

## Breakfast Habits and Its Impact on Nutritional Status

### Research Article

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#### Abstract

The study was carried out to assess the breakfast consumption habit and nutritional status of undergraduate students in Goaltore College and postgraduate students in Vidyasagar University, West Midnapore. 250 students comprising of 186 female and 64 males were randomly selected in Goaltore College and Vidyasagar University. A self-administered questionnaire which elicits information on socio-demographic data and breakfast habits of the students was used. Nutrient intake of the respondents was assessed by using 24-hour dietary recall while the Body Mass Index (BMI) was used to assess the nutritional status of respondents. The result revealed that 76.2% of the respondents were females while 23.8% were males. 52% of the students reported not to be taking breakfast on the day of the survey and 40.8% attributed this to insufficient feeding allowances. Nutritional status assessment showed that there was no significant difference between breakfast skipping and BMI. The 24-hour Dietary Analysis showed that there was a significant difference between mean protein and fat intake of breakfast skippers and eaters. The study concluded majority of the students skip breakfast, a reflection of insufficient feeding allowances, busy schedule and weight control measures.

**Keywords:** Breakfast Habit; Nutrition; Body Mass

### Introduction

Eating behaviors such as consuming breakfast has been associated with intake of nutrients as well as body weight. Studies have concluded that breakfast consumption has an important impact on nutritional status, it has been suggested that breakfast is an important dietary factor for energy regulation. Increased snacking, sedentary lifestyle and obesity have been found to be common among those who skip breakfast than breakfast eaters. Breakfast consumption was also suggested to have potential effect on Binge Eating Disorder [7].

Research has linked the consumption of breakfast with adolescents' mental and physical health. Students who consumed breakfast were likely to get better grades and better class attendance. On the other hands, skipping breakfast has been associated with adverse effects on cognition, class attendance, psychological function and mood in young adults and children [6]. Factors such as emergence of fast-food outlets, shopping malls, convenience stores have contributed to the unhealthy eating habits among college and university students and lack of knowledge of healthy food choices negatively affects eating habits and nutritional status [9].

College and university students often pay little attention to

breakfast, with some missing breakfast because it takes too much time to prepare [18]. It has been also observed that most students lack funds or divert their pocket money to other frivolities and so skip meals including breakfast. These can therefore may lead to malnutrition if students are not educated properly on the importance of adequate nutrient intake [2].

The study also assesses the relationship between breakfast consumption habit and nutritional status of the undergraduate and postgraduate students in Goaltore College and Vidyasagar University, West Midnapore respectively.

### Materials and Methods

The study was a descriptive survey assessing the breakfast consumption habits and nutritional status of students (under and postgraduate) in Goaltore College and Vidyasagar University in West Midnapore. A total of 250 students from those two higher institutions were sampled using an appropriate sampling method. Informed consents were sought from the students who were willing to participate prior to the collection of the data.

#### A) Socio-Economic Studies

Semi-structured self-administered questionnaire was used

to obtain information on socio-demographic areas such as sex, age, marital status, etc; breakfast habit and factors associated with breakfast skipping; information about their food intake e.g what was eaten, how was the food prepared, when was it consumed and other details related to food intake [12].

**B) Anthropometric Studies**

Anthropometric measurements such as weight and height were obtained to assess the nutritional status. Height was measured to the nearest 0.1 cm using a vertical measuring rod, or a scale fixed to the wall, while their weight was measured with light clothing by using a portable weighing machine.

In case of both height and weight, the mean of 3 successive measurements were taken to get the final values. WHO guidelines were followed to classify the subjects as Underweight, Normal weight, Overweight and Obese [10,11].

**C) Dietary Studies**

The 24Hour Dietary Recall Method was used to assess the nutritional intake of students. The students were asked to recall all the foods, snacks and beverages they consumed during the last 24 hours prior to the interview[6]. The dietary date was obtained from the respondents through an Oral Questionnaire of Diet Survey, using a set of “Standardized cups and spoons”suited to local conditions. The cups and spoons helped the respondents to recall the quantities of foods prepared and consumed during the last 24 hours period[23]. The cooked food intake by them was converted to raw amounts of each food items. It was calculated by the following formula:

Individual raw food intake= Total raw food amount for each food item (gx Individual cooked food intake (vol)/ Total cooked amount of the preparation (vol) [11].

Categorical results of variables were presented as the frequency and percentage while continuous results of variables are presented as the mean SD. Chi-square test was used for categorical variables while independent T-test was used for continuous variables. Significance level was set up at P<0.05 [13].

**Result**

(Table 1)showed the socio-demographic characteristics of the students. Approximately 74% were female while26% were male. They were within the age range of 17 to 26 years.

(Table 3)showed the breakfast habit and factors associated with breakfast skipping, slightly over (52%) skips breakfast. Regarding the pattern of skipping, 21.5%skipped breakfast once per week while 30.8% skipped breakfast 3 times per week. The major factors identified for skipping breakfast were insufficient feeding allowances (40.8%) and busy schedule (27.7%).

The anthropometric measurements are described in table 2. 11.1% males who skipped breakfast were underweight while 33.3% had normal weight status. Approximately 60% of female who skipped breakfast had normal weight status while 7.4% were obese. For breakfast eaters, 42.9% (male) and 72.8% (female) had normal weight status while 50% and 10.9% male and female students were overweight respectively.

**Table 1:** Socio-demographic data of the respondents

Characteristics	Percentage (%)
SEX	
Male	25.6
Female	74.4
AGE	
16-20 yrs	52.8
21-25 yrs	36.8
26 yrs and above	10.4
MARITAL STATUS	
Unmarried	92.8
Married	7.2

Source: Computed from primary survey

**Table 2:** Breakfast habits and nutritional status of the respondents

	Breakfast skippers		Breakfast eaters		Total	
	Male	Female	Male	Female	Male	Female
Underweight (18.5kg/m2)	11.1	21.3	0.0	8.7	6.3	15.1
Normal (25-29kg/m2)	33.3	59.6	42.9	72.8	37.5	66.1
Overweight (25-29kg/m2)	44.4	17.0	50.0	10.9	46.9	14.0
Obese (>30 kg/m2)	11.1	7.4	7.1	2.2	9.4	4.8

Values are n (%)

Source: Computed from primary survey.

**Table 3:** Respondents' breakfast habits and associated factors

Variables	Male	Female	Total
Do you skip breakfast?			
Yes	27.7	72.3	52.0
No	23.3	76.7	48.0
How many times do you skip your breakfast/week?			
Once	32.1	67.9	21.5
Twice	35.7	64.3	21.5
Thrice	32.5	67.5	30.8
More than thrice	11.8	88.2	26.2
Reasons for skipping breakfast busy schedule			
Fasting	27.8	72.2	27.7
Insufficient feeding allowances	0.0	100.0	14.6
Health reasons	47.2	52.8	40.8
Lack of appetite	0.0	100.0	10.0
Values are n (%)	11.1	88.9	6.9

Source: Primary survey

**Table 4:** Mean Nutrients Intake of the Respondents

Nutrients	Breakfast skippers	Breakfast eaters
Energy (Kcal)	2315.4#316.1	2229.6#499.1
Protein (gm)	52.6#11.8	58.4#19.3
Fat (gm)	42.1#9.9	33.0#19.3
Carbohydrate (gm)	324.3#127.4	306.3#128.3
Iron (mg)	12.4#4.1	12.6#4.4
Calcium (mg)	1106.2#144.5	1157.9#177.5

Values are expressed as the means#standard deviation  
\*Independent T-test showed a significant difference atP<0.05 between two groups

(Table 4) showed the mean nutrient intake of the students. The mean energy intake was 2315.4 Kcal $\pm$ 316.1 and 2229.6 $\pm$ 499.1 for breakfast skippers and eaters respectively; also, protein intake was 52.6gm $\pm$ 11.8 and 58.4 gm $\pm$ 19.3 for breakfast skippers and eaters respectively. There was a significant difference between the fat intake of breakfast skippers (42.1 $\pm$ 9.9gm) and breakfast eaters (33.0 $\pm$ 6.7 gm). Calcium intake was 1106.2 $\pm$ 144.5 mg for breakfast skippers and eaters respectively. Iron intake was 12.4 $\pm$ 4.1 mg and 1157.9 $\pm$ 177.5 mg for breakfast skippers and eaters respectively.

## Discussion

The research assesses the nutritional status and breakfast habits of the under and post-graduate students in West Midnapore. The main finding of this study indicates that slightly above average (52%) skip breakfast or had insufficient or infrequent breakfast consumption.

The finding was higher in comparison with the studies conducted by Tanaka et al.[28] who showed that 35.4% skipped breakfast meal, 31.5% adolescents skipped breakfast in a study conducted by Priya et al.[25]

A high number of female participants skipped breakfast more than male counterparts, perhaps females are more concerned with their body image, that is, fear of being overweight and obese. The reasons cited by the students for skipping breakfast were inadequate feeding allowances or pocket money and busy schedules. Inadequate monthly allowances may lead to missed meals and intake of low nutritional value foods which may in turn impair cognitive functions.

Rampersaud et al [27] and Pillott [26] asserts that breakfast consumption improves class attendance and enhances the quality of students' diets. Though research has linked breakfast skipping to overeating and obesity, this study revealed that there was no significant difference between breakfast skipping and nutritional status of the under and post graduate students.

This study contradicts the findings of Harding et al [29], they found an association between breakfast skipping and obesity among adolescents in the UK, but this study is consistent with other studies in children and adolescents from Australia that there was no significant association between inadequate breakfast consumption and body composition in male and female adolescents[15].

In this study some of the breakfast skippers still have normal nutritional status just like those that did not skip; this may indicate that breakfast skippers have alternative means such as eating fast food meal which tend to be high in sugar, fat and low in fibre [20].

Breakfast skippers have higher energy and fat intake, lower intake of calcium and iron than breakfast eaters, breakfast skippers are reported to have higher intake of energy, fat, cholesterol, lower intakes of vitamins and minerals in contrast to breakfast eaters, thereby increasing the likelihood of gastrointestinal diseases later in life [2].

## Conclusion

The study concluded that majority of the students skip breakfast, an indication of insufficient feeding allowances or pocket money, busy schedule, and weight control measures. The study then recommends

that parents should be aware about the improvement of the feeding allowances of their children. Also, students should be made aware regarding healthy eating habits in order to prevent risk of obesity and related metabolic disorders consequently in the future.

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