

Breakfast Consumption Pattern among the College Girl Students (Day Scholars and Hostel Students)

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Abstract—

Objectives: The objectives of the study were to analyze the breakfast skipping pattern of the college girl students and to impart nutrition education.

Materials and Methods: A total of twenty students (10 day scholars and 10 hostel students) in Coimbatore city, was selected randomly for the study. Ten hostel students belonging to private hostel and college hostel were chosen. A validated questionnaire on dietary habit, breakfast skipping pattern and the frequency of skipping were collected. Anthropometric indices such as height, weight and waist hip ratio were measured.

Results: Majority of the selected girls (85%) were in the age group of 18 years. Fifty percent of the girls were hostlers and the remaining 50% were day scholars. Majority of the hostel students (40%) skipped the breakfast when compared to the day scholars (35%). Majority of the hostlers face the difficulty while skipping breakfast was feeling hungry (46%) throughout. Majority of the students were in the normal BMI category. Majority of the selected students had a greater waist hip ratio.

Conclusion: Majority of the hostel students skipped the breakfast when compared to the day scholars. Eating breakfast every day is associated with having a healthy body weight, likely due to a more even distribution of energy intake across meals throughout the day.

Keywords— Breakfast consumption, day scholars, hostlers, fast foods, snack items.

I. INTRODUCTION

Breakfast gives the body the fuel it needs to function and helps the brain to concentrate during the day. The people who eat breakfast will eat fewer calories throughout the rest of the day. Skipping breakfast makes your body goes into starvation mode, leading you to compensate and overeat later in the day¹. In addition, it's not only eating a breakfast but eating a healthy well-balanced meal. It is important to have a breakfast that consists of protein, grains (such as whole grain breads or cereals) and fruits. A combination of these types of foods helps to keep your energy level up throughout the day. People often skip breakfast in an attempt to manage their weight. By skipping breakfast, it can often lead to more snacking later on in the day, increasing food intake².

College eating habits and lifestyles can add pounds of weight to students³. Fast food consumption and breakfast skipping increased during the transition to adulthood, and both dietary behaviors are associated with increased weight gain from adolescence to adulthood. These behaviors may be appropriate targets for intervention during this important transition⁴.

Skipping breakfast can cause a range of health problems for children, contribute to poor academic performance and can even cause behavioral problems in the classroom⁵. Skipping breakfast may be associated with poor diet generally, possibly explaining the association between breakfast consumption frequency (breakfast frequency) and overweight, and it has

been shown that skipping breakfast leads to the consumption of more high-fat snacks later in the day⁶.

Therefore, breakfast consumption may not solely influence body weight via energy intake but also through an effect on energy expenditure. Those who skip breakfast may also be those who do little physical activity (PA), which might, at least in part, account for the association between breakfast frequency and overweight. Another possible explanation is that skipping breakfast could have a causal effect and actually lead to apathy and lethargy and therefore reduced PA throughout the day^{7,8}.

II. MATERIALS AND METHODS

1. Selection of Area and Study Population

The area selected for the study was urban population of Coimbatore in the state of Tamil Nadu. A total of twenty students (10 day scholars and 10 hostel students), was selected for the study. A random selection method was used to select the students. Ten hostel students belonging to private hostel and college hostel were chosen.

2. Collection of Data

The questionnaire was developed to gather information on dietary habit, breakfast skipping pattern and the frequency of skipping, compensation of lunch for the skipped breakfast, nutrient intake and anthropometric measurements.

3. Duration of the Study

The study was carried out for the period of three months from December 2015 to February 2016.

4. *Dietary Habit*

Dietary Habits are the habitual decisions of individuals or group of people regarding what foods they eat. Proper dietary choices require the consumption of vitamins, minerals, carbohydrates, proteins and fats. Dietary habits and choices play a significant role in human health⁹. The students were asked to record their dietary habit.

5. *Breakfast Skipping Pattern*

The role of breakfast as an essential part of a healthy diet has been only recently promoted even if breakfast practices were known since the Middle Age. The growing scientific evidences on this topic are extremely sector-based nevertheless breakfast could be regarded from different point of views and from different expertise. The breakfast skipping pattern was obtained from the selected subjects. They were also asked the frequency of skipping and the foods they consumed instead of breakfast and so on and the details where entered in the questionnaire.

6. *Nutrient Intake*

Assessment of dietary pattern is to evaluate the food, nutritional status, food safety and quality. The total energy intake and other nutrients can be adequately assessed by 24 hours recall method of diet survey in overall sample. One day recall of the food intake was collected from all the selected subjects.

7. *Anthropometric Measurements*

Nutritional status is the condition of health of an individual as influenced by the utilization of nutrients. Anthropometric indices such as height, weight and waist hip ratio were measured and entry was made in the questionnaire.

i) *Height*

Height or stature of an individual is an important anthropometric measurement which sums up the linearity of the body¹⁰.

ii) *Weight*

Body weight is most useful anthropometric measurement which relates to the body mass as its potential value is not only appreciated by the health personnel, but often by parents from whom it is useful source of health information¹⁰. The height and weight of the selected samples was recorded.

iii) *Body Mass Index*

BMI also redefined as Quetlet's index. It is the ratio of weight in kilograms and height in meters square.

$$BMI = \frac{\text{Weight (kg)}}{\text{Height (m}^2\text{)}}$$

The height and weight recorded earlier were used to derive BMI.

iv. *Waist Hip Ratio*

The waist hip ratio helps to determine the person's abdominal or visceral fat. It was assessed for all the subjects. The students were asked to stand straight and by using the flexible, non – stretchable measuring tape the widest circumference of the hip bone and smaller circumference of the natural waist just above the belly button were measured¹¹.

The waist and hip circumference were substituted in the following formula to calculate the waist hip ratio.

$$\text{Waist Hip Ratio} = \frac{\text{Waist Circumference (cm)}}{\text{Hip Circumference (cm)}}$$

8. *Statistical Analysis*

Chi-square test was applied to find out the significance between two variables. SPSS (Statistical Package for the Social Sciences) 16.0 was used to carry out the statistical analysis.

III. RESULTS

1. *Age and Residence of Selected Students*

Age of the selected students was tabulated in the table given below:

TABLE I. Age and Residence of selected students.

S. No	Age (years)	Number of Students (%)
1.	17	10
2.	18	85
3.	19	5
$\chi^2 = 628.30, df = 6, Sig. = S^{**}$		

S**-. Significance at 1% level, S*- Significance at 5% level, NS – Not Significant

Majority of the selected students belonged to the age group of 18 years comprising 85% and 1% level of significance.

2. *Dietary Habit of the Selected Students*

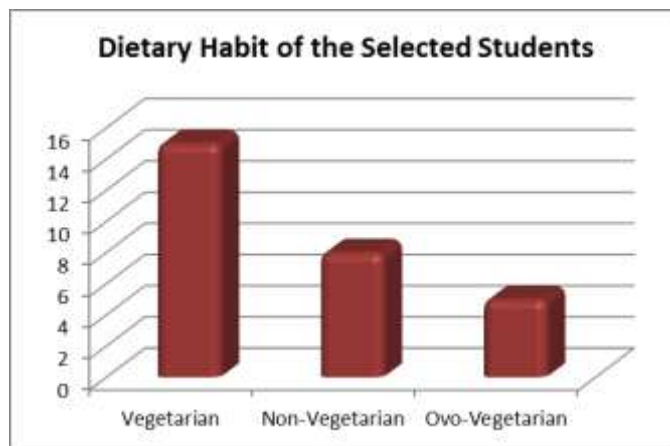


Figure 1.

Fifteen per cent of the girls were vegetarians, eighty per cent of them were non vegetarians and the remaining five per cent were ova vegetarians. According to "The Hindu"-CNN-IBN State of the Nation Survey, 31% of Indians are vegetarians, while another 9% consume eggs and rest 60% were found to be Non-Vegetarians (The Hindu, 2006)¹³.

3. *Breakfast Skipping pattern of the selected students*

The breakfast skipping pattern of the selected students was tabulated in the figure below.

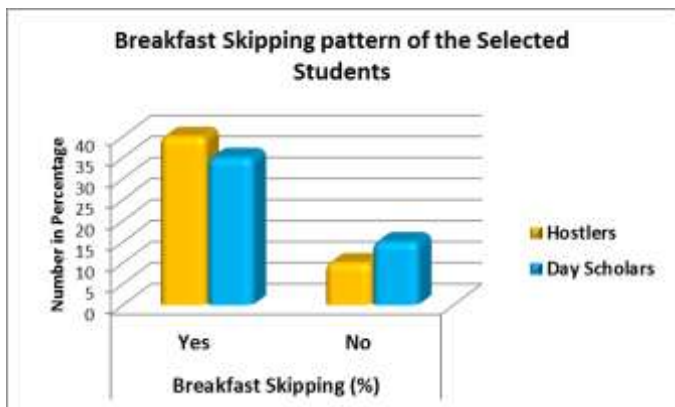


Figure 2.

Majority of the hostel students (40%) skipped the breakfast when compared to the day scholars (35%). A least number of students (10 -15%) of them did not skipped their breakfast.

4. Frequency of Breakfast Skipping

The frequency of skipping breakfast among the selected subjects is illustrated in the figure below;

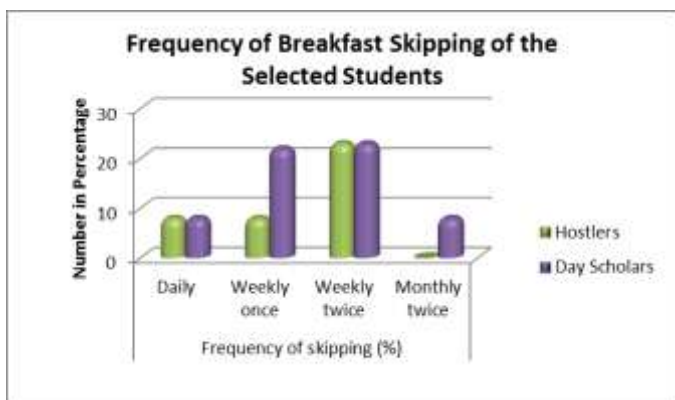


Figure 3.

About 16% of the students skipped their breakfast daily, 40 per cent skipped weekly once, 46% skipped weekly twice and 8% skipped monthly twice. The results coincides with that skipping breakfast during adolescence leads to transient decrease in late morning cognitive performance (Burkhalter and Hillman (2011).

5. Difficulties Faced When Skipping Breakfast for Selected College Girl Students

Difficulties faced when skipping breakfast are tabulated below;

TABLE II. Difficulties faced when skipping breakfast.

S. No	Difficulties faced	Hostler	Day scholar
1.	Feeling Hungry	46	30.7
2.	Lack of attention	-	8.1
3.	Not active in practical class	-	15.3
4.	Cannot concentrate in exams	-	-
		$\chi^2 = 238.10$	$df = 6, Sig. = S^{**}$

The above table clearly explains that the selected (46%) of the hostlers and 30.7% of day scholar students faced the difficulty of feeling hungry.

6. Mid Morning Snacks Taken While Skipping Breakfast

Mid morning snacks while skipping breakfast was given in the table below;

TABLE III. Midmorning snacks taken while skipping breakfast.

S. No	Snacks	Hostler	Day scholar
1.	Nothing	15.3	7.6
2.	Snacks from canteen	23	23
3.	Snacks from home	-	-
4.	Fruit Juice	7.6	-
5.	Cool Drinks	-	23
		$\chi^2 = 314.69$	$df = 6, Sig. = S^{**}$

7. Compensation of Lunch for Breakfast

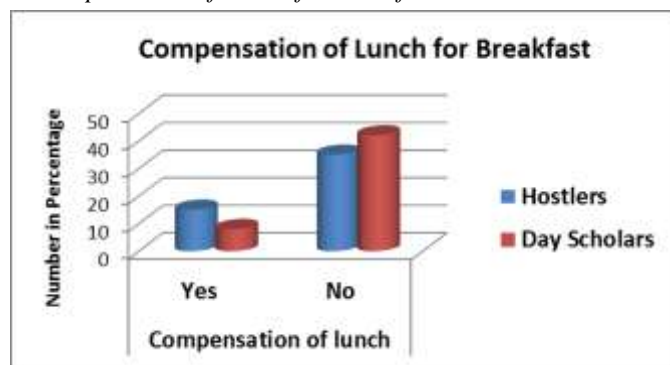


Figure 4.

8. Foods option for lunch

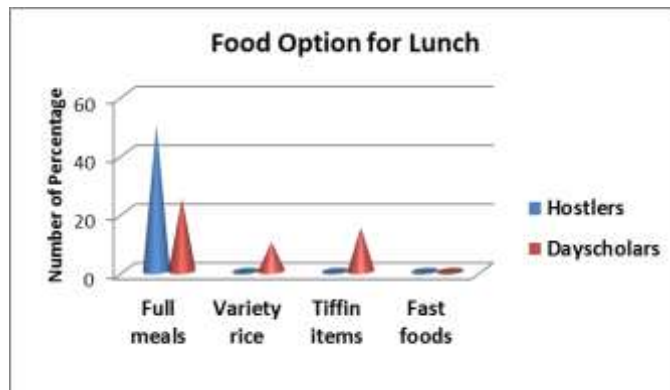


Figure 5.

9. Food Option for Evening Snacks

Food option for evening snacks was given in the table given below;

TABLE IV. Food option for Evening snacks.

S. No	Subjects	Full meals	Snacks	Fruit salad	Fast foods	Beverages
1.	Hostler	-	45	-	-	5
2.	Day scholar	5	45	-	-	-
		$\chi^2 = 63.696$	$df = 9, Sig. = S^{**}$			

10. Food Option for the Dinner

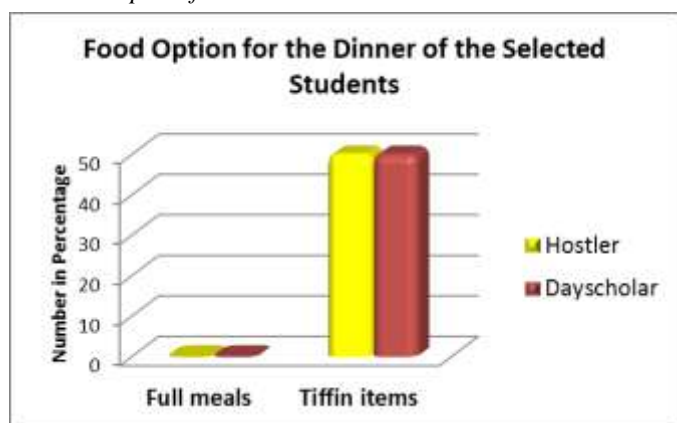


Figure 6.

11. Nutrient Intake of the Selected Subjects

The nutrient intake of the selected subjects was calculated using the diet cal software and was compared with the Recommended Dietary Allowance (RDA) ¹². The nutrient intake was given in the table below;

TABLE V. Nutrient intake of the selected subjects.

Nutrients	RDA	Selected Population	% deficit / excess
Energy (k.cal/day)	2440	1069	- 13.7
Protein (g/day)	55.5	42	- 3.65
Fat (g)	35	35	-
Calcium (mg/day)	800	357	- 35.4
Iron (mg/day)	26	8	- 18

The selected students consumed less calories, proteins, and calcium and iron requirement. But they met the fat requirement. This may be due to the intake of fast foods and snack items by the selected subjects.

12. Body Mass Index (BMI) of the Selected Students

Body Mass Index of the selected students is given in the table below

TABLE VI. Body Mass Index (BMI) of the selected students.

S.No	BMI	Hostlers (%)	Day scholar (%)
1.	Lean < 19	5	30
2.	Not Obese 19 -25	40	20
3.	Obese Grade I	5	-
4.	Grade II	-	-
5.	Grade III	-	-
$\chi^2 = 23.65, df = 10, Sig. = S^{**}$			

Five per cent of the hostel students were in the Grade I obesity. Majority of the students were in the normal BMI category.

13. Waist Hip Ratio of the Selected Students

Waist Hip Ratio of the selected students was given in the table given below;

TABLE VII. Waist Hip Ratio of the selected students.

S.No	Waist Hip Ratio	Hostlers (%)	Day scholar (%)
1.	Normal 0.7	-	5
2.	> 0.7	50	45

IV. DISCUSSION

Eating breakfast can be defined in various ways, including what a person perceives as breakfast, the type of food consumed, a meal consumed at a specified time of day, or the first meal consumed after awakening¹³. An analysis of cross-sectional data in 693 Minnesota adolescents at the end of a 2-year follow-up study showed that adolescents who consumed breakfast more frequently tended to have lower BMI and percentage Body Fat than those consuming breakfast less frequently¹⁴. A cross-sectional study in Hong Kong also found that Chinese children and adolescents aged from 9- to 18 years, who were breakfast skippers or only ate breakfast twice or less in a week had higher BMI levels compared to those who were non-breakfast skippers¹⁵. Infrequent breakfast consumption during childhood is associated with higher obesity risk in adulthood¹⁶.

The current study aimed to assess whether breakfast consumption among college girl students to assess the difference in nutritional status between hostlers and day scholar students. Majority of the hostel students (40%) skipped the breakfast when compared to the day scholars (35%). About 16% of the students skipped their breakfast daily, 40 per cent skipped weekly once, 46% skipped weekly twice and 8% skipped monthly twice. 46% hostlers face the difficulty while skipping breakfast was feeling hungry. Mid morning snacks taken while skipping breakfast was from both hostlers and day scholars who receive snacks from canteen (23%) and who consume only cool drinks were (23%) by day scholar students.

Selected students (Hostlers – 15% and day scholars – 8%) compensated their breakfast in their lunch. Majority of the hostlers (50%) had the food option for lunch is full meals and 45% of hostlers and 45% day scholars preferred snacks for evening snack options. Food option for dinner preferred tiffin items by 50% of hostlers and 50% day scholars. This study also tried to provide an overview of breakfast frequency in addition, the selected students consumed fewer calories, and proteins, calcium and iron, but they met the fat requirement.

V. CONCLUSION

The results stress the need for intervention programs aimed at decreased skipping breakfast among college students. Eating breakfast every day is associated with having a healthy body weight, likely due to a more even distribution of energy intake across meals throughout the day.

VI. ACKNOWLEDGEMENT

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Conflicts of Interest: No conflicts of interest are declared

Ethical Statement: Ethical Statement was obtained from Institution Ethical Committee since the study was carried out in the campus of the institution of the authors.

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