

Breakfast practices and factors associated with skipping of breakfast in medical students

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Abstract

Objectives: To find out the breakfast practices and factors associated with skipping breakfast in medical students of Karachi.

Material and Methods: This is a Descriptive cross-sectional study, conducted in public sector medical institutes of Karachi from 1st January to 31st March 2019. 382 medical students were enrolled after taking informed consent. Data were collected from included students of this study, who had an age of 18 to 24 years, and all other students having a history of lactose intolerance, anorexia nervosa, and food allergies were excluded from the study. Breakfast outcome (practices and skip or omit of breakfast) data were collected by self-made structured questionnaire and anthropometric data (height, weight) were recorded. Body mass index was calculated as weight (Kg)/height (m)². Collected data were analyzed by using the Statistical Package for social sciences version 22.

Results: The mean age and mean Body mass index of students were 20.83±1.54 and 15.53±3.5 respectively. The study outcomes on breakfast practices, among participants, showed 81.4% were taken breakfast, breakfast skippers were 18.6%, gender-based comparison between breakfast-skippers males (14.1%): females (85.9%) were respectively and shortage of time is the main factor (56.3%) associated with breakfast skipping in students. There is no significant ($p>0.05$) association between Gender-based comparison between factors associated with breakfast skipping.

Conclusion: The breakfast skippers were 18.6%, and among the main factors associated with skipping breakfast was a shortage of time (56.3%).

Keywords: Body Mass Index, Breakfast, Gender, Skipping Breakfast, Medical students.

Introduction

Breakfast is often called the “most important meal of the day”, breakfast is considered to be an important factor in promoting brain health and increased cognitive function, especially among young adults. There is no absolute definition of breakfast but the one stated by Timlin and Pereira¹: “first meal of the day, eaten before or at the start of daily activities (e.g., errands, travel, work), within 2-hours of waking, typically no later than 10:00 in the morning, and of an energy level between 20 and 35% of total daily energy needs” is accepted as an academic standard. Breakfast is considered as part of the healthy diet and contributes mainly to intake in the daily nutrition of the human body.² The breakfast would be considered an important dietary source for energy production and energy regulation to maintain continuous energy supply to the body.³ The consumption of breakfast provides nutrients (micronutrients and macronutrients) for regulations of the metabolic activities in the human body and it also exerts positive health effects on behavior and stress management on the human body.^{4,5} Multiple studies have found that regular breakfast consumption is directly associated with better college attendance, better academic performance, better physical fitness, and normal body mass index (BMI) in university students.^{6,7,8} Regular breakfast eaters were having lower chances of cardiovascular diseases (CVD), high arterial blood pressure (HTN), high concentration of cholesterol (Hypercholesterolemia), and metabolic syndrome.⁹ The practices of breakfast are dependent upon many factors like cultural, educational, physiological, and socio-economic behaviors. Irregular breakfast consumption habits are associated with fatigue at noon, altered behavior or altered cognitive performance (memory), increased adiposity or increased body mass index (BMI), that prone to develop cardiometabolic diseases, and diabetes mellitus due to increased resistance.¹⁰ College students, due to their busy lifestyle and improper sleep, often skip breakfast or have unhealthy breakfast habits that affect their learning process during the first few hours of the day leading to poor performance and a drop in cumulative scores. Other reasons for skipping meals may include metabolic disorders or anorexia. Studies have found a positive correlation between having breakfast regularly and academic performance.¹¹ The prevalence of skipping breakfast in students varies in different countries ranges from 10-30% in Europe and the United States of America and

from 40-45% in China and India respectively.^{12,13} Factors associated with skipping breakfast are multiple which are loss of appetite, lack of time, lack of money, want to control weight, eating late at night, class pressure. Breakfast skipping exerts effects on the appetite regulation system (satiety and hunger center) of the human body by release of the hormones like ghrelin (orexigenic hormone), leptin, cholecystokinin (CCK), glucose-dependent insulinotropic polypeptide, glucagon-like peptide (GLP-1: orexigenic hormone), and peptide YY(orexigenic hormone).⁹ Healthy lifestyle is mainly dependent on regular breakfast as compared to skippers and unhealthy lifestyle is usually due to using fast food, junk foods, sedentary lifestyle, smoking, and tea.¹⁴ As these students should understand and develop a healthy lifestyle by using healthy eating patterns, for future practicing as doctors and considered as the promoters of health.¹³ The current survey was conducted among medical students of Karachi, with the aim of finding the breakfast practices and factors associated with skipping breakfast.

Materials and Methods

This is a descriptive cross-sectional study, conducted among the students of MBBS, BDS of Dow University of health sciences (DUHS), Jinnah Sindh medical university (JSMU), and Karachi medical and dental college (KMDC) of Karachi. The sample size was calculated by Raosoft was figured to be 382 with alpha level 5% and confidence level 95%, a total of 382 adolescents’ medical and dental students with age ranges from 18-24 years were enrolled. Approval of research was taken from the Ethical and scientific review board (ESRB), Karachi medical and dental college (KMDC) of Karachi. All the enrolled students of the study were informed about the research and its significance. The duration of the study was two months, from 1st January to 31st March 2019. The sampling technique of this study was Non-probability, convenience sampling. All medical students of DUHS, JSMU, and KMDC were included from the first year to the fourth year, and who were willing to participate and had a written consent. Those Students having a history of systemic diseases (metabolic disorders, lactose intolerance, anorexia nervosa, bulimia nervosa, diabetes mellitus or any hormonal disorders, pregnancy, and food allergies) and having fast were excluded from this study. Data was collected and gathered from the institutes (DUHS, JSMU & KMDC) with the help of a pre-tested questionnaire. Before data

collection, permission to enter the premises of institutes and data collection was obtained. Just before the beginning of the first lecture, a short announcement was made about the salient features of the study; the questionnaires were distributed and collected after the second lecture. Demographic information of participants was taken, such as age, gender, and body weight (Kg), and height (m²). Body mass index (BMI) was calculated as weight divided by height (kg/m²). It was categorized based on international classification into underweight (BMI \leq 18.5), normal weight (BMI $<$ 25), overweight (BMI between 25 and 30), and obesity (BMI \geq 30). 15 Student's data was verified for missing or incomplete entries and then entered and analyzed through Statistical Package for Social Sciences (SPSS) version 22. Numerical variables were presented as frequency, percentage (%), and mean \pm standard deviation. Chi-square test (χ^2) was applied for qualitative variables. Microsoft Word and Excel were used to generate tables and colored graphs in this study. The Pearson Chi-Square test was used for evaluating the gender-based comparison of factors associated with breakfast skipping. The $p < 0.05$ was considered statistically significant in the study.

Results

Table 1 reports the Demographic characteristics of the participants in the study. In the present study, there were 382 participants, the mean age of students was 20.83 ± 1.54 years with 20.71 ± 1.545 in males and 20.85 ± 1.543 in a female. The mean BMI of studied samples was 15.53 ± 3.5 , with 19.2215 ± 4.20181 in males and 14.8783 ± 2.92753 in a female. The mean weight was 55.78 ± 10.81 kg with 69.48 ± 12.365 in males and 53.32 ± 8.444 in female and the mean height of samples was 1.90 ± 0.11 meters with 1.9107 ± 1.10047 in males and 1.9027 ± 1.11664 in a female.

The study outcomes on breakfast practices showed 81.4% (311) were taken breakfast while breakfast skippers were 18.6% (71). 66.7% (255) were taking breakfast daily out of which 62.8% take breakfast within one hour after wakeup, 42.9% had breakfast after 1-2 hours before the start of class. 84.6% were used to do breakfast at home, 27.5% said they take samosa once they skip breakfast (Table 2).

61 females and 10 males were among the breakfast skippers. (Table 3).

Factors associated with skipping breakfast in medical students are shown in Table 4 & Figure 1.

Regarding the factors or reasons for skipping breakfast, it was noticed that 50.7% were running shortage of time, 29.6% have dietary issues like nausea, vomiting, or diarrhea, 5.6% were having an aim to lose weight and 14.1% were having multiple reasons. There was no significant association ($p > 0.05$) between gender-based comparison for the reasons or factors (to lose weight, due to shortage of time, due to nobody being available to prepare breakfast, medical issues like nausea, vomiting, diarrhea, etc and multiple Reasons) to skip breakfast (Table 5).

Table 1: Gender-Based Comparison of Demographic parameters of the participants

	Mean \pm S. Deviation	Gender	Mean \pm S. Deviation
Age (years)	20.83 \pm 1.54	Male	20.71 \pm 1.545
		Female	20.85 \pm 1.543
Weight (kg)		Male	69.48 \pm 12.365
		Female	53.32 \pm 8.444
Height (m)		Male	1.9107 \pm 1.10047
		Female	1.9027 \pm 1.11664
BMI (kg/m ²)	15.53 \pm 3.5	Male	19.2215 \pm 4.20181
		Female	14.8783 \pm 2.92753

Table 2: Study Outcomes on Breakfast Practices

Questions		N	%
Do you have breakfast in the morning?	Yes	311	81.4
	No/Skip	71	18.6
How often do you have breakfast?	Daily	255	66.7
	Every other day	66	17.3
	On weekends only	61	16.0
How much time after you wake up do you have your breakfast?	Within 1 hour	240	62.8
	Within 1-2 hours	95	24.9
	Within 2-3 hours	25	6.5
	After 3 hours	22	5.8
After how much time does your class start after having breakfast?	Within 1 hour	106	27.7
	Within 1-2 hours	164	42.9
	Within 2-3 hours	101	26.4
	After 3 hours	11	2.9
Where do you usually have breakfast?	Home	323	84.6
	Outside the home	59	15.4

What's the first food item that you have when you skip breakfast?	Chai paratha	70	19.8
	Samosa	97	27.5
	Sandwiches	83	23.5
	Other	103	29.2

Table 3: Gender-based comparison of Breakfast skippers

Characteristics		n	Total	%	Total
Breakfast skippers	Gender				
	Male	10	71	14.1	100%
	Female	61		85.9	

Table 4: Factors associated with skipping breakfast

Questions	N	%	
If you skip breakfast, why do you do so?	To lose weight	4	5.6
	Due to shortage of time	36	50.7
	Dietary issues like nausea, vomiting, and diarrhea, etc.	21	29.6
	Multiple Reasons	10	14.1
Total number of participants	71	100%	

The Pearson Chi-square test gives a significant association between skipping breakfast and reasons with a p-value less than 0.01.

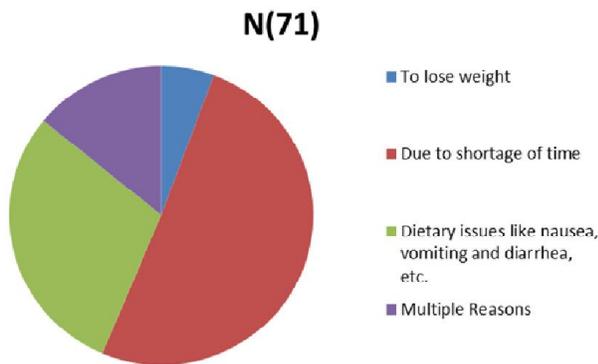


Figure 1: Factors associated with skipping breakfast

Table 5: Gender-based comparison of factors associated with breakfast skipping

If you skip breakfast, why do you do so?	Gender (n=382)				p-value
	Male		Female		
	N	%	N	%	
To lose weight	2	3.4%	10	3.1%	
Due to shortage of time	37	63.9%	178	54.9%	

Due to nobody being available to prepare breakfast	1	1.7%	26	8.1%	
Medical issues like nausea, vomiting, diarrhea, etc	5	8.6%	49	15.1%	0.261
Multiple Reasons	13	22.4%	61	18.8%	
Total	58	100%	324	100%	

Non-significant $p > 0.05$ and Significant $p < 0.05$ were obtained using the Pearson Chi-Square test.

Discussion

In this study, our primary purpose was to find out the breakfast practices and factors associated with skipping breakfast in medical students of Karachi. Breakfast is the first meal of the day, which breaks the fasting condition of the human body. Breakfast is considered as part of the healthy diet and contributes mainly to intake in the daily nutrition (carbohydrates, fats, and proteins) for energy regulation of the human body.² According to our study results of breakfast practices, the prevalence of taking regular breakfast was 81.4% in our participants. Similar to our results, the prevalence of regular breakfast in western countries like the United States of America 80%, in France 90%, and in Australia 72.5%.¹⁶ This supports our study results. The breakfast skippers of our study were 18.6% of the total participants. Many countries have similar results like in India 14.8%, United States of America 20%, in France 10%, and in Australia 27.5%.¹³ In our study there were more females (85.9%) among breakfast skippers which is similar to an Egyptian study.¹⁷ The factors associated with skipping breakfast were multiple, like shortage of time, lack of appetite or lack of hunger, willingness to lose weight or fear of increasing body mass index, nobody being available to prepare breakfast or inability to cook, oversleeping or late sleeping, or disturbed sleep, medical issues like nausea, vomiting, diarrhea, etc. In our study, the most common factor for skipping breakfast was a shortage of time (50.7%). Similar results have also been reported by multiple studies like Garg et al., Liyanage et al., and Egyptian study.^{18,19,20} Oversleeping or late sleeping or disturbed sleep were associated with lack of time or shortage of time in the morning. It is associated with poor sleep pattern or deprivation of sleep, and that leads to increased development of poor appetite in the morning or associated with a decreased sense of hunger in the morning, so the circadian system

regulates appetite and hunger or appetite-regulating system by the change in the concentration of leptin and ghrelin hormones in the human body with altered level of attention and learning.^{16,21} No significant ($p>0.05$) association between the gender-based comparison of reasons to skip breakfast were found in our results and similar results were also reported by Á. Gikas, et al.²²

The habits of skipping breakfast in adolescents medical students is increasing in our society, which may lead to the development of altered memory, fatigue, increased body mass index, diabetes mellitus, coronary artery disease, high arterial blood pressure, anxiety, depression, altered mood, decreased concentration of cortisol and menstrual disorders.^{9,10} These students should understand the adverse effects of breakfast skipping on the human body and academic performance in the field of medical sciences.¹³ These common associated factors should be addressed urgently in college students at this early phase of life to prevent unhealthy food practices, so it is considered as a matter of urgent concern in adolescents of our society.

Conclusion

The breakfast skippers were 18.6%, and among the main factors associated with skipping breakfast was a shortage of time or lack of time (56.3%).

As the prevalence of regular breakfast skipping is increasing in adolescents medical students, so we should arrange seminars and workshops in medical institutes to increase awareness regarding the importance of breakfast.

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