

Nutritional deficits in the paediatric selected age group in a diverse established country, India

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Abstract:

Worldwide, nutrient deficits are common. Nutritional deficits have been said to be the cause of diseases and morbid states. Nutrient deficiencies must be addressed since they can result in chronic, lifelong health issues such rickets, iron deficiency anaemia, goitre, obesity, coronary heart disease, type 2 diabetes, stroke, cancer, and osteoporosis. As a first step to encourage food fortification in India, we offer solutions for both preventing and treating nutritional deficiencies.

Keywords: nutrient deficits, disease

1. Introduction:

In many places, including the United States, Canada, Europe, and the third world, nutritional deficiency disorders like goitre, rickets, pellagra, and others have decreased as a result of the identification of critical nutrients and their roles in disease prevention. In India, a country with significant immigration, a large portion of the population lives below the poverty line, and the population is ageing in addition to having a very high unemployment rate. In comparison to urban children, rural children had a low WTH ratio because they were slender for their height.

Children in urban areas had a large WC but their height remained constant. This was more noticeable in children between the ages of 6 and 10, who had not yet reached puberty and whose height was shorter than the average for Indian youngsters. Based on BMI readings, the total percentage of heavy and corpulence in BAG in rural zones was only 12 and 11 respectively.

The Online Suffering Scale demonstrates a strong connection between online addiction and social breakdown. More IA have attempted to flee reality than PA or non-addicts (NA). IA indicated a substantial propensity for internet use, regardless of whether people were under pressure at work or simply depressed. Additionally, the IA group reported the most feelings of isolation, hopelessness, and obligation. IA group demonstrated unusually strong connection to aliens and was more susceptible to interpersonal risks than other categories. Additional research is necessary to determine a direct connection between internet dependence and personal wellbeing. Kumar et al. (2019) conducted a cross-sectional study to assess the prevalence, knowledge, attitude, and practise of tobacco usage among school-aged boys at a medical college's urban field practise region. Sadaf Ali et al. (2017) did a study on Nutrition and Healthy Lifestyle: Knowledge, Attitude, and Practice in Yenepoya Medical College, Mangalore Medical Students.

Owens (2004) Cultural influences are key drivers of sleep habits and behaviours in infants, children, and adolescents, and influence both the kind and frequency of sleep issues found in the paediatric population, according to a cross-sectional study. According to Shah et al. (2010), the complete educational intervention on the aforementioned subjects could be implemented into future school-based health and nutritional education programmes.

Cheng et al. (2015) conducted a study in Hong Kong on school teachers' knowledge and attitudes regarding promoting healthy lifestyles to pupils. It was discovered that the teachers' knowledge of hypertension was frequently below average. Itozi et al. (2013) conducted a study on the eating habits and behaviours, as well as nutritional and food safety knowledge, among a group of Albanian adolescents as part of a nutritional monitoring project in Tirana, Albania's capital.



Faria et al. (2011) conducted a study to examine the relationship between alcohol advertisement and beers drinking among teenagers, in whom 1,115 students from three public schools in So Bernardo do Campo, South-eastern Brazil, were interviewed. Godsell and White (2019) utilised to detect and investigate data patterns. The majority of adolescents who reported insufficient sleep acknowledged the influence of peers on sleep behaviour. According to Cain et al. (2011), the current study sought to design and test a motivational school-based intervention for teenage sleep disorders. The study concluded that school-based strategies for educating adolescents about sleep are promising. Children and adolescents nowadays are absorbed in both old and new forms of digital media, according to Chassiakos et al. (2016).

Ladipo and Adeduntan (2012) investigated the impact of adolescent access to media resources on sexual and reproductive health attitudes.

2. Objectives:

- To Distribution Of Children According To Mid Upper Arm Circumference
- To Deficiency Sicknesses Prevalent Amongst The Selected Children
- To Circulation Of Selected Children Conferring To Blood Glucose Values

3. METHODOLOGY

Data was acquired from 600 students using an interview schedule and direct personal interviews. Personal issues such as age, class, and gender, demographic influences such as place of residence and family type, SE factors such as close relative educational and economic standing, lifestyle factors such as school physical activities, recreational activities at home, athletics, and games played, and dietary factors such as food consumption pattern were elicited and recorded.

The research methodology used in this study is a quantitative approach. The research design used in this study was not experimental or descriptive. 600 moms from urban regions of Pune city who have children in school between the ages of 5 and 15 were chosen as a sample. A self-structured questionnaire with 20 knowledge items and 10 demographic questions was

created. This tool's reliability was assessed using the test-retest approach after it had been validated by subject matter experts.

According to Kurian (2010), WTH ratio has a better capability to envisage circulatory disease than BMI or percentage physique fat calculated using WTH ratio, and the 75th percentile of WC can be hand-me-down as an "exploit point" for Indian broods to identify belly portliness. When comparing the WTH ratios of girls and boys, Li (2005) establish that girls have a higher risk of abdominal obesity than boys. In contrast, a study of Hong Kong Chinese children found that boys' WTH ratios were somewhat higher than girls' (Sung et al. 2008). However, the current study confirms a pattern among American youngsters in which girls had a higher WTH ratio than boys. The distribution of the selected children according to the mid upper arm circumference.

TABLE 1: DISTRIBUTION OF CHILDREN ACCORDING TO MID UPPER ARM CIRCUMFERENCE VALUES (N = 600)

WTH Ratio*	PS N = 300				GS N = 300			
	Boys N = 150		Girls N = 150		Boys N = 150		Girls N = 150	
>13.5	N	%	N	%	N	%	N	%
	150	100	150	100	150	100	150	100
>12.5 to <13.5	0	0	0	0	0	0	0	0

The results of the current study's MUAC of youngsters have also revealed severe cases of malnutrition in both UAR locations. This parameter, however, does not imply over nutrition. However, grounded on the conclusions of this study, the scientist has established a cut-off point at which over-nutrition, overweight, and obesity can be determined. 17.5 For boys and 16.7 for girls was chosen as the cut-off mark. MUAC is an impending anthropometric measure of teen-ager nutrition, according to Roy (2000).



THE OCCURRENCE OF DEFICIENCY DISEASES AMONGST THE SELECTED CHILDREN

The deficient disorders present among the selected children. Mild to moderate anemia was the most common deficiency sign among students from all three types of schools, as determined by clinical examination. Brittle nails, pale conjunctiva, weariness, dizziness, hair loss, and gasping were the most common symptoms.

Girls and boys from Government schools, on the other hand, were the most afflicted, with anemia prevalence rates of 50 and 47%, respectively. Low diet of khaki leafy tubers, fruits, and extra tubers may contribute to the increased risk of anemia among Government schoolchildren. The main contributory variables were frequent illnesses and a lower intake of iron-rich foods. These children's iron absorption may have been hampered by their lack of fruit consumption.

The Private schools' entire BAG had a typical mid upper arm border of bigger than 13.5 centimeters. This indicates that undernourishment was not a problem between Private pupils. A total of 18 students in Government schools exhibited mild/moderate malnutrition, as measured by their mid upper arm circumferences of less than 13.5 centimeters. The situation was better among the girls, with only nine showing signs of undernourishment. This might be attributed to a lack of nourishment intake and recurrent sickness.

TABLE 2: DEFICIENCY SICKNESSES PREVALENT AMONGST THE SELECTED CHILDREN (N = 600)

Deficiency diseases	PS				GS			
	Boys N = 150		Girls N = 150		Boys N = 150		Girls N = 150	
	N	%	N	%	N	%	N	%
Anemia	71	47	70	47	53	35	25	17
Vitamin A Deficiency	54	36	50	33	61	41	75	50
Pellagra	25	17	30	20	36	24	50	33

Poor adaptation to darkness and dry skin were symptoms of mild vitamin A insufficiency (VAD). Vitamin A deficiency was equally prevalent among Private and Government school children. Vitamin A was additional prevalent in city parts than in country areas. Rendering to Anstas (2010), subclinical variants of VAD source respiratory and diarrheal illnesses, as well as a reduction in growth rate and bone development. In comparison to urban school students, rural school children showed symptoms similar to pellagra, such as hyperpigmentation and skin irritation.

PROFILE BIOCHEMICAL OF THE SELECTED SUB SAMPLE

The blood glucose levels of the children in the selected subsample

The distribution of the subsample of children according to their blood glucose values is shown in Table 3. Table shows that 93 to 95 percent of the children had normal blood glucose levels in the 75 to 100 mg/dl range, as suggested by the American Diabetes Association and Mohan et al (2007). 3.5, 2.5, and 1.5 percent of Private, Government, and schoolchildren had high blood glucose levels.

Adolescent BAG in Private school was shown to be at higher risk. In addition to being pre diabetic with blood glucose levels 125 mg/dl, these children had symptoms of MS such as obesity (>85th percentile for age), hypertension (systolic or diastolic BP>95th percentile for age), and dyslipidemia (low HDL levels or increased triglyceride planes).

TABLE 3: CIRCULATION OF SELECTED CHILDREN CONFERRING TO BLOOD GLUCOSE VALUES (N = 600)

GROUP	PS N = 300				GS N = 300			
	Boys N = 150		Girls N = 150		Boys N = 150		Girls N = 150	
	N	%	N	%	N	%	N	%
Low < 75	15	10	20	13	27	18	44	29
Normal 75-100	129	86	120	80	100	67	98	65
Pre-diabetes 100-125	6	4	10	7	23	15	8	6
Total	150	100	146	100	137	100	158	100

**American Diabetes Association (2019) and Mohan et al., India (2020)*

The ATP III and the WHO have jointly recognized these signs for identifying MS in children. Using ATP III and WHO criteria, Goodman (2004) found that 4.2 and 8.4% of BAG in a school-based study of 1513 North American adolescents had metabolic syndrome, respectively, whereas 6.5 and 4.5 percent of children and youngsters in a study of 965 Mexican progenies and adolescents had metabolic syndrome, respectively (Rodriguez-Moran et al. 2004). In the current study, 2.3 percent of youngsters and 2.7 percent of girls had MS symptoms. Table 3 compares the blood lipid heights of fat and non-obese pupils from three different types of schools. The values of the gore lipids in the fat and non-obese children's subsample that was chosen are displayed in Table.

Blood lipid levels of the selected sub sample

Children with and without obesity had significantly different levels of total cholesterol, Low Density Lipoprotein cholesterol, High Density Lipoprotein cholesterol, and triglycerides at the 1% level, according to a comparison of their levels of total fat, Low Density Lipoprotein cholesterol, High Density Lipoprotein cholesterol, and triglyceride. Because their lipid levels, blood glucose levels, and body weight were all above normal, the obese youngsters were analyzed thru metabolic condition.

TABLE 4: MEAN BLOOD LIPID VALUES OF SUB SAMPLE OF OBESE AND NON OBESE CHILDREN (N = 600)

Criteria	Normal values	Obese N = 300	Non Obese N = 300	T value	p value
Total cholesterol	<170 mg/dl	181.2±15.53	131.4 ± 20.3	29.62	0.0011***
LDL cholesterol	<110mg/dl	116.6± 5.4	83.3±9.7	24.90	0.0016***
Triglycerides	54-110 mg/dl	106.8± 5.8	75.3± 4.0	58.53	0.0003***
HDL cholesterol	50-86mg/dl	34.1 ± 4.9	66.1± 10.3	-65.86	0.0002***

High carbohydrate and fat consumption, increased television viewing, increased consumption of junk foods and empty calories, and less PA were all variables in these children's lifestyles. In these children, environmental factors such as employed mothers and a high socioeconomic position were also detected. These factors, when combined, resulted in a rise in the, Obesity is a risk for children. These youngsters may be classed as high-risk for lifestyle diseases, necessitating proper education to help them change their ways.

The National Lipid Education Platform I and the American Heart Association, according to Fletcher et al. (2005), highlight the population approach as the major means of primary prevention of coronary sentiment illness beginning in childhood. To lower the prevalence of CHD in children, risk features such as plasma cholesterol levels are being targeted to be moved to desired ranges. One of the most crucial aspects of health promotion is health education, which involves activities aimed at encouraging individuals, families, and communities to adopt health-promoting behaviors as well as assisting people in making decisions about their health and acquiring the confidence and skills they need to put those decisions into action (David and Murray, 2005). Healthy lifestyle practices are greatly benefited by the dynamic character of diet and its high correlation with demographic, economic, social, and health aspects. People need to know what makes a healthy diet, and they also need the gen, assistances, and drive to find the right food elections and adopt good eating practices. Nutritional education has a role in assisting people in doing this. Given the growing number of overweight adults and children, it is especially crucial to link nutrition and PE.

As part of a holistically healthy lifestyle, nutrition instruction lectures ought to emphasize the significance of mingling systematic PE and good diet (Martens, Van Assema and Brug, 2005). Healthy eating practices during childhood and adolescence promote optimal child health, growth, and intellectual development. They also help to prevent difficulties like obesity, eating disorders, and dental caries as well as long-term problems like coronary heart disease, cancer, and stroke. School health programmers can help children and adolescents reach their full academic potential and maintain outstanding health by giving them the information, social support, and environmental reinforcement they need to develop long-term, healthy eating patterns (Bennet and Southern, 2009).

One of the most crucial aspects of health promotion is nutrition education, which includes programs aimed at individuals, families, and communities. To aid in the development of dietary guidelines-compliant eating habits in children, nutrition education is necessary. Chronic disease causing food habits are formed initial in lifespan; children who have corrupt bothering habits are more likely to keep them as they get older. Therefore, it is effective to educate people healthy eating habits while they remain young since once high risk consumption conduct and bodily risk factors are established throughout youth, they are difficult to change (WHO, 1986).

4. Conclusion:

Healthy eating practices during childhood and adolescence promote optimal child health, growth, and intellectual development. They also help to prevent difficulties like obesity, eating disorders, and dental caries as well as long-term problems like coronary heart disease, cancer, and stroke. School health programmers can help children and adolescents reach their full academic potential and maintain outstanding health by giving them the information, social support, and environmental reinforcement they need to develop long-term, healthy eating pattern. The use of the modified classification permitted the identification of children with two additional conditions that are typically overlooked in most nutritional surveys, in addition to wasting, stunting, and overweight children. Each of these nutritional disorders has unique traits, such as a different origin, a different preventive and therapeutic strategy, harm to the patient's health, and a different priority level in the development of public policies. Such elements provide evidence for their identification and characterization in the various contexts in which nutritional surveys are created.

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