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# Assessment of Nutritional Status of a School Going Children (9-11 Years) of Allahabad City

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**Abstract:** *The Child is fragile creation of God, who needs to be safe guarded but who also needs to be reformed. Children are our most valuable possession. They are future administrators of the world. Most of the children have more food than they need, which are high in calories thereby leading to obesity in children. The study carried out with the objectives to assess the nutritional status of the school going children of 9-11 years of Allahabad of Uttar Pradesh. An exploratory research design was adopted for the study, Allahabad, Uttar Pradesh has been related purposively for research.*

*Survey method was used for the collection of data. The sample size was 400 respondents comprising of 70 students from St. Joseph School & College, 70 from Maharshi Patanjali, 58 students from Rishi Public School, 72 from Earny Memorial, 66 from Rani Revti Devi and 64 students from Parshuram School. The survey schedule consist of the general profile, anthropometric measurement in which height and weight were taken, dietary pattern by 24 hours recall method and clinical assessment. Result shows that 60% boys respondents & 56.25% of girls respondents belonging to the 9 years of age have over weight, 60.65% of boys respondents and 67.16% of girls respondents of age 10 years of ages were overweight and 4.48% of boys respondents and 3.38% of girls respondents of age 11 years were severely obese. The data indicated the maximum respondents were overweight.*

**Keywords:** *Childhood, Nutritional Status, Overweight, Obesity, Nutrient intake.*

## I. INTRODUCTION

The future of the society depends on the quality of the life of the children. The health of children and youth is a fundamental importance. As today children are the citizens of tomorrow's world, their survival, protection and development are the prerequisites for the future development of humanity. Without ensuring optimal child growth and development significantly will be unsuccessful (Raghava 2005).

They require adequate amount of all the nutrients for the proper growth and development of the body. Most of the children have more food than they need, which are higher in calories such as fast food, high calories snacks, thereby leading to obesity in children (Bharti et al. 2008)

## II. MATERIAL AND METHODS

The present study was conducted using the material and method describe below

### A. Selection of Sample

- 1) *Selection of District:* Allahabad district of U.P. was selected purposively for the present study because of accessibility.
- 2) *Selection of Schools:* The schools selected were from the areas selected namely St. Joseph School & College, Maharshi Patanjali School & College, Rishi Public School, Earny Memorial School, Rani Revti Devi, Parshuram Junior High School.
- 3) *Selection of Respondents:* For the study school going children between the age group of 9-11 years were considered as respondents.
- 4) *Preparation of Instruments and Tools for Data Collection:* For the data collection, structured survey schedule comprising general information, anthropometry dietary and clinical assessment were adopted.

### B. The Schedule was Consisted of the Following Different Parts

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- 1) *General Profile*: In general profile respondents general information regarding name, age, sex, relation, class, family type etc. were recorded.
- 2) Anthropometri measurement gibson (1990)
- 3) Dietary pattern: 24 hours dietary recall method Park, (2002).
- 4) Clinical assessment - Park (2002)
  - a) Nutrition education and its impact assessment
    - i) Pre-exposure knowledge test
    - ii) Exposure to nutrition education material
      - b) Nutrition education through folder
      - c) Measurement of post exposure knowledge after folder alone
      - d) Nutrition education through combination of folder and CD
      - e) Knowledge measurement 30 days after exposure to combination of folders and CD
        - i) Score allotment and categorization of subjects into knowledge categories
        - ii) Comparison of pre and post exposure score for impact analysis
        - iii) Assessment of gain in knowledge

### C. Stastical Analysis

the data collected was tabulated and analyzed with the help of stastical techniques, stastical techniques in frequency, percentage mean-score, chi -square and t -test was applied.

## III. RESULT AND DISCUSSIONS

The pooled data showed that the maximum respondents 36 percent belonged to 9 years of age, 32 percent belonged to 10 years and 32 percent belonged to 11 years of age group. Total respondents were 400 out of whcih 208 were boys and 192 were girls.

Maximum respondents 78.75 percent belonged to hindu religion folllowed by Muslims, 21.25 percent. Maximum boys respondents 42.78% percent were from IV maximum girls respondents, 36.45 percent were also from V class. From the data collected the interesting subjects of maximum respondents 26.25 percent was drawing where as minimum 15 percent were interested in science subject. Maximum respondent 80.5 percent who get monthly pocket money while minimum respondents 19.50 percent who did not get their pocket money. Maximum boys respondents 42.30 percent & Maximum of girls respondents 46.88 percent got 50-100 rupees per month, whereas minimum 19.23 percent got less than 50 rupees per month, Maximum boys respondent 60 percent and girls respondents 56.25 percent belonging to the 9 years of age have over-weight, 60.65 percent of boys respondents and 67.16 percent of girls respondents of age group 10 years are overweight, while 4.48 percent of girls respondents & 8.20 percent of boys respondents of age 10 years were normal. 4.48 percent of boys respondents and 3.28 percent of girls respondents of age 11 years are severely obese. Data indicate that the maximum respondents were overweight.

Maximum boys respondents 38.94 percent were vegetarian, 42.79 percent were non-vegetarian and 18.27 were eggitarian while 35.94 girls respondents were vegetarian, 36.46 percent respondents were non-vegetarian and 27.60 percent respondents were eggitarians. Maximum boys respondents 33.17 percent had breakfast, Lunch, Tea & dinners. 33.33 percent respondets had breakfast, midmorning, lunch, tea and dinner 15.62 girls respondent had breakfast; Lunch and dinner as their routine dietary habit due to their conciousness about their body image. Food consumed daily by all respondent including cereals, pulses, milk and mulk products, green leafy vegetables, roots and tubers, fruit, meat and poultry, fats and oil, sugar & jaggery, regarding the consumption of cereals, it was found that all respondents consumed cereals daily and pulses consumed daily by 91.34 percent of boys consumed pulses on daily basis 1.44 percent consumed pulses 3-6 days/week. Consumption of milk and milkproducts by the boys respondents was found to be frequent 85.57 percent consumed milk on daily basis, whereas 2.88 percent consumed milk occassionally. 32.69 percent of boys respondent reported that they consumed fruits occassionall. Fats and oil, and sugar & jaggery were used by all the responenet who took part in the survey.

TABLE 1  
Comparison of Mean Height (cm.) of School Going children (9-11 years) with NCHS Standard

Age (Years)	Boys				Girls			
	No. of Responders	Observed Height	NCHS Standard	Difference	No. of Respondents	Observed Height	NCHS Standard	Difference
9	80	128.23	133.63	-5.40	64	126.88	133.08	-6.2
10	61	131.02	138.45	-10.14	67	129.42	138.90	-9.48
11	67	134.16	143.45	-14.18	61	133.28	145.00	-11.72
Table value 't' (5%)		t   cal. = 2.72 S			t   cal. = 2.78 S			
Value of 'r' (-1 to 1)		r = 0.98			r = 0.98			

Table 1 shows that the observed mean height (cm.) of school going children in comparison with NCHS standard at 50th percentile. The observed mean height of 9 to 11 years of boys respondents and also girls respondents were less than the NCHS standard values such as in 9 years of boys respondents (128.23 cm.) and girls respondents (126.88 cm.), 10 years of boys respondents (130.22 cm.) and girls respondents (129.42 cm.) and in 11 years of boys respondents (134.16 cm.) and girls respondents (133.28 cm.). The correlation coefficient between observed height of respondents and standard height between the age group of 9 to 11 years is found to be 0.98 concluding that there is a high positive correlation between observed height and age of children.

TABLE 2  
Comparison of Mean Weight (kg.) of Respondents with NCHS Standard

Age (Years)	Boys				Girls			
	No. of respondent	Observed Weight	NCHS Standard	Difference	No. of Respondent	Observed Weight	NCHS Standard	Difference
9	80	58.12	30.00	28.12	64	58.42	29.82	28.60
10	61	62.86	32.00	30.86	67	60.16	33.58	26.58
11	67	70.13	35.00	35.13	61	69.21	37.17	32.04
Table value 't' (5%)		t   cal. = 3.92 S			t   cal. = 2.37 S			
Value of 'r' (-1 to 1)		r = 0.56			r = 0.54			

Table 2 shows that observed mean weight (kg.) of school going children in comparison with NCHS standard at 50<sup>th</sup> percentile. The observed mean weight of 9 to 11 years of boys respondents and also girls respondents were more than the NCHS standard values such as in 9 years of boys respondents (58.12 kg.) and girls respondents (58.42 kg.), 10 years of boys respondents (62.86 kg.) and girls respondents (60.16 kg.) and in 11 years of boys respondents (70.13 kg.) and girls respondents (69.21 kg.). The correlation coefficient between observed weight of respondents and standard weight between the age group of 9 to 11 years is found to be 0.56 percent for boys and 0.5 percent for girls concluding that there is a positive correlation between observed weight and age of respondents.

TABLE 3

Distribution of respondents according to their Degree of obesity on the basis of weight for height

S. No.	Degree of Obesity	9 years (N = 144)					
		Boys n = 80	Percentage	Girls n =64	Percentage	Total	Percentage
1.	Normal >5th - <= 85th percentile	8	10.00	6	9.38	14	11.00
2.	Overweight >85 - <= 95th percentile	50	62.50	34	53.13	84	66.00
3.	Obese > 95th - > 97th percentile	19	23.75	22	34.38	41	32.00
4.	Severe obese	3	3.75	2	3.13	5	4.00
S. No.	Degree of Obesity	10 years (N = 128)					
		Boys n = 61	Percentage	Girls n =67	Percentage	Total	Percentage
1.	Normal >5th - <= 85th percentile	5	8.20	3	4.48	8	6.00
2.	Overweight >85 - <= 95th percentile	40	65.57	44	65.67	84	66.00
3.	Obese > 95th - > 97th percentile	16	26.23	14	20.90	30	23.00
4.	Severe obese	-	-	4	5.97	4	3.00
S. No.	Degree of Obesity	11 years (N = 128)					
		Boys n = 67	Percentage	Girls n =61	Percentage	Total	Percentage
1.	Normal >5th - <= 85th percentile	6	8.96	7	11.48	13	10.00
2.	Overweight >85 - <= 95th percentile	48	71.64	41	67.21	89	70.00
3.	Obese > 95th - > 97th percentile	10	14.93	11	18.03	21	16.00
4.	Severe obese	3	4.48	2	3.28	5	4.00

Table 3 shows the maximum boys respondents (60%) and girls respondents (56.25%) belonging to the 9 years of age have over weight and in this age group minimum boys respondents (3.75%) and minimum girls respondents (3.13%) were suffering from severe obesity.

In the age group of 10 years maximum boy's respondents (60.65%) and girls respondents (67.16%) also have over weight. Minimum boys respondents (8.20%) was normal and no boys respondents have severe obesity where as maximum girls respondents (4.48%) belonging to 10 years of age was normal and also (5.97%) girls respondents was suffering from severe obesity.

Maximum boys respondents (67.16%) and girls respondents (63.93%) belonging to 11 years of age have over weight and minimum boys respondents (4.48%) and girls respondents (3.28%) have severe obesity. Data indicate that the maximum respondents have over weight.

Table 3 shows that the maximum boys respondents (60%) and girls respondents (56.25%) belonging to the 9 years of age have overweight and in this age group minimum boys respondents (3.75%) and minimum girls respondents (3.13%) were suffering from severe obesity.

**TABLE 4**  
Distribution of respondents according to their Degree of obesity on the basis of height for age

S. No.	Degree of Obesity	9 years (N = 144)					
		Boys n = 80	Percentage	Girls n =64	Percentage	Total	Percentage
1.	Normal >5th - <= 85th percentile	13	16.25	8	12.50	21	16.00
2.	Overweight >85 - <= 95th percentile	41	51.25	31	48.44	72	56.00
3	Obese > 95th - > 97th percentile	19	23.75	20	31.25	39	30.00
4	Severe obese	7	8.75	5	7.81	12	9.00
S. No.	Degree of Obesity	10 years (N = 128)					
		Boys n = 61	Percentage	Girls n =67	Percentage	Total	Percentage
1.	Normal >5th - <= 85th percentile	13	21.31	7	10.45	20	16.00
2.	Overweight >85 - <= 95th percentile	41	67.21	41	61.19	82	64.00
3.	Obese > 95th - > 97th percentile	19	31.15	11	16.42	30	23.00
4.	Severe obese	7	11.48	2	2.99	9	7.00
S. No.	Degree of Obesity	11 years (N = 128)					
		Boys n = 67	Percentage	Girls n=61	Percentage	Total	Percentage
1.	Normal >5th - <= 85th percentile	13	19.40	7	11.48	20	16.00
2.	Overweight >85 - <= 95th percentile	41	61.19	41	67.21	82	64.00
3.	Obese > 95th - > 97th percentile	19	28.36	11	18.03	30	23.00
4.	Severe obese	7	10.45	2	3.28	9	7.00

Table 4 shows that the maximum boys respondents (50.00%) and girls respondents (46.87%) belonging to the 9 year of age have over weight and in this age group minimum boys respondents (8.75%) and minimum girls respondents (7.81%) were suffering from severe obesity.

In the age group of 10 year maximum boys respondents (57.37%) and girl's respondents (64.17%) also have over weight. Minimum boy's respondents (11.48%) and minimum girls respondents (2.99%) was suffering from severe obesity.

Maximum boys respondents (64.17%) and girls respondents (67.21%) belonging to 9 year of age have over weight and minimum boys respondents (10.45%) and girls respondents (3.28%) have severe obesity. Data indicate that the maximum respondents have over weight.

#### IV. CONCLUSION

The study reveals that the nutritional status of school going children of age 9-11 yrs residing in Allahabad is below standards. It was observed that among boys respondents and girls respondents the mean height and mean weight were significantly less than the



50th percentile of standard of NCHS. It is concluded that the maximum rate of overweight and obesity were found in the age of 11 years boys and girls.

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