



PERSONAL DIETARY HABITS AND ITS INFLUENCE ON THE NUTRITIONAL STATUS OF SCHOOL AGED CHILDREN DWELLING IN AN URBAN SLUM IN INDIA.

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ABSTRACT

BACKGROUND: Malnutrition comprising of both undernutrition and overnutrition is a public health issue in school aged children in developing countries.

Objectives: To study the influence of personal dietary habits on the nutritional status of school aged children.

METHODS: A Cross sectional Study comprising of 400 school aged children was carried out in an urban slum in Meerut

RESULTS: A statistically significant difference was found between the prevalence of underweight in children and the habit of not having daily breakfast and milk ($P < 0.05$ and $P < 0.001$ respectively) and vegetarian food intake ($P < 0.0001$) and also between the prevalence of overweight and obesity in children and the habit of daily intake of milk ($P < 0.01$) and non-vegetarian food ($P < 0.05$).

CONCLUSION: Personal dietary habits of children affect the nutritional status in school aged children.

KEYWORDS : Nutritional Status, School Aged Children, Personal Dietary Habits

INTRODUCTION

The nutritional status of children encompasses normal nutrition as well as malnutrition. Malnutrition comprises of two diametrically opposite entities- undernutrition and overnutrition. Both of these entities occurring during school age are detrimental to the development of children, they negatively impact health, work capacity and quality of life across the lifespan.¹

Apart from many other factors, there are some peculiar personal dietary habits which have a bearing on the nutritional status of school aged children. The objective of this study was to explore and identify a couple of them.

MATERIAL AND METHODS

STUDY SETTING:

The present study was conducted in an urban slum area among 1867 families which were registered at Urban Health Training Centre of LLRM Medical College, Meerut.

STUDY SUBJECTS:

5-14 years (School aged) children of the registered families.

STUDY PERIOD : February 2011 to June 2011.

STUDY DESIGN: Cross-sectional study.

SAMPLE SIZE: Sample size was calculated using the formula:

$$n = Z_{1-\alpha/2}^2 pq/d^2$$

By taking prevalence of malnutrition in school aged children, $p=50\%$

$d=10\%$ of p

$$\alpha=5\%, Z_{1-\alpha/2}=11.96$$

$$n=384$$

Assuming a non response rate of 5%, the total sample size is estimated as 400.

SAMPLING TECHNIQUE: Simple random sampling technique

DATA COLLECTION:

By House to house visit. **Informed Consent** was taken from the parents of the children. A Predesigned & pretested questionnaire was used to collect all the relevant data supplemented by physical examination. The US Center for Disease Control and Prevention (CDC) 2000 Growth Charts which provide gender specific BMI for age for school aged children were used to assess the nutritional status of the children. In order to calculate BMI, weight and height of the children were measured. The weight was recorded with the help of weighing machine to the nearest 100 grams. The

height was measured from head to heels by an ordinary measuring tape to the nearest centimeter.

DATA ANALYSIS:

Data was analyzed using SPSS software version 16. Qualitative variables were expressed in percentages. Chi square test was used to test the association between two attributes. P-value less than 0.05 was considered significant.

RESULTS

We managed to collect data from 400 children in the age group of 5-14 years who fully cooperated with us for the study.

Table -1 : Nutritional Status of Children in relation to daily intake of Breakfast

| Daily Intake of Breakfast | Nutritional Status | | | | | | | | | |
|---------------------------|--------------------|--------------|---------------------------------------|-------------|----------------|-------------|--------------------------------------|------------|-----------|------------|
| | Population | | Underweight | | Healthy Weight | | Overweight | | Obese | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| No | 58 | 14.5 | 39 | 67.2 | 12 | 20.7 | 6 | 10.4 | 1 | 1.7 |
| Yes | 342 | 85.5 | 153 | 44.7 | 142 | 41.5 | 33 | 9.7 | 14 | 4.1 |
| Total | 400 | 100.0 | 192 | 48.0 | 154 | 38.5 | 39 | 9.8 | 15 | 3.7 |
| | | | $\chi^2 = 10.06;$ $df=1; P < 0.05$ | | | | $*\chi^2 = 0.12; df=1;$ $P > 0.5$ | | | |

*For calculation of χ^2 overweight and obese have been clubbed together.

The difference in prevalence of underweight ($P < 0.05$) but not overweight and obesity ($P > 0.5$) in relation to habit of eating breakfast daily was found to be statistically significant.

Table -2 : Nutritional Status of Children in relation to daily intake of milk

| Daily Intake of Milk | Nutritional Status | | | | | | | | | |
|----------------------|--------------------|--------------|---|-------------|----------------|-------------|--|------------|-----------|------------|
| | Population | | Underweight | | Healthy Weight | | Overweight | | Obese | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| No | 108 | 27.0 | 80 | 74.1 | 22 | 20.3 | 3 | 2.8 | 3 | 2.8 |
| One Glass | 212 | 53.0 | 107 | 50.5 | 74 | 34.9 | 24 | 11.3 | 7 | 3.3 |
| Two Glasses | 75 | 18.8 | 5 | 6.7 | 56 | 74.7 | 10 | 13.3 | 4 | 5.3 |
| Three Glasses | 5 | 1.2 | 0 | 0.0 | 2 | 40.0 | 2 | 40.0 | 1 | 20.0 |
| Total | 400 | 100.0 | 192 | 48.0 | 154 | 38.5 | 39 | 9.8 | 15 | 3.7 |
| | | | $\chi^2=86.02;$ $df=2;$ $P < 0.001$ | | | | $*\chi^2 = 10.21; df=2;$ $P < 0.01$ | | | |

*For calculation of χ^2 1 and 2 have been merged together and overweight and obese have been clubbed together.

The difference in prevalence of underweight ($P < 0.001$) as well as overweight and obesity ($P < 0.01$) in relation to habit of daily milk intake was found to be statistically significant.

Table- 3 : Nutritional Status of Children in relation to Vegetarian/ Non vegetarian Food Intake

| Veg./Non Veg. Food Intake | Population | | Nutritional Status | | | | | | | |
|---------------------------|------------|--------------|--------------------|-------------|----------------|-------------|------------|------------|-----------|------------|
| | | | Underweight | | Healthy Weight | | Overweight | | Obese | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Non-Veg. | 175 | 43.7 | 63 | 36.0 | 79 | 45.1 | 25 | 14.3 | 8 | 4.6 |
| Veg. | 225 | 56.3 | 129 | 57.3 | 75 | 33.3 | 14 | 6.2 | 7 | 3.1 |
| Total | 400 | 100.0 | 192 | 48.0 | 154 | 38.5 | 39 | 9.8 | 15 | 3.7 |

*For calculation of χ^2 overweight and obese have been clubbed together.

The difference in prevalence of underweight ($P < 0.001$) as well as overweight and obesity ($P < 0.05$) in relation to veg./ Non veg. food intake was found to be statistically significant.

DISCUSSION

In the present study statistically significant difference was seen in the prevalence of underweight in children not consuming breakfast daily and in those doing so which was 67.2% and 44.7% respectively ($P < 0.05$). This is similar to the findings of Gajre et al (2008) ² who reported that 62.3% students (11-13 year old) regularly consumed breakfast and were better nourished than those children who skipped breakfast and Ahmad et al (2009) ³ who reported that 79.51% adolescents took breakfast regularly all days of the week while only 20% of the adolescents skipped breakfast due to one reason or the other and the majority who took breakfast regularly all the days of week were found to be normally nourished. In the present study no statistically significant difference was seen in the prevalence of overweight and obesity in children not consuming breakfast daily and in those doing so which was 12.1% and 13.8% respectively ($P > 0.5$). This is in contrast to the findings of Boutelle et al (2002) ⁴ who reported that adolescents who are breakfast eaters are less likely to be overweight and Snoek et al (2007) ⁵ who reported that there is an inverse association with overweight and habit of having breakfast.

In the present study statistically significant difference was found in the prevalence of underweight in children not taking milk daily and in those taking 1,2 and 3 glasses of milk daily which was 74.1%, 50.5% ,6.7% and 0% respectively ($P < 0.001$). This is in accordance with the findings of Ahmad et al (2009) ³ who reported that 60.6% adolescents consumed milk at least once a week whereas 27.1% did not take milk at all and adolescents consuming milk regularly enjoyed better nutritional status. In the present study statistically significant difference was seen in the prevalence of overweight and obesity in children not taking milk daily and in those taking 1,2 and 3 glasses of milk daily which was 5.6%, 14.6%, 18.6% and 60% respectively ($P < 0.01$). This is in contrast to the findings of a report on Human Nutrition in Health and Disease (2008-09) ⁶ which revealed that low consumption of milk was associated with higher prevalence of overweight in adolescents.

In the present study statistically significant difference was seen in the prevalence of underweight in vegetarian and non vegetarian children which was 57.3% and 36% respectively ($P < 0.001$). This is in contrast to the findings of Goyal et al (2010) ⁷ who reported that vegetarian and non vegetarian diet

did not have any effect on prevalence of underweight in adolescent School going Children. In the present study statistically significant difference was seen in the prevalence of overweight and obesity in vegetarian and non vegetarian children which was 9.3% and 18.9% respectively ($P < 0.05$). This is in contrast to the findings of Goyal et al (2010) ⁷ who reported that vegetarian or non vegetarian diet did not have any effect on prevalence of overweight and obesity in adolescent school going children.

CONCLUSION:

Personal Dietary factors have a bearing on the nutritional status in school aged children.

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