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## ASSESSING CALORIES INTAKE AND MAJOR NUTRIENTS OF MORADABAD SCHOOL GOING CHILDREN

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### ABSTRACT

The paper is an extension of minor research project titled “To assess Diet intake among school going children (10-15 years) for nutrient gaps” funded by Teerthanker Mahaveer University. The study covers major criteria a) eating habits b) frequency of meals c) dietary pattern. The study was conducted on sample of 200 children including 50% boys and 50% girls. Sample was drawn through simple random sampling of the schools resulting five schools for study. The study has been conducted through questionnaire developed especially for the study including major factors as: 24 hour recall method, frequency of meal in different categories, and socio economic status of the respondents. Findings of the study suggest that mean intake of energy as 1689.43 (156.9 S.D.) among boys and 1483.8 (182.52 S.D.) against Recommended Dietary allowances respectively 2190 for boys and 1970 for girls. While protein intake is with mean 43.39gm against 54gm as recommended in boys, in girls it is 41.11gm against 57gms. Fat intake among the respondents is 23.2gms in boys and 24.33gms in girls against 22gms recommended for both the genders.

**Key words:** Samples, Recommended, Dietary, Allowance.

### INTRODUCTION

The school age period is most significant period in terms of Nutrition and Energy intake. This time high catabolic and metabolic rate makes up the body strength that counts in health for overall life. Major contribution to the health of an Individual is nothing but nutrition intake and that collects with certain food habits. Food habits, as part of an appropriate dietary intake for age, gender, and physical activity level, can promote a desirable body weight. On the other hand, poor food habits and inappropriate dietary intake, specifically excessive intake, can promote overweight or obesity. Food habits are learned in childhood and, often times the food habits learned in childhood are practiced throughout adulthood. Lien, Jacobs, and Klepp (cited in Befort *et al.*, 2006) report that adolescents form dietary habits affecting weight status that will persist into adulthood.

Therefore, timing the development of food habits of children and adolescents is crucial. Children who make poor food choices may suffer with undesirable body weight issues. Unfortunately, Childhood overweight and obesity may lead to adulthood overweight and obesity, thus raising the risk for chronic diseases. Diet makes up the major factor in Health and Health is mandatory for proper functioning of the body and mind. Future of any Country lies in children and their sound health is nothing but a foundation for a bright future. The study “To assess

Diet intake among school going children (10-12 years) for nutrient gaps” is an attempt to understand dietary pattern of school going children for gaps.

The results from the 2009 National Youth Risk Behavior Surveillance of the United States indicated that during the 7 days preceding the survey, about 78% of high school students had not eaten fruit and vegetables five or more times per day and 29.2% had drunk soda or pop at least once per day. In the present study, the prevalence of daily fruit and vegetable consumption by both genders was noticeably low, and it was slightly lower than what was previously reported for Saudi adolescents in Jeddah, which amounted to 27.6% and 26.4% for fruit and vegetables, respectively. However, our sample prevalence is much lower than the 50.8% and 62.4% prevalence reported for fruit and vegetable intake by Saudi adolescents from Abha. Moreover, fruit and vegetable consumption more than three times per week among adolescent males and females in the United Arab Emirates was reported to range from 49% to 69%. This figure is higher than the average prevalence of fruit (32%) and vegetable (48%) consumption more than three times per week found in the present study. Skipping breakfast is another unhealthy dietary habit and was found to be very common in the present study.

Breakfast skipping was reported to be 49% among Saudi adolescents from Abha, about 15% among Saudi secondary school students from Jeddah, and about

10% among adolescent males and nearly 19% among females in the United Arab Emirates. Skipping breakfast was also shown to be prevalent in the United States.

The purpose of the study was to assess the dietary pattern and nutrient gaps of school children of age group 10-15 years in Moradabad city, U.P. Thereafter, inform parents, children and teachers on the pattern and necessary remedies.

**STUDY METHODOLOGY**

The study was exploratory in nature and conducted through survey method. Data has been collected through either students or their parents.

**SAMPLING**

The study is conducted at Moradabad Schools and sample is drawn through simple random sampling of Moradabad school resulting five schools as selection. The sample of 200 (100 boys and 100 girls) was drawn with simple random sampling within age group of 10-15 years. Study involved collection of data in 3 major criteria namely, eating habits, frequency of meals and dietary assessment.

**STUDY TOOLS**

Study has been conducted with questionnaire made by the investigators covering all criteria and be exploratory in nature. Dietary pattern has been assessed through 24 hour recall method supplemented with food frequency questionnaire. Interview method has been applied to get the responses of the respondents.

**DIMENSIONS**

**EATING HABITS**

Meal skipping and irregular eating patterns are common during school going children. Breakfast and lunch appear to be the most frequently missed meals, but social activities may cause a school going children to mess in evening meal as well. It has found that as many as 50% of school going boys and girls reported not eating breakfast. Breakfast skipping appears more frequent among school going children. This problem is especially important with girls who tend to skip more meals than boys. According to the study (Franko, 2008) greater meal frequency is associated with a lower risk of increase in Body Mass Index.

**FREQUENCY OF MEALS**

A list of different foods and the frequency of consumption per day, week and fortnight or month etc. along with likes and dislikes is useful in qualitative assessment of nutrients. (Wadhwa A Sharma S, 2003). After having obtained the information on consumption and pattern of dietary intake, its translation into nutrient intake values is done in the following manner. First estimate nutrients consumed in a day by using standardized food consumption table. Then, dietary deficiency or excess for

one or more nutrients can be assessed by comparing the values obtained with corresponding recommended dietary allowance (RDA) values (Sharma, 2008).

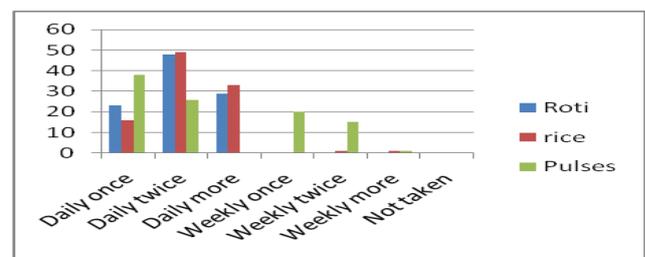
**DIETARY ASSESSMENT**

It was done by using three days recall method supplemented with food frequency questionnaire. 24 hour recall method- This is probably most widely used method of dietary assessment. It is quick and simple to perform, places a minimal burden on the subjects and is applicable to most target groups regardless of their background. This technique aims to quantify dietary intake over the previous 24 hour. Information obtained by this method is not unnecessarily representative of unusual intake of an individual. In this recall method of oral questionnaire diet survey, a set of standardized cups suited to local conditions was used. (Krause and Kathlene, 2004)

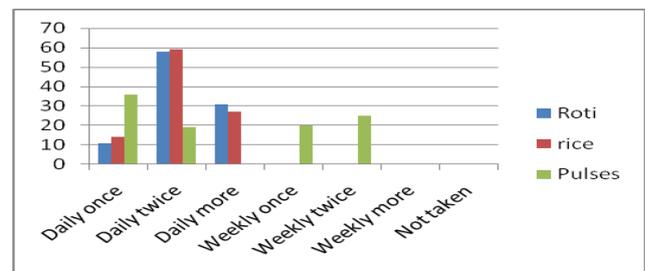
The member of the household who invariably cooked and served food to the family members was asked about the types of food preparations made at breakfast, lunch, afternoon, tea time and dinner. The steps involved in calculation of diet intake are: 1) On account of the raw ingredients used for each of the preparations was obtained. 2) Information on the total cooked amount of each preparation was noted in terms of standardized cups.3) the intake of each food item (preparation) by the subject was assessed by using the cups.

**RESULT AND DISCUSSIONS**

The graph above shows distribution of respondents (boys) for their major dietary intakes like rice, roti and pulses. It shows majority of boys (49%) taking rice twice in a day followed by (48%) roti twice in a day. The least entries are 1% in category of rice taking and pulse taking i.e. weekly twice or once.

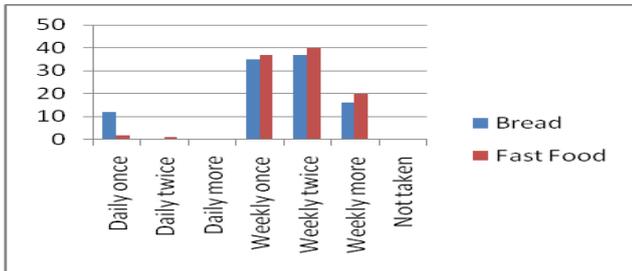


**Figure 1 - Distribution of respondents (Boys) as per Major Meals (N=100)**



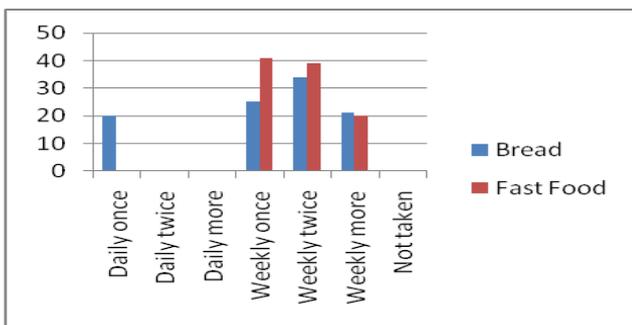
**Figure 2 - Distribution of respondents (Girls) as per Major Meals (N=100)**

This graph shows distribution of respondents (girls) for their major dietary intakes viz. rice roti and pulses. It shows that majority of girls (58%) taking roti twice in a day followed by (59) % rice twice in a day whereas (36%) pulses once in a day.



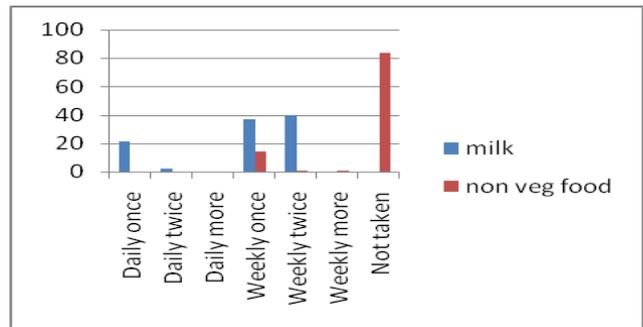
**Figure 3 - Distribution of respondents (boys) as per Fast Food intake (N=100)**

The graph indicates that most of the respondents i.e. only 12% were taken bread once in a day followed by 37% fast food once in a week. The least entries are 16 and 20% were taken bread and fast food more than two times in a week.



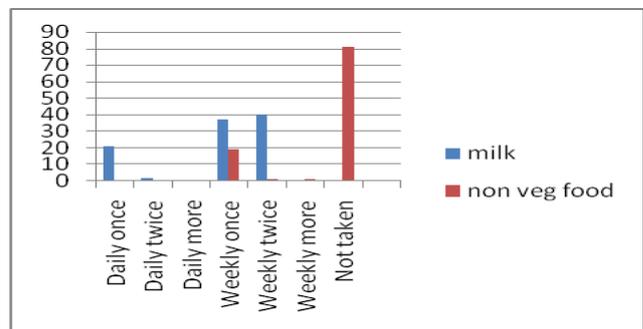
**Figure 4- Distribution of respondents (girls) as per Fast Food intake (N=100)**

The graph indicates that most of the respondents i.e. (20%) were taken bread once in a day followed by (41%) fast food once in a week. The least entries are (20%) and (21%) were taken bread and fast food more than two times in a week.



**Figure 5 - Distribution of respondents (boys) as per milk and non vegetable intake (N=100)**

The graph indicates that most of the respondents i.e. (41%) were taken milk once in a day followed by (14%) non vegetable once in a week. The maximum entries are (84%) did not consume non vegetable food.



**Figure 6 - Distribution of respondents (girls) as per milk and non vegetable intake (N=100)**

The graph indicates that most of the respondents i.e. (21%) were taken milk once in a day followed by (19%) non vegetable once in a week. The maximum entries are (81%) did not consume non vegetable food.

**DIETARY ASSESSMENT**

Nutrient intake was calculated by using 24 hr recall method for three days working and 1 day non working  
Mean nutrient intake of the subjects.

**Table 1 – Mean nutrient intake of the subjects**

Nutrients	RDA (boys)	Mean ±S.D	NAR (%)	RDA(girls)	Mean ±S.D	NAR (%)
Energy(kcal)	2190	1689.43±156.9	77.12	1970	1483.8±182.52	75.27
Protein(gm)	54	43.39±89	79.62	57	41.11±8.3	71.9
Fat(gm)	22	23.2±4.25	104.5	22	24.33±7.16	109

**ENERGY**

The energy requirement of an individual is the level of energy intake from the food , that will balance energy expenditure when the individual has a body size and composition and level of physical activity, consistent with long term good health and that will allow for maintenance of economically necessary and socially desirable activity. The mean dietary intake of the subjects

was 1689.43 and 14.83 kcal which is less than RDA. When NAR% (nutrient adequacy ratio) was calculated, it was found to be only 77.12% and 75.27% which is much below.

Protein of the subjects mean daily protein intake was found to be 43.39 and 41.11 gm which is less than RDA. When NAR% was calculated it was found to be 79.62% and 71.9% which is much below.

## FAT

The mean daily fat intake of the subjects was found to be 23.2 and 24.33 gm which are higher than Recommended DA.

## CONCLUSION

The study highlights dietary pattern as an important factor in overall factors of respondents. Within the criteria the dimensions studied demographic profile, eating habits, frequency of meal and dietary assessment. The result of the study shows that the mean age of the subjects (boys and girls) was  $10.9 \pm 0.86$  and  $10.6 \pm 0.79$ . 24 hours recall method supplemented with food frequency questionnaire was used to assess the dietary pattern of the subjects which shows that majority of the subjects were vegetarian. According to consumption of different food stuffs the frequency of rice, *roti* and pulse intake was found to be daily twice and more. Bread, fast food, fruits and vegetables, dry fruits and milk consumption was in a category of once and twice in a week. Majority of the subjects did not take any supplements. On the basis of dietary assessment, nutrient intake of the school going children was deficient in nutrients like energy, protein and fat intake was found to be more than the recommendations. Majority of the respondents (both boys and girls) i.e. 64.5% did not face any health problem.

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