

# Impact of Nutrition Education on School Boys (13 to 15 years) in Nagpur and Chennai for Sustainable Development

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**Abstract:** The Study aims at ascertaining the most appropriate communication media to be used in bringing about improvement in nutritional knowledge, attitudinal change in children for sustainable development. 300 School goers (13- 15 years), 150 boys were selected randomly from Nagpur (Maharashtra) and Chennai (Tamil Nadu) further grouped as normal weight ,overweight and underweight based on BMI for age percentile. Questionnaire was the tool framed to collect data from respondents. Communication media comprising of power point presentation was used. Pre and post tests were conducted to assess the gain in knowledge. The result reveals that the awareness toward nutrition was positive before presentation and showed more than 10% of improvement in gaining knowledge in nutritional awareness, physical activity and lifestyle, where as only 2% to 3% progress was observed in the parameters of Food group, Nutrients , Deficiency disorders and healthy habit s. Over all boys interest to introduce high-nutrient foods and variety in their diet increased significantly. 0% of improvement was shown by Nagpur boys towards adopting healthy habits. Thus imparting nutrition education improved the knowledge score of all the respondent in all the parameters, which if continued in future, can have long lasting effect on improvement of nutritional status and healthy lifestyle.

**Keywords:** School going boys, Questionnaire, Communication media, Nutrition Education.

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## 1. INTRODUCTION

Adolescence marks the developmental transition from childhood to adulthood, a time when many important social, economic, biological, and demographic events set the stage for adult life. Adolescents aged 10–19 years constitute about one-fourth of India’s population In order to realise this potential to the fullest, young people must be healthy, educated and equipped with information skills and confidence that would enable them to contribute to their communities and the country’s socio-economic growth. The state of nutrition among young people continues to be of concern despite a number of national-level programmes. Maximum studies were conducted on sexual and reproductive health education, evidence on the nutritional status of adolescents is limited to adolescent girls and their childbearing roles. Small-scale studies show obesity as an emerging problem in India and an increase in irregular dietary habits among the young. At the systems level there are gaps in implementation of the programmes directed towards improving the nutritional status of the young people including the irregular flow of funds and a delay in allocation of food grains. **Adolescents in India (UNICEF) 2013**

The present study was conducted on 300 boys from selected schools (13 to 15 years age) of Nagpur (Maharashtra) and Chennai (Tamil Nadu) so as to compare the impact of nutrition education and gain in knowledge.

## 2. MATERIAL AND METHODS

A baseline survey was conducted on 300 school going boys from Nagpur & Chennai using a pre scheduled questionnaire. Subjects of specific age group (13-15 years) were selected from private schools of two places. From each place 150 subjects were selected. The questionnaire was constructed based on general and specific information. Pre & Post

Nutritional Education Test was performed, for which nutrition knowledge was imparted through power point presentation. It was framed as per the questionnaire, the topics were related to 1- Nutrition awareness, 2-Food group, nutrients and Deficiency disorder, 3-Healthy habits, 4-Physical Activity and lifestyle. For each right question one score was given no negative marking was done, thus the increased percentage was calculated and the gain in knowledge was assessed.

### 3. RESULT AND DISCUSSION

#### General Information:

**Table 1: Weight -wise distribution of school going boys in Nagpur (I) and Chennai (II)**

S. No.	Place	Weight wise distribution			Total
		N	O	U	
1	Nagpur I	69 (46.00)	25 (16.66)	56 (37.33)	150
2	Chennai II	81 (54.00)	27 (18.00)	42 (28.00)	150
	<b>TOTAL</b>	<b>150 (50%)</b>	<b>52 (17.33%)</b>	<b>98 (32.66%)</b>	<b>300</b>

**Note: Figures in parenthesis indicate percentages**

From the Table 1 it is observed that 50% dominantly present in both the cities under survey were normal weight boys. A total of 17.33 % overweight and 32.66% underweight boys were observed to be present in the both the cities. Body weight determine the quantity and quality of food consumed , eating habits, physical fitness and emotional stability status as all are inter- related aspects that leads to a holistic and healthy life. Nutrition Education and awarness has been found to be more important than other socio – economic factors in countering under and over nutrition. Extensive intervention is needed to educate and break this vicious cycle of malnutrition and over nutrition problems among adolescent children.

#### Nutritional Education and results of pre and post test:

**Table 2: Percentage of marks obtained in Pre and Post test of Nutritional Education among school going Boys in Nagpur and Chennai .**

Section	Nutrition Education Topics	Place	Pre Test Mean ± SD	Pre Test %	Post Test Mean ± SD	Post Test %	Increased %
Section I	Nutrition Awareness	Boys Nagpur	4.43 ± 1.75	55.37	6.08 ± 1.55	76	20.62
		Boys Chennai	4.66 ± 1.64	58.25	5.19 ± 1.50	64.87	6.62
Section II	Food group, Nutrients and Deficiency	Boys Nagpur	11.46 ± 3.55	45.84	13.41 ± 3.51	53.64	7.8
		Boys Chennai	10.95 ± 3.49	43.8	11.87 ± 3.26	45.88	2.08
Section III	Healthy Habits	Boys Nagpur	4.40 ± 1.65	73.33	4.40 ± 1.30	73.33	0
		Boys Chennai	4.28 ± 1.40	71.33	4.47 ± 1.02	74.5	3.16
Section IV	Physical Activity and lifestyle	Boys Nagpur	3.94 ± 1.53	65.66	5.36 ± 0.92	89.33	23.66
		Boys Chennai	4.44 ± 1.06	74	5.18 ± 1.03	86.33	12.33

Table 2 details that after imparting the education it was found that in the first part of pre test nutrition awareness questions Chennai boys scored (58.25%) better than Nagpur .In post test Nagpur boys scored better than Chennai (76%). The increased % was also high 20.62%.

In section II of nutritional knowledge in food group, nutrients and deficiency disorder it was observed that boys scored 40% marks from both the places. Nagpur boys showed more positive results in both pre and post test as compared to Chennai boys.

Under the section of healthy habits of Pre and Post test Nagpur boys scored highest 73.33% in pre test than Chennai 71.33% but no improvement was observed in post test as they don't want to make any immediate changes in current life

style or eating pattern.. Thus in this parameter the increased % was 3.16% gained by Chennai boys. While discussion also they showed their willingness for adopting healthy habits like no skipping breakfast, fixed meal timings, avoid junk foods, washing hands and taking bath every day.

It was observed that all the boys were well aware of importance of exercise and sports for healthy and disease free life. They were also aware of harmful effects of drugs , alcohol , tobacco and cigarette. This was the reason that everybody did very well in last section boys from Nagpur scored 65.66% in pre test and 89.33% in post test. From Chennai boys scored 74% and 86.33% in pre and post test respectively. The highest increased percentage of boys was 23.66% from Nagpur

Overall Nagpur boys performed better as compared to Chennai. Even though they scored low percentage in pre test but increased % was higher as compared to Chennai in all the sections except in adopting healthy habits .The reason was students from Nagpur were more attentive and alert when presentation was given, they were disciplined and sincere.

**Marks obtained by boys when categorized weight wise ( Normal weight , Over weight and under weight)**

**Table 3: Percentage of marks obtained under Nutritional Awareness of Pre and Post test of Nutritional Education among school going boys in Nagpur (I) and Chennai (II).**

S. No.	Place	Pre Test Mean ± SD	Pre Test %	Post Test Mean ± SD	Post Test %	Increased %
<b>Nagpur</b>						
1	IBN	4.47 ± 1.94	55.87	6.08 ± 1.63	76	20.12
2	IBO	4.76 ± 1.61	59.50	6.12 ± 1.26	76.50	17
3	IBU	4.23 ± 1.57	52.87	6.07 ± 1.60	75.87	23
	<b>Total</b>	<b>4.43 ± 1.75</b>	<b>55.37</b>	<b>6.08 ± 1.55</b>	<b>76</b>	<b>20.62</b>
<b>Chennai</b>						
1	IIBN	4.54 ± 1.76	56.75	5.32 ± 1.61	66.5	9.75
2	IIBO	4.62 ± 1.64	57.75	5.22 ± 1.33	65.25	7.5
3	IIBU	4.9 ± 1.39	61.25	4.92 ± 1.35	61.50	0.25
	<b>Total</b>	<b>4.66 ± 1.64</b>	<b>58.25</b>	<b>5.19 ± 1.50</b>	<b>64.87</b>	<b>6.62</b>

From Table 3 it can be observed that underweight boys of Chennai scored least increased % followed by over weight boys of Chennai. The basics of nutritional awareness was better understood by normal weight boys from both the cities.

**Table 4: Percentage of marks obtained in food group, nutrients and deficiency disorder knowledge among school going boys in Nagpur (I) and Chennai (II) in Pre and Post test of Nutritional Education .**

S. No.	Place	Pre Test Mean ± SD	Pre Test %	Post Test Mean ± SD	Post Test %	Increased %
<b>Nagpur</b>						
1	IBN	11.31 ± 3.73	45.24	13.24 ± 3.65	52.96	7.72
2	IBO	11.8 ± 3.04	47.2	13.12 ± 3.46	52.48	5.28
3	IBU	11.48 ± 3.57	45.92	13.75 ± 3.39	55	9.08
	<b>Total</b>	<b>11.46 ± 3.55</b>	<b>45.84</b>	<b>13.41 ± 3.51</b>	<b>53.64</b>	<b>7.8</b>
<b>Chennai</b>						
1	IIBN	10.85 ± 3.51	43.4	11.77 ± 3.32	47.08	3.68
2	IIBO	11.62 ± 2.91	46.48	11.4 ± 3.81	45.6	-0.88
3	IIBU	10.71 ± 3.81	42.84	12.35 ± 2.74	49.4	6.56
	<b>Total</b>	<b>10.95 ± 3.49</b>	<b>43.8</b>	<b>11.87 ± 3.26</b>	<b>45.88</b>	<b>2.08</b>

The pre test percentage in Table 4 clearly indicates that all boys lack in the knowledge of food groups, deficiency diseases and nutrient requirements. In Chennai over weight boys and scored fewer marks as compared to pre test. Thus in increased % it was showing negative marks. The least percentage was also observed in Chennai 45.6% by over weight boys. From both the cities highest improvement was observed only in underweight boys.

**Table 5: Percentage of marks obtained under healthy habits in Pre and Post test of Nutritional Education of school going boys in Nagpur (I) and Chennai (II)**

S. No.	Place	Pre Test Mean $\pm$ SD	Pre Test %	Post Test Mean $\pm$ SD	Post Test %	Increased %
<b>Nagpur</b>						
1	IBN	4.47 $\pm$ 1.64	74.5	4.23 $\pm$ 1.33	70.5	-4
2	IBO	4.76 $\pm$ 1.50	79.33	4.68 $\pm$ 1.28	78	-1.33
3	IBU	4.14 $\pm$ 1.73	69	4.48 $\pm$ 1.26	74	5.66
	<b>Total</b>	<b>4.40 <math>\pm</math> 1.65</b>	<b>73.33</b>	<b>4.40 <math>\pm</math> 1.30</b>	<b>73.33</b>	<b>0</b>
<b>Chennai</b>						
1	IIBN	4.46 $\pm$ 1.30	74.33	4.6 $\pm$ 0.90	76.66	2.33
2	IIBO	3.7 $\pm$ 1.23	61.66	4.25 $\pm$ 1.05	70.83	9.16
3	IIBU	4.3 $\pm$ 1.60	71.66	4.35 $\pm$ 1.20	72.5	0.83
	<b>Total</b>	<b>4.28 <math>\pm</math> 1.40</b>	<b>71.33</b>	<b>4.47 <math>\pm</math> 1.02</b>	<b>74.5</b>	<b>3.16</b>

Table 5 reveals that Nagpur over weight and normal weight boys scored highest in pretest but in post test no improvement was observed may be because they don't want to make any immediate changes in current life style or eating pattern. Thus increased % was zero. Maximum gain in knowledge was seen among over weight boys of Chennai and underweight boys of Nagpur. Underweight boys of Chennai as they had poor scores in post test reason may be they are comfortable with current eating pattern and monotonous diet as observed in 24hr recal. Thus accordingly they might have answered with a no change rigid thought process.

**Table 6: Percentage of marks in category of Physical Activity and lifestyle in Pre and Post test of Nutritional Education of school going boys in Nagpur (I) and Chennai (II)**

S. No.	Place	Pre Test Mean $\pm$ SD	Pre Test %	Post Test Mean $\pm$ SD	Post Test %	Increased %
<b>Nagpur</b>						
1	IBN	3.97 $\pm$ 1.43	66.16	5.28 $\pm$ 1.04	88	21.83
2	IBO	4.36 $\pm$ 1.43	72.66	5.48 $\pm$ 0.82	91.33	18.66
3	IBU	3.73 $\pm$ 1.67	62.16	5.39 $\pm$ 0.824	89.83	27.66
	<b>Total</b>	<b>3.94 <math>\pm</math> 1.53</b>	<b>65.66</b>	<b>5.36 <math>\pm</math> 0.92</b>	<b>89.33</b>	<b>23.66</b>
<b>Chennai</b>						
1	IIBN	4.48 $\pm$ 1.03	74.66	5.11 $\pm$ 1.08	85.16	10.5
2	IIBO	4.4 $\pm$ 1.11	73.33	5.18 $\pm$ 0.92	86.33	13
3	IIBU	4.40 $\pm$ 1.10	73.33	5.3 $\pm$ 0.99	83.33	15
	<b>Total</b>	<b>4.44 <math>\pm</math> 1.06</b>	<b>74.00</b>	<b>5.18 <math>\pm</math> 1.03</b>	<b>86.33</b>	<b>12.33</b>

Table 6 details that all respondents performed well in physical activity and life style test but highest knowledge gained and marks obtained by underweight boys from both the cities.

#### 4. CONCLUSION

It is concluded that although the majority of boys (13-15 years) scored more percentage in post test as compared to pre test still the percent increased is not up to the expected level of nutrition education imparted. Overweight boys from Chennai scored less in post test of knowledge in Food group, Nutrients and Deficiency Disorder, they learned the nutritional facts but not ready to add variety in diet and want to continue with monotonous daily meals. Highest improvement was observed in underweight boys from both the cities under same section II showing acceptance for adding variety nutrient rich food items in daily diet to fight immunity and deficiency disorder in future. Nagpur boys showed no improvement in the post test of adopting healthy habits, respondents showed a carefree attitude towards healthy lifestyle practices. The presentation improved the knowledge score of most of the respondent in all the parameters covered but it should be a continuous approach in future by teachers or health workers.

#### REFERENCE

- [1] **Adolescents in India (UNICEF) 2013** "Adolescents in India: A desk review of existing evidence and behaviours, programmes and policies." 2013. New Delhi: Population Council & UNICEF Pg vii