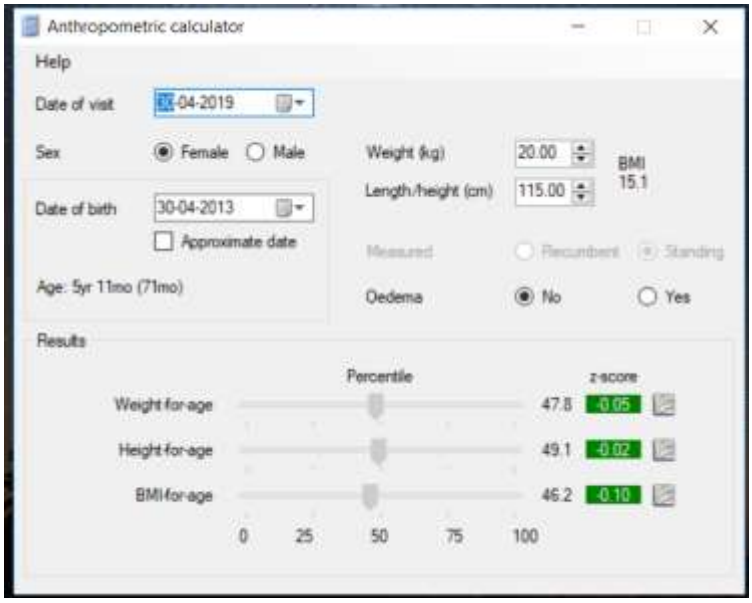
a. Well structured questionnaire was used to understand the nutritional status of the children along with their physical activity, sleeping patterns and family history of obesity was included in the questionnaire. The questions were clearly explained in English, telugu and hindi languages with the help of school teachers.

b. Weight and height was measured using weight scale and height scale with the help of school teachers and class representatives. Students were measured one after one to maintain confiedentiality about their weight and height and avoid unethical situations.



WHO Anthro plus software was used to analysis of BMI for age of children.

WHO Anthro plus software consisted of 3 components:

1. Anthropometric calculator
2. Individual assessment
3. Nutritional survey

The anthropometric calculator was used to measure BMI for age. The inputs given to the software were:

1. Date of Visit
2. Sex
3. Date of birth
4. Weight (kg)
5. Height (cm)
6. Measured

a. Recumbent position
b. Standing position

7. Oedema

a. No
b. Yes

The WHO Anthro plus software have caliculated the z-scores for the BMI for age of individual children. Based on the anthro plus software-children were categorized in to

a. Under weight
b. Normal weight
c. Over weight

The data analysis and chi square test were done using MS-EXCEL.

The sanitation conditions assessment of the schools was done using a well structured questionnaire. The sanitation conditions were identified and then the check list was filled. The sanitation conditions of the schools were analysed using MS-EXCEL..

IV. RESULT:

A total of 413 children were included in the study, 137 children from government schools, 137 children from SSA(Bhavitha centres), 138 children from private schools. Majority of the children in the study were of age group 12 years to 14 years, the remaining were 15 years and 16 years children. Out of 413 children, 12 year old were 24.69%, 13 year old were 30.75%, 14 year old were 27.60%, 15 year old were 12.10%, 16 year old were 4.84%.

The analysis shows that in 12 year old - 32.35% were underweight, in 13 year old – 26.77% were underweight, in 14 year old – 39.47% underweight, in 15 year old – 42% were underweight, in 16 year old – 55% were under weight.

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In 12year old – 34.31% were normal weight, in 13 year old – 34.64% were normal weight, in 14 year old – 28.94% were normal weight, in 15 year old – 30% were normal weight, in 16 year old – 40% were normal weight.

In 12 year old – 33.33% were over weight, in 13 year old – 38.58% were over weight, in 14 year old – 31.57% were over weight, in 15 year old – 28% were over weight, in 16 year old – 5% were over weight.

In this study it was found that

- Under weight children -34.86%
- Normal weight children – 32.68%
- Over weight children – 32.44%

When it was analysed by gender:
0Male children –

- Under weight – 24.69%
- Normal weight – 18.15%
- Over weight – 15.01%

Female children –

- Under weight – 10.16%
- Normal weight – 14.52%
- Over weight – 17.43%

Table:1
Total number of children according to age and gender

Age In Years	Male	%	Female	%	Total
12	52	50.98%	50	49.01%	102
13	59	46.45%	68	53.54%	127
14	73	64.03%	41	35.96%	114
15	42	84%	8	16%	50
16	13	65%	7	35%	20
TOTAL	239		174		413

In this table, it shows that the majority of the children are from age group 12 years to 15 years and the 16 years are comparatively less.

Table:2

AGE IN YEARS	UNDER WEIGHT	%	NORMAL WEIGHT	%	OVER WEIGHT	%
12	33	32.35%	35	34.31%	34	33.33%
13	34	26.77%	44	34.64%	49	38.58%
14	45	39.47%	33	28.94%	36	31.57%
15	21	42%	15	30%	14	28%

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16	11	55%	8	40%	1	5%
TOTAL	144		135		134	

Distribution of nutritional status among 12 – 16 year age:

In this table it is shown that, in 13 years old over weight is increased and in 14 years old under weight is increased.

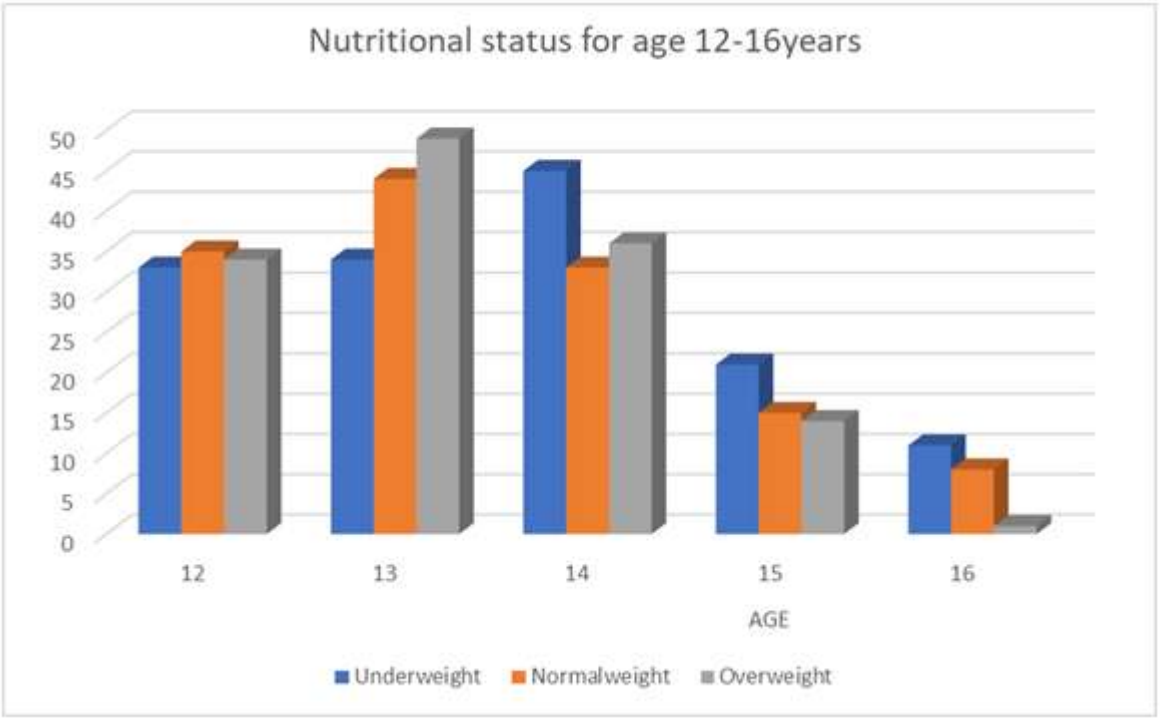

Figure : 1

Table 3: Nutritional status of age 12 – 16 years

GIRLS

Age in years	Under weight	%	Normal weight	%	Over weight	%
12	15	30%	20	40%	15	30%
13	11	16.17%	23	33.82%	34	50%
14	10	24.39%	11	26.82%	20	48.78%
15	2	25%	3	37.5%	3	37.5%
16	4	57.14%	3	42.85%	0	0
TOTAL	42	24.13%	60	34.48%	72	41.37%

BOYS

Age in years	Underweight	%	Normalweight	%	Over weight	%
12	18	34.61%	15	28.84%	19	36.53%
13	23	38.98%	21	35.59%	15	25.42%
14	35	47.94%	22	30.13%	16	21.91%

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15	19	45.23%	12	28.57%	11	26.19%
16	7	53.84%	5	38.46%	1	7.69%
TOTAL	102	42.67%	75	31.38%	62	25.94%

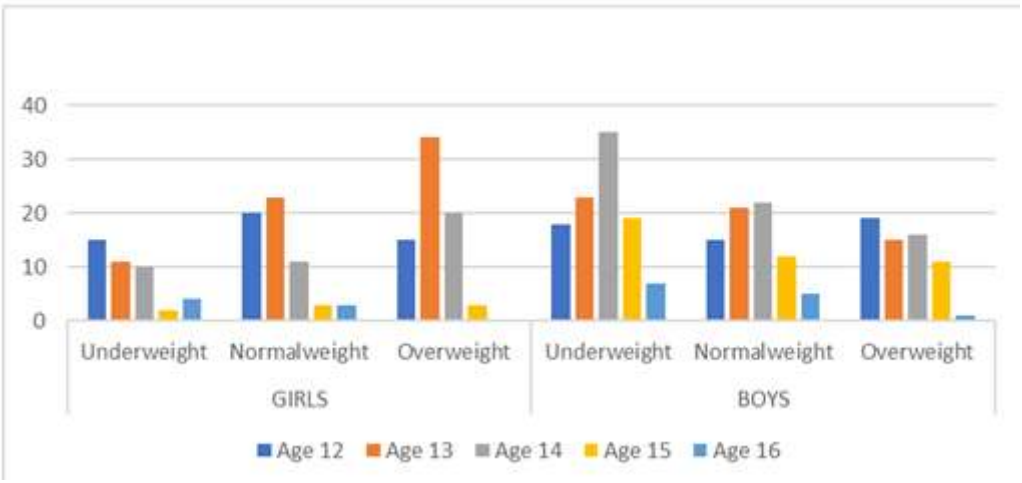

Figure:2

The nutritional status of 12 to 16 year age children shows that, in females- the over weight is high in age 13 years and in males- under weight is high in age 14 years.

Chi square test:

1. Chi square test for employment:

	Under weight	Normal weight	Over weight
Unemployed	6(4.16%)	6(4.41%)	7(5.22%)
Un skilled	42(29.16%)	52(38.23%)	36(26.86%)
Semi-skilled	50(34.72%)	26(19.11%)	26(19.40%)
Skilled	36(25%)	36(26.47%)	42(31.34%)
Professional	10(6.94%)	16(11.76%)	23(17.16%)
P values	0.76	0.93	0.6

Based on chi square test, there is no statistical significance for underweight (p value-0.76), normal weight(p value-0.93) and over weight(p value-0.6) with unemployment and employment.

The employment was divided into unemployment, unskilled (daily wage workers),semi skilled (construction workers), skilled (business, real estate, farming), professional(managers).

2. Chi square test for physical activity:

	Under weight	Normal weight	Over weight
Physical Activity	136(94.4%)	125(91.91%)	121(90.29%)
No Physical Activity	8(5.5%)	11(8.08%)	13(9.70%)

P value	0.22	0.84	0.29

Based on chi square test, there is No significance for underweight(pvalue-0.22), normal weight(pvalue-0.84) and over weight(pvalue-0.29) with physical activity.

3. Chi square test for Junk food

	Under weight	Normal weight	Over weight
Junk food	126(87.5%)	97(71.32%)	102(76.11%)
No Junk food	18(12.5%)	39(28.67%)	32(23.88%)
P value	<0.00001	<0.012	0.41

Based on chi square test, there is association between under weight and junk food(<0.00001), normal weight and junk food(<0.012) and they are statistically significant. There is no association of over weight with junk food (0.41).

4. Chi square test for family history of obesity

	Under weight	Normal weight	Over weight
Family history of obesity	11(7.63%)	50(36.76%)	15(11.19%)
No family history of obesity	133(92.36%)	86(63.23%)	119(88.86%)
P value	<0.004	<0.001	0.009

Based on chi square test there is association between family history of obesity and underweight(<0.004), normal weight(<0.001) and overweight(<0.009) and they are statistically significant.

5. Chi square test for Govt, SSA & Private schools

	Under weight	Norma weight	Over weight
Government schools	92(63.88%)	81(59.55%)	52(38.80%)
SSA schools	45(31.25%)	27(19.85%)	27(20.14%)
Private schools	7(4.86%)	28(20.58%)	55(41.04%)
P value	<0.001	0.2	<0.001

Based on chi square test, there is association between government schools, ssa schools and private schools for underweight (<0.001), over weight (<0.001). They are significant. There is no association between normal weight (0.2) it is not significant.

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From the chi square test performed the significant factors for under weight and over weight are:

a. Association between junk food and under weight.
b. Association between junk food and normal weight.
c. Association between family history of obesity and under weight.
d. Association between family history of obesity and normal weight.
e. Association between family history of obesity and over weight.
f. Association between government schools, SSA schools and private schools and under weight.
g. Association between government schools, SSA schools and private schools and over weight.

Result of sanitation conditions at schools:

Out of 11 schools surveyed, 2 were government, 1 was private and 8 were SSA specially needed schools. The results were 3(27.27%) had separate washrooms for male and female children, 11(100%) had washable floors, 1(09.09%) had separate toilets for male/female teachers, 11(100%) had dustbins in washrooms, 1(09.09%) had menstrual hygiene disposable bins, 11(100%) had handwashing facilities, 9(81.81%) had soap and soap substitutes. The results show that separate washrooms for children and teachers, dustbins, menstrual hygiene disposable bins and disable friendly toilets are not being rectified and provided. Sanitation agenda remains incomplete if issue of hygiene is not dealt with. Hygiene is a very serious issue for girl children.

Sanitation facilities at school:

S.No	Sanitation Facilities	Present in schools	Percentage
1	Separate Washrooms	3	27.27%
2	Washable floor	11	100%
3	Separate washrooms for male/female teachers	1	9.09%
4	Water facility	11	100%
5	Dustbins	9	81.81%
6	Menstrual hygiene disposable bins	3	27.27%
7	Hand wash facility	11	100%
8	Soap and soap substitutes	9	81.81%
9	Disable friendly toilets	0	0%

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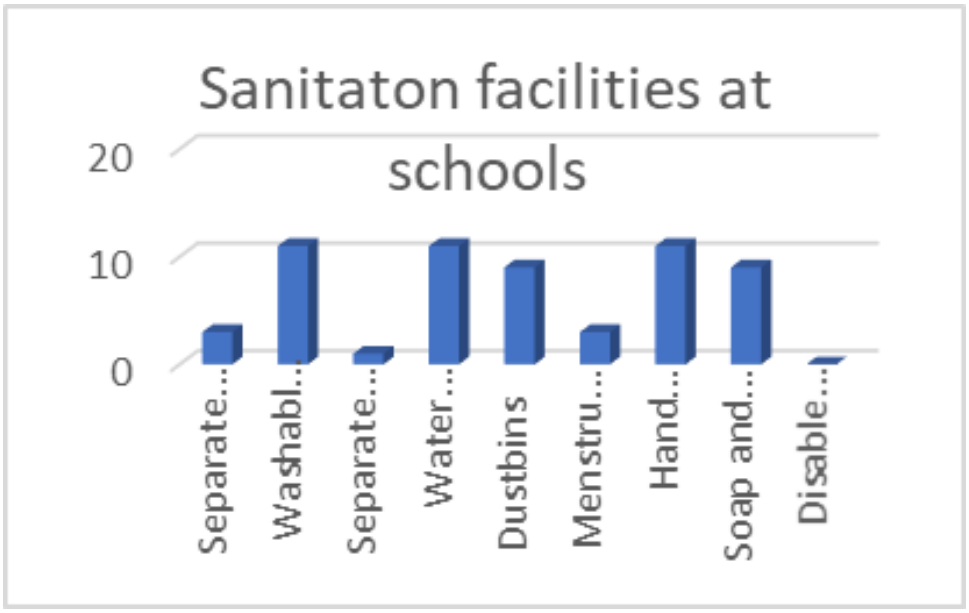

Figure :3

V. DISCUSSION:

The present study tried to assess the nutritional status of 12 – 16 years children in government schools, SSA schools and Private schools and sanitation conditions. Total 413 students, the under weight children are 34.86%, normal weight children are 32.68%, over weight children are 32.44%. The results are, there is no much difference between under weight, normal weight and over weight in children. The factors that are significant for the results are junk food, family history of obesity and the type of school.

The prevalence of under weight(34.86%) is more when compared to normal weight (32.68%) and over weight(32.44%). The prevalence of over weight is equal to normal weight children.

In a similar study, the prevalence of under weight was 80%. The prevalence of under weight in boys was 62% and girls was 18%. The prevalence of under weight in boys is more compared to girls. 18% of children had normal nutrition status. The prevalence of over weight was 2%. The prevalence of over weight by gender distribution it was found that in boys. No girls were found to be over weight.

In current study, the prevalence of under weight among girls is 24.13%, in boys is 42.67%. The girls are at risk of under weight. The prevalence of normal weight in girls is 34.48% and in boys is 31.38%. The prevalence of over weight in females is 41.37% and in boys is 25.94%. Girls are at risk of obesity.

The sanitation conditions when assessed, it was found that only 3 components met the satisfactory level out of 9 components. The 3 components are- washable floor, water facility and hand wash facility.

The prevalence of separate toilet for male and female students was low (27.27%), the prevalence of separate toilet for male and female teachers was (09.09%), the prevalence of dustbins was (81.81%), the prevalence of menstrual hygiene disposable bins was (27.27%), the prevalence of soap and soap substitutes are (81.81%) and the disable friendly toilets are at (0%).

In a similar study, the results showed that out of 20 schools selected, 18 schools (90%) had drinking water points, liquid and solid waste disposal was insanitary in 6(30%) and 8(40%) respectively. One and half schools had adequate toilets for boys and 60% of girls. Only 2(10%) schools had adequate had washing points with soap.

In current study, the water facility, dustbins, soap and soap substitutes are provided in required manner, the lack of separate toilets, menstrual hygiene disposable bins, and disable friendly toilets are more. When these conditions are solved, only then the complete sanitation agenda will be achieved.

LIMITATIONS:

- Students absent on the day of data collections
- Minimal number of 12-16years students in SSA (Bhavitha centres)

VI. CONCLUSION:

Under weight and Overweight among the school going children is currently a health problem faced by school going children. There is need to be taken address these problems in order to prevent nation from nutritional deficiency among school going children and build a strong and healthy nation in future. There is need to take action and start camping at national or domestic level should try to decrease poverty from country and educate students and their parents and clarifying hallmark of under nutrition and over nutrition.

Poor sanitation and hygiene practices and the sanitary conditions or facilities play crucial roles in increase of communicable diseases among school children. Through this study it is clear that there is still need for developing child friendly, gender and disable friendly sanitation and hygiene schools. It is necessary to develop a comprehensive campaign for schools to improve conditions at schools.

RECOMMENDATION

• Health education, nutritional education may be made as part of school curriculum part from regular educational activities in community.
• Improvement of health services.
• Better school health services.
• Alleviation of poverty.

- Better sanitation conditions on regular audit
- Drinking water dispenser system to ensure safety in storage and handling
- Training of teachers, school cabinet, school management committee and local government and other staff
- Menstrual hygiene in upper primary schools and above (education, access to sanitary napkins, toilets with cleaning and disposal facilities).

REFERENCES:

[1]. Kamath R, Jakkula RP, Kumar S. Nutritional status assessment of school children in Bellary district, Karnataka. Journal of Dr. NTR University of Health Sciences. 2015 Jan 1;4(1):13.
[2]. Kurian J, Mahesh SH, Aravind AP, Kurian J. A study to determine the nutritional status of high school children in rural field practice area of medical college. International Journal of Contemporary Pediatrics. 2017 Feb 7;1(3):148-51.
[3]. Yankanchi SG, Ganganahalli P, Udgiri R, Patil SS. Assessment of nutritional status of primary school children in urban field practice area, Vijayapura. International Journal Of Community Medicine And Public Health. 2018 Jan 24;5(2):779-83.
[4]. Saroj RK, Mukesh K, Avadhesh K. The Study on Nutritional Status among the School Children in Varanasi.
[5]. Al-Shamsi RS. The Prevalence and Selected Determinants of Overweight and and Obesity Among Children and Adolescent in the City of Al-Ain, UAE (Doctoral dissertation).
[6]. Schwarzkopf ND. A descriptive study of childhood obesity monitoring practices used by Montana pediatric providers(Doctoral dissertation, Montana State University-Bozeman, College of Nursing).
[7]. Bharati P, Itagi S, Megeri SN. Anthropometric Measurments of School Children of Raichur,(Karnataka). Journal of Human Ecology. 2005 Nov 1;18(3):177-9.
[8]. Shaikh MK, Kamble N, Bhawnani D, Bele S, Rao SR. Assessment of nutritional status among school children of Karimnagar, Telangana, India. International Journal of Research in Medical Sciences. 2016 Dec 19;4(10):4611-7.
[9]. Bhowal K, Mukherjee I, Chaudhuri D. A STUDY ON THE ASSESSMENT OF BMI AND ITS ASSOCIATION WITH IQ AMONG RURAL PRIMARY SCHOOL CHILDREN IN WEST BENGAL, INDIA. International Journal of Current Research and Review. 2015 Dec 1;7(23):26.
[10]. Majra JP, Gur A. School environment and sanitation in rural India. Journal of global infectious diseases. 2010 May;2(2):109.
[11]. Joseph N, Bhaskaran U, Saya GK, Kotian SM, Menezes RG. Environmental sanitation and health facilities in schools of an urban city of south India. Annals of Tropical Medicine and Public Health. 2012 Sep 1;5(5):431.
[12]. Maj RM, Col SC, Col RB. Determinants of nutritional status of school children. Medical Journal Armed Forces India. 2008 Jul 1;64(3):227-31.
[13]. Shivaprakash NC, Joseph RB. Nutritional status of rural school-going children (6-12 years) of Mandya District, Karnataka. Int J Sci Stud. 2014 May;2(2):39-43.