

# Factors associated with skipping breakfast among Day scholars and Boarding Adolescent and their effects on their academic performance

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## ABSTRACT

**Background:** Skipping breakfast has been linked with poor diet quality, higher BMI and poor academic performance.

**Aim:** To find out the Factors associated with skipping breakfast among day scholars and boarding adolescent and their effects on their academic performance.

**Methods:** A total of 100 day scholars adolescent (70 breakfast eater and 30 breakfast skippers) and 50 living in hostel were included in the study. The questionnaire is based on body weight, consumption and type of breakfast, accommodation, attention in class and academic performance.

**Results:** Mean age of both groups of students was 18-19 years with mild increase BMI in breakfast skippers. 20% day scholars and 50% hostel living students skip breakfast. Negative emotional status was observed more in breakfast skipper compare to breakfast eater. Class assessment and academic performance shows the poor presentation of breakfast skipper and usage of pleasant but poor nutritious food. Among students of hostel living, the reason for skipping were distasteful food, not cooked well and inadequate amount. These students therefore preferred institute cafeteria where the pleasant looking food is with inadequate nutrient.

**Conclusion:** Factors associated with skipping breakfast especially in boarding students are usually distasteful and inadequate food with poor class assessment and academic performance and they may use inadequate food in teatime. While in day scholar the reason may of skipping breakfast be getting late or late night dinner.

**Keywords:** Skipping Breakfast, Day scholars and boarding students

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## INTRODUCTION

Skipping breakfast may have a negative impact on health. Nutritious breakfast in the period of adolescence is very important because it is a period of rapid growth<sup>1</sup>. The prevalence of breakfast skipping was 45 to 49% in age of 18-25 years<sup>2</sup>. The factors significantly associated with breakfast skipping were age, accommodation, poor quality of diet, smoking, sedentary life style etc<sup>3</sup>.

Due to healthy lifestyle habits breakfast eaters have healthy life style have standard body weight compared to breakfast skippers<sup>4</sup>. The unhealthy life style in breakfast skipper is usually due to skip breakfast by using fast food, flavored fruit juice, tea or cigarette<sup>3</sup>.

Adolescent are often the group which are neglected by the family. During the transitional period of adolescent to adulthood, establishment of a healthy routine may have a long lasting effect on their health. This age is taken as a dynamic period of growth and development as well as it is a time of intense physical, psychological, and cognitive development<sup>5</sup>.

Adolescent may represent a window of opportunity to prepare nutritionally for a healthy adult life. The foundation of good health and sound mind is laid during this period<sup>6</sup>. This group is therefore needs nutritious breakfast in routine. However in this age group most of the young adults not consume proper breakfast and may use inadequate nutrient<sup>7</sup>. Lack of proper nutrition contributes to

lower academic performance with low score, and eventually, these young adults are less successful and less productive and competitive student<sup>8</sup>.

Breakfast consumption habits may help young adults, to live a life without family i.e. living in hostel to adjust them living independently with good dietary habits acquire from home<sup>7</sup>. Studies indicate that number of adolescence living in hostel or someday scholars' have the routines of skipping breakfast, used snacks, fries and fast food with sedentary life style<sup>9</sup>. These young adults may have an increase risk of gaining body weight due to unhealthy eating habits and sedentary lifestyle<sup>10</sup>.

Skipping breakfast create a state of hunger and may decrease the attention and proper learning in institution as well as low recall memory. Though, a study stated that the exact reason for these effects is not completely understood<sup>11</sup>. However, it is found that regular breakfast is precious to a student's educational performance and achievement as well as concentration level and cognitive ability<sup>12</sup>. Students living in hostel may have a risk to develop nutrient insufficiency and may be at increase risk of developing disease like diabetes mellitus, heart disease and hypertension in long run<sup>11,13</sup>.

The Graduate and Postgraduate institution may have a last chance for nutrition and health education of adolescents. Therefore, a study was conducted in a local college of Lahore city with the intention of find out the factors associated with skipping breakfast especially in hostel living adolescent and the effects of skipping breakfast on academic performance.

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## MATERIAL AND METHODS

Cross-sectional study was carried for a period of one month. A total of 100 day scholars (70 breakfast eater and 30 breakfast skippers) and 50 living in hostel were included in the study. Subjects were taken from local College of Lahore city. Duration of study was one month (June to July 2018). Letter of consent was taken from each participant. Study was approved by ethical committee of institute.

The questionnaire is based on socio-demographic features, consumption and type of breakfast and accommodation. However, this paper will only explain the socio-demographic characteristics and factors associated with breakfast skipping (such as usage of fast food and nutritional supplements, accommodation and academic and class performance of the students).

Breakfast is defined as the first meal of the day, eaten before starting of daily activities upto 10:00 am<sup>11</sup>. Skipping of breakfast is defined as breakfast consumption for 3 days/ week.

Breakfast consumption in routine, details of food taken, and the quantity uses was noted. Food and drinks were classified into the food groups (vegetables, meat, fruit, dairy, alternatives). Fast food: This may include fries, samosa, burgers, sand witches and pizzas. Nutritional supplements: This may include food rich in protein, carbohydrate, vitamin and minerals with some oil. A positive reply was given a score of 1 and the fruits and vegetables usage score 0 - 4. Academic performance was based on simple grade system.

BMI or Body mass index was calculated in Kg/m<sup>2</sup>. Weight criteria is stated as underweight or lean, healthy or normal weight and obese or overweight defined<sup>14</sup>. Sleep duration for the previous night was calculated from the time to go to bed until the last time they woke up.

Descriptive statistics, Chi-square test and ANOVA were used to analyze the data with level of significance set at 0.05 using SPSS 20

## RESULTS

Table 1 showed the relationship between the BMI, emotional status, class assessment and academic performance of the breakfast eater/breakfast skipper students and their nutritional status. Mean age of both groups of students 19.7 and 18.9 years respectively. Mean BMI of both group of students was 23.5 and 24.4 Kg/m<sup>2</sup> with no significant difference. 80% day scholars and 50% hostel living students consume breakfast regularly, while 20% day scholars and 50% hostel living students skip breakfast. Negative emotional status was observed more in breakfast skipper compare to breakfast eater with a significant difference (P<0.001). Class assessment was expressed in percentages. It is based on sharing in curriculum activities, problem solving ability, cognitive capacity, concentration in class, feel laziness in class and level of irritation in class. Study observed that curriculum activities, problem solving ability, cognitive capacity, concentration in class are with good percentages in class among breakfast eater, whereas feel laziness in class and level of irritation are with good percentages in class among breakfast skippers. It is noted that high percentage of

breakfast skipper waiting for tea time in institution, rushed to cafeteria in tea time and take inadequate food mostly like samosa, fries, flavored juice etc. Academic performance of breakfast eater gained significantly (P<0.001) high score compare to breakfast skippers.

Table 1: ANOVA table showing the relationship between the BMI, emotional status, class assessment and academic performance of the breakfast eater/breakfast skipper students and their nutritional status. No of cases in parenthesis. Variables are expressed as mean±SD and percentages

Effective variables	Students taking breakfast frequently (70)	Students skipping breakfast (30)
Age (years)	19.7±1.3	18.9±1.1
BMI (Kg/m <sup>2</sup> )	23.5±4.5	24.5±5.2
Day scholars	80%	20%
Hostel living	50%	50%
Emotional status (-ve)	10.08±5.5	22.0±4.84**
Class Assessment (%age)		
Class attendance :	75%	72%
Sharing in curriculum activities:	50%	40%
	49%	45%
Problem Solving Ability:	75%	45%
Cognitive capacity:	30%	60%
Feel laziness during class:	80%	45%
Concentration in class:	20%	80%
Level of Irritation (i.e. class should be off now)		
Waiting for tea time (%age)	20%	88%
Academic performance (Score)	81.67±10.54	57.2±15.24**

\*\*P< 0.001= Highly significant difference

Table 2: Relationship between breakfast skipper student residing at hostel and their nutritional status

Description	Statements of students (50)
Reason for not taking breakfast	
Food is not delicious	80% agreed
Quantity is small	40% agreed
Not cooked well	35% agreed
Other reasons for Skipping breakfast	
Due to getting late:	60% agreed
Late night dinner:	50% agreed
Food is finished:	20% agreed
Taking food in teatime in institute	
Tea/ Flavored juice + Samosa	24% taken
Tea/ Flavored juice + Fries	16% taken
Flavored juice or tea +fast food	20% taken
Others	50% taken
Knowledge of skipping breakfast make ill or lazy:	
Yes	80% agreed
No	20% agreed
Hours of sleep	5-6 hours (70%) 6-7 hours (30%)

Relationship between breakfast skipper student residing at hostel and their nutritional status is tabulated as table 2. Among students of hostel living, the reason for not taking food was multiple. About 80% students stated that food is not delicious, 40% stated quantity is small and 35% stated that food is not well cooked. Other reasons for skipping food may be getting late (60% students), late night dinner (50% students), food is finished (20% students).

Type of food taking in teatime in institute was Tea/ Flavored juice + Samosa (taking by 24% student), Tea/ Flavored juice + Fries (taking by 16% students), Flavored juice or tea +fast food (taking by 20% student), others may include Biryani, salad with mayonnaise, omelets etc.(taking by 50% student). 80% students have knowledge that skipping breakfast makes them ill. In 70% students, hours of sleep were 5-6 hour and in 30% it was 6-7 hours. These sleep hours are less during monthly test and final examination.

## DISCUSSION

Authorization of the hostel is important to help to manage student with the changes and promote awareness of health particularly nutrition and reproductive health, because the adolescent are in a period of growth and development when optimum nutritional and health care is essential. Various studies found that the nutritional and educational status of adolescent living in hostel is of sub-optimal level<sup>16</sup>.

Mean BMI of students was 23.5 and 24.4 Kg/m<sup>2</sup> with no significant difference. It is reported that consumption of breakfast is a major causative factor for maintaining of body weight. Breakfast helps to maintain energy intake 24 hours, however due to high feeling of hunger, adolescents who skip breakfast have a tendency to eat more food at their next meal, which is usually inadequate nutrient<sup>14</sup>. They also tend to use large quantities of sugar. A breakfast with low glycaemic index (with carbohydrates and fibers i.e. cereals, rusk, bread, and biscuits etc has the greatest effect over energy intake for the rest of the day. It is found that multiple form of carbohydrates cause the secretion and function of hormones like glucagon-like peptide-1 and colesistocinina; these hormones help to maintain glycemia and postprandial satiety<sup>17</sup>. Additionally lipids and protein present in milk helps to maintain the secretion of hormone ghrelin and this may control appetite, and increase the feelings of satiety<sup>18</sup>.

Our study found that less number of day scholars and large number of hostel living students skip breakfast. A study found that due to not taking breakfast, student may feel long term and short term hunger which may effect on their memory and therefore these student have less ability to solve the problem, low level of concentration in class and feel irritant<sup>19</sup>. Majority of the students living in hostel have no habits of taking fruit, fish and milk which high nutritious value. This may effect on their attentiveness in class and education performance<sup>2</sup>. It is suggested that adolescent have a high brain glucose metabolism and decreased postprandial glycaemic response is useful to student's cognitive presentation specific to morning i.e. the time of taking breakfast<sup>20</sup>.

According to our study, academic performance of breakfast eater gained significantly high score compare to breakfast skippers. A study reported a high association between breakfast habits and education performance of the study. Study found that students who skip breakfast feel laziness and inactive during study they can't concentrate on the study and may have a low cognitive level. That becomes the cause of obtained low grades in education<sup>2</sup>.

According to our study negative emotional status was observed more in breakfast skipper compared to breakfast

eater. A study demonstrated that breakfast skipping and risk of anxiety were related with inadequate low caloric food<sup>21</sup>. Good behavior during class is also an important issue for student<sup>22</sup>.

Relationship between breakfast skipper student residing at hostel and their nutritional status was also studied. Among students of hostel living, the reasons for not taking food were multiple. Most of the student stated food is not delicious while some stated it is not well cooked. Other reasons for skipping food may be getting late, late night dinner, food is finished. Breakfast skippers usually preferred cafeteria food like, samosa, fries and fast foods. These foods are considered as inadequate nutrient and only help to gain weight and the reason of poor health and academic performance. 80% students have knowledge that skipping breakfast makes them ill. Our study is inline with a number of studies who also demonstrated that reason of skipping breakfast is getting late, not hungry or food is not delirious<sup>23</sup>. Another study reported that breakfast skippers had high consumption of food with inadequate nutrients like snack foods. The type of foods used at breakfast may also influence on quality of diet<sup>24</sup>. (Utter 2007). A study found that breakfast skippers also have a habit of skipping dinner or lunch and used snack and fast food in routine<sup>14</sup>. Additionally it is reported that consumptions of fruits and vegetables inadequate in adolescent<sup>25</sup>.

A study noted that the day scholars have more knowledge about the nutritious value of food using in meals compared to boarding students. The reason may be these are living with family and get more knowledge about the food as their consumption of food is also more than hostel living student<sup>26</sup>. However a study reported that good knowledge of dietary guidelines seem to be directly linked with healthful eating<sup>12</sup>.

Lack of sleep is also a reason of skipping breakfast. We found that In 70% students, hours of sleep were 5-6 hour and in 30% it was 6-7 hours. These sleep hours are less during monthly test and final examination. According to a study deprivation of sleep may lead to change in the level of gherlin and leptin which may promote weight gain and increased hunger<sup>27</sup>. Another study found deprivation of sleep also a cause of reduced sedentary life style<sup>28</sup>.

**Limitations of study:** Although it is encouraging that small number of adolescent skip breakfast, however, this may limit the estimation of prevalence of this group. The sample size should be more due to less number of skippers.

## CONCLUSION

The findings of our study that skipping breakfast may be associated with mild increase body weight. In addition, academic performance during class and in examination breakfast skipper is not good compared to student who consumes breakfast regularly. Factors associated with skipping food especially in boarding students are usually distasteful food and inadequate food. While in day scholar the reason may be getting late from institute or late night dinner. It is therefore a need to educate caterers of the hostel on the importance of healthy menu including vegetables and fruits. The menu and methods of cooking meals should also be improved to make these palatable.

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