

ASSESSMENT OF BREAKFAST SKIPPING AND HEALTH-COMPROMISING BEHAVIOURS AMONG COLLEGE STUDENTS IN CHENNAI

Dr.Vinita Mary. A, Dr. Kesavan.R , A. Amritha, Dharani Babu, S.Tejasri, S.Uma Maheswari

Department of Public Health Dentistry,

Thai Moogambigai Dental College and Hospital, Chennai, Tamilnadu, India.

To access & cite this article

Website: jidam.idamadrass.com



Address for correspondence:

Dr. A. Vinita Mary, MDS, Professor,
Dept. of Public Health Dentistry,
Thai Moogambigai Dental College
and Hospital
Chennai
E-mail: viniebe@gmail.com

Received : 26.7.2019
Accepted : 12.9.2019
Published : 27.09.2019

ABSTRACT

BACKGROUND: Breakfast is often considered to be the most important meal of the day. Skipping breakfast has become more common among young adults. Its prompting them to adapt an unhealthy lifestyle and eating habits, which might affect their health in long term.

MATERIALS AND METHODS: A cross-sectional study was conducted among 500 college going students from Chennai, India to assess and compare their demography, socio-economic status, habits and breakfast eating pattern.

RESULTS: The age of the study subjects ranged from 17 to 28 years, with mean age 19.82 ± 2.035 years. Among them, 360 (72%) were females and 140 (28%) were males. Among these 500 students, 47.8% were not having breakfast regularly in the morning and 52.2% were having breakfast regularly. The habit of skipping breakfast had began predominately after joining college among female students (56.2%) and in school among males students (54.1%) which was significant statistically (p -value=0.004). Students from Class III socio-economic status participated in physical activity everyday (24%).

CONCLUSION: The breakfast skipping prevalence was quite high among the study subjects and it had began in their college life for the majority of the population.

KEYWORDS: lifestyle, exercise, over-eating, sleep pattern, socio-economic status

INTRODUCTION:

Breakfast is often considered to be the most important meal of the day.¹ Many studies suggest that breakfast contributes to the well-being of an individual in a number of ways. Mainly, it is a central component of nutritional well-being by contributing to total daily energy intake and nutritional requirement. Regular breakfast intake contributes to lower body mass index, higher cognitive performance and improved quality of life.² Breakfast consumption also aids in preventing heart condition, type 2 diabetes, enhances the memory and improves the physical and mental performance of an individual.^{3&4}

Skipping breakfast has become common especially among young adults. This may be due to various factors that may affect their physical and mental well-being. According to Keski-Rahkonen A et al., skipping breakfast has deleterious effects upon various aspects of cognitive functioning.⁵ Skipping breakfast contributes to slow down of the metabolism and increase in appetite and unhealthy cravings which in turn lead to overeating during other meals of the day.^{6&7} It is a known fact that people often skip breakfast to reduce weight but it tends to do the opposite since body compensates by overeating during other meals of the day.^{8&9} Skipping breakfast may increase the chances of type-2 diabetes especially in women.⁴ It is believed that skipping breakfast may also contribute to other unhealthy behaviours like alcohol consumption, smoking, inadequate physical exercise which further can have a negative impact on a healthy lifestyle.⁵ A poor socio-economic status can also be a reason for skipping breakfast among people with low income.^{10&11}

In recent times, skipping breakfast has become prevalent in adolescent and young adults due to various reasons and factors. Students, especially, who are going to university, relocate for the educational purpose and have to stay in a hostel or alone as paying guest, where food practices are different from their home environment, they skip breakfast most of the time due to dislike toward the food or no time to cook food and irregular sleeping pattern.^{12&13} With this background, the present study was conducted to assess the breakfast skipping and health compromising behavior among college going students in Chennai city.

MATERIALS AND METHOD:

A cross-sectional study was conducted among college going students in Chennai city. A pilot study was conducted among 20 randomly selected college students and based on the findings final sample size was calculated to be 470 which was rounded off to 500. Four colleges were randomly selected (arts and science, dental, engineering and allied health sciences – one each) and the concerned authorities were explained about the need for the study and their permission was obtained. All the students who agreed to participate in the study were included. The individuals who were absent on the day of study and individuals with chronic health problems like diabetes were excluded. A pretested questionnaire was used to assess the demography, socio-economic status, habits and breakfast eating pattern among the study subjects. The collected data was analysed using SPSS version 21.0.

RESULTS:

The age of the study subjects ranged from 17 to 28 years, with mean age being 19.82 ± 2.035 years. Among them, 360 (72%) were females and 140 (28%) were males (Figure-1). The distribution of study subjects according to various departments is shown in Figure-2.

The socio-economic status of the study subject is shown in Figure-3. Socioeconomic status was divided into Class I, Class II, Class III and Class IV using Kuppuswamy's classification. In the study population, Class I people were about 12%, Class II - 62%, Class III - 20% and Class IV - 6%. No student belonged to class V socioeconomic class. Among the study subjects, 4.6% of the students had the habit of smoking and 3.8% of them consumed alcohol.

Among these 500 students, 47.8% were not having breakfast regularly in the morning and 52.2% were having breakfast regularly. Almost 13.8% of them, skipped breakfast for no reason and 12.6% skipped breakfast due to waking up late in the morning. When they were asked about their response how they felt after skipping breakfast; around 15.6% answered that they felt hungry and 8% got a headache. The habit of skipping breakfast had begun after entering college for 50.2% of students and from school for 37.2% of students. Around half of the study population i.e. 50.2%, were having breakfast

every day, 22.8% had breakfast 4-6 days/week, 21.6% had breakfast for 1-2days/week and only 5.4% of them never had breakfast in the morning. Around 33.8% agreed that sometimes they overate during other meals when they skipped breakfast and 18% responded that they always overate during other meals when they skipped breakfast. Around 77.4% of the students had breakfast from home/hostel and 15.8% had their breakfast at hotels. Regarding physical activity, almost half of them i.e. 52.2%, did not engage in any exercise; 16.6% exercised every day; 15.2% exercised 3-5day/week and 16% exercised 1-2 days/week. The lifestyle of the students is presented in Figure-4a.

In the present study, the majority of the students, 64.4%, slept for 6-8 hrs/night and about one fifth, 21% slept less than 6 hours/night. Among the students, 21.8% of them never felt tired in the morning whereas 33% of students felt tired more than 5-6 days weekly. Around 61.2% of them described their body weight as normal and 4% of them described it as obese. More than half of the student population, 54%, marked good for their self-health description. Majority of the students (69.8%) agreed that breakfast indeed helped in prevention of unwanted health problem as it was the most important meal of the day that was packed with nutrition to help the person go through everyday work. The lifestyle of the students is presented in Figure 4b.

Among regular breakfast consumers, significantly ($p=0.001$) more male students (19%) had late breakfast i.e. by around 10-11 am than female students (4.9%). The habit of skipping breakfast began predominately after joining college among female students (56.2%) and in school among male students (54.1%) which was significant statistically ($p\text{-value}=0.004$). Also, habit of not exercising was significantly more among females than among males ($p\text{-value}=0.000$). The knowledge about unwanted health problems occurring due to skipping breakfast was more among female students (73.7%) when compared to male students (60%) which was significant statistically ($p\text{-value}=0.010$) (Table 1).

More number of students belonging to Class IV SES had started skipping breakfast from school (61.2%) when compared to the rest of the classes, where the habit had started from college and it was

significant statistically ($p\text{-value}=0.070$). Students with Class IV SES significantly ($p=0.000$) never overate at other meals (55.2%) when compared to the rest of the SES. Students from Class III SES participated in physical activity everyday (24%) and students who never participated in any physical activity (79.3%) belonged to Class IV SES ($p=0.016$). It was observed that only 24.2 % of students slept for more than 8 hours per night and it was significantly more among Class I SES, $p=0.009$. It was observed that students belonging to Class I SES felt tired 5-6 times/week (46.7%) when compared to other SES and this was significant statistically ($p=.002$) (Table 2).

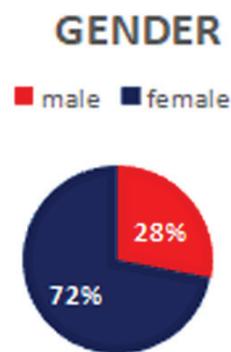


Fig:1 Distribution of students according to gender

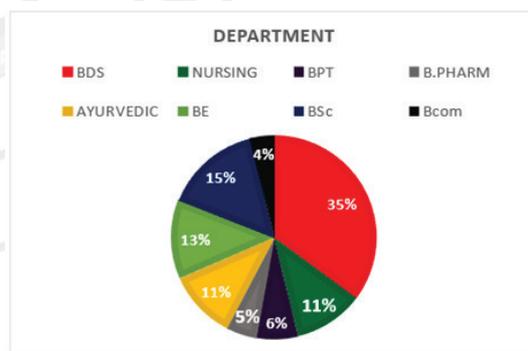


Fig:2 Distribution of students according to the department they were studying

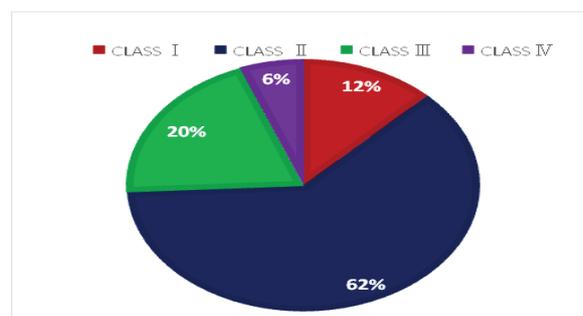


Figure:3 Distribution of students according to socio-economic status

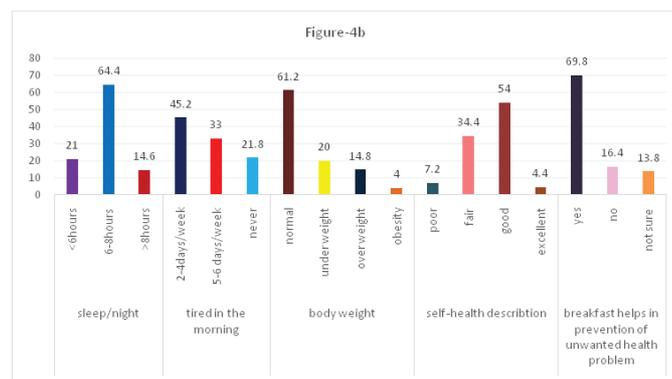
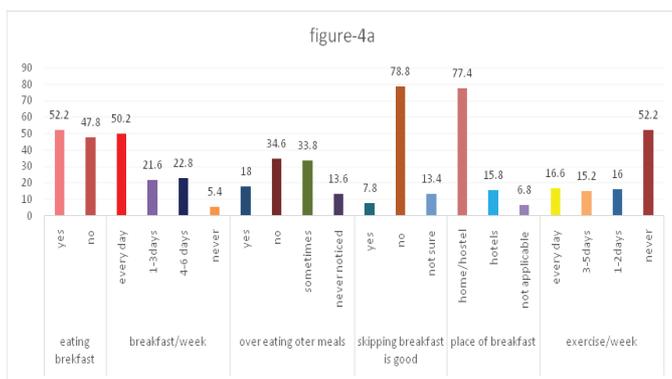


Fig:4a Response of students about their life style.

Fig:4b Distribution of students about their life style.

Table-1 Comparison of lifestyle of students according to gender

	Response	GENDER		P-VALUE
		Frequency		
		Male	Female	
Time of having breakfast among students who were eating breakfast regularly	Before 8 am	29(36.7%)	85(46.7%)	.001
	8-9am	35(44.3%)	88(48.4%)	
	10-11am	15(19.0%)	9(4.9%)	
When did irregularity in having breakfast begin from, among students who skipped breakfast	School	33(54.1%)	56(31.4%)	.004
	College	20(32.7%)	100(56.2%)	
	Not sure	8(13.2%)	22(12.4%)	
Do you exercise everyday	Everyday	42(30%)	41(11.3%)	.000
	3-5 time/week	29(20.7%)	47(13.1%)	
	1-2 time/week	19(13.5%)	61(16.9%)	
	never	50(35.8%)	211(58.7%)	
Are you aware that having breakfast helps in preventing the risk of unwanted health problem	Yes	84(60%)	265(73.7%)	.010
	no	32(22.8%)	50(13.8%)	
	Not sure	24(17.2%)	45(12.5%)	

Table-2 Comparison of lifestyle of students according to their social-economic status

	Response	SES				
		Frequency				
		Class I	Class II	Class III	Class IV	
When did irregularity in having breakfast begin from, among students who skipped breakfast	School	12(35.3%)	42(30.8%)	24(47%)	11(61.2%)	.070
	College	16(47.1%)	78(57.5%)		4(22.2%)	
	Not sure	6(17.6 %)	16(11.7%)	5(9.8%)	3(16.6%)	
Do you think skipping breakfast leads to overeating of any other meal	Yes	19(30.7%)	55(17.7%)	12(12%)	4(13.7%)	.000
	no	14(22.5%)	92(29.7%)	51(51%)	16(55.2%)	
	Some times	19(30.7%)	119(38.6%)	24(24%)	7(24.3%)	
	N e v e r noticed	10(16.1%)	43(14%)	13(13%)	2(6.8%)	
Do you exercise everyday	Everyday	11(17.8%)	43(13.9%)	24(24%)	5(17.3%)	.016
	3-5 time/ week	11(17.8%)	52(16.8%)	12(12%)	1(3.4%)	
	1-2 time/ week	11(17.8%)	57(18.5%)	12(12%)	0(0.0%)	
	never	29(46.6%)	157(50.8%)	52(52%)	23(79.3%)	
How many hours sleep do you get at night	< 6hours	10(16.2%)	74(24%)	16(16%)	5(17.3%)	.009
	6-8hours	37(59.6%)	186(60.1%)	77(77%)	22(75.8%)	
	>8hours	15(24.2%)	49(15.9%)	7(7%)	2(6.9%)	
Do you feel tired in the morning	2-4days / week	25(40.4%)	146(47.3%)	40(40%)	15(51.3%)	.002
	5-6 days/ week	29(46.7%)	97(31.3%)	33(33%)	6(20.6%)	
	never	8(12.9%)	66(21.4%)	27(27%)	8(27.6%)	

DISCUSSION:

This study was conducted among 500 students in Chennai to assess their breakfast eating and skipping habit and also to know about their reasons, consequences and to know their health-related habits. In the present study population comprising of young adults it was seen that around half of them, did not have breakfast regularly. Breakfast skipping has many negative consequences on health like obesity, cognitive and mental health deterioration. Skipping breakfast can contribute to obesity.¹⁴ According to Ferrer-Cascales R et al., poor quality of breakfast or skipping breakfast has its effect on cognitive and mental health.¹⁵ The similar effects were seen among the present study subjects also as the students who were skipping breakfast felt hungry, irritated, and were not able to concentrate in the class. Whereas students who had breakfast regularly didn't feel hungry and were able to concentrate in the class and thus had better mental health throughout the day.²

Studies have pointed out that people often skip breakfast mainly to reduce weight, not liking the provided food, irregular sleeping pattern and not feel like eating.¹⁶ Furthermore, Deliens et al, also reported the impact of time scarcity among university students, as the students preferred to spend time on activities other than cooking, and highlighted the importance of short meal preparation times. This finding is consistent with the present study as the students responded that they skipped breakfast because of the reasons like they didn't feel like eating, wanted to reduce weight, woke up late or did not like the food prepared for them. Most of the students said skipping breakfast began when they started college. The reason for this might be that they have to wake around 6-7 am so that they can reach college on time and they might not feel hungry at that time leading to breakfast skipping. Also, reducing weight has become one of the main reasons among young girls to skip breakfast as more females worry about their body image due to social expectation than male counterparts which lead them to the unhealthy behaviour of skipping not only breakfast but also other meals during the day.⁸ According to Sato-Mito et al, people who sleep late in the night and get less than 5 hours of sleep tend to have the meal later in the day and skip breakfast more often.¹⁷ Skipping breakfast and irregular meal habits often lead to fatigue.¹⁸ In the present study

also people who got less than 6 hours of sleep woke late in the morning and because of which they may not had enough time for eating breakfast. This inturn contributed to headache and feeling irritated and tired later during class hours. This finding is in consistent with studies by Young JS et al., Smith.C., Allan GA et al.¹⁹⁻²¹ Ozilgen S reported majority of the students going to university tend to be less active and females are often less active than male counterparts.²² In our study also, more than half of the study population did not participate in any physical activity.

According to Moy FM et al., students who come from home were less likely to skip breakfast compared to those coming from the hostel with meals catered in the hostel or in rented houses. An equal number of students came from the home/hostel where breakfast is readily available for them to consume and did not have the hassle of cooking breakfast in the morning, unlike people who live alone who have to plan and cook their every day meal [23]. When the participants self-assessed their health, they claimed that they were healthy and maintained a healthy weight. They also seemed to be satisfied with their self-health assessment.

The limitation of this study was that BMI (Body Mass Index) was not calculated. The weight reported by the students were purely self-reported measurement and no height measurement was taken. Another limitation to this study was that measure of the nutritional intake by the students to estimate the quality of the breakfast was not done. Hence, further studies are needed to include nutritional intake and proper BMI measurement to calculate the correlation between the body weight to skipping breakfast and also to know the nutrition intake to assess quality of the breakfast eaten by the regular breakfast consumers.

CONCLUSION:

The breakfast skipping prevalence was quite high among the study subjects and it had began in the college life for the majority of the population. Breakfast is one of the most important meal of the day which provides essential nutrition and energy required by a person for the day. Even as part of a diet for reducing weight, skipping breakfast is not a solution for good health in the long run. Skipping

breakfast may not directly affect the health of the person but it is also one of the factors contributing to it. Thus, it is important that students need to be educated of health-related concerns regarding breakfast skipping.

FINANCIAL SUPPORT AND SPONSORSHIP:

Nil

CONFLICTS OF INTEREST:

There are no conflicts of interest.

REFERENCES

- Shaw, E M. Adolescent breakfast skipping: An Australian Study. *Adolescence*. 2006;33(132):851-861. https://espace.library.uq.edu.au/view/uq:7963/ms_ad_33_98.pdf. Accessed July 22, 2019.
- Smith AP. Breakfast and mental health. *International Journal of Food Sciences and Nutrition*. <https://www.tandfonline.com/doi/abs/10.3109/09637489809089415>. Published 2009. Accessed July 22, 2019.
- Blundell JE, Burley VJ. Satiety, satiety and the action of fibre on food intake. *International Journal of Obesity* 1987;11 Suppl 1:9-25. <https://www.ncbi.nlm.nih.gov/pubmed/3032831>.
- Ford ES. Body mass index, diabetes, and C-reactive protein among U.S. adults. *Diabetes care* 1999;22(12):1971-1977. doi:10.2337/diacare.22.12.1971
- Keski-Rahkonen A, Kaprio J, Rissanen A, Virkkunen M, J RR. Breakfast skipping and health-compromising behaviors in adolescents and adults. *European Journal of Clinical Nutrition*. 2015;57(7):842-853. https://www.academia.edu/16816093/Breakfast_skipping_and_health-compromising_behaviors_in_adolescents_and_adults. Accessed July 22, 2019.
- Rampersaud GC, Pereira MA, Girard BL, Adams J, Metz J. Breakfast habits, nutritional status, body weight, and academic performance in children and adolescents. *Journal of the American Dietetic Association* 2005;105(5):743-760. doi:10.1016/j.jada.2005.02.007
- Deshmukh-Taskar PR, Nicklas TA, O'Neil CE, Keast DR, Radcliffe JD, Cho S. The relationship of breakfast skipping and type of breakfast consumption with nutrient intake and weight status in children and adolescents: the National Health and Nutrition Examination Survey 1999-2006. *Journal of the American Dietetic Association*. 2010;110(6):869-878. doi:10.1016/j.jada.2010.03.023
- Keim NL, Van Loan MD, Horn WF, Barbieri TF, Mayclin PL. Weight loss is greater with consumption of large morning meals and fat-free mass is preserved with large evening meals in women on a controlled weight reduction regimen. *The Journal of Nutrition* 1997;127(1):75-82. doi:10.1093/jn/127.1.75
- Cho S, Dietrich M, Brown CJP, Clark CA, Block G. The effect of breakfast type on total daily energy intake and Body Mass Index: Results from the Third National Health and Nutrition Examination Survey (NHANES III). *Journal of the American College of Nutrition* 2003;22(4):296-302. doi:10.1080/07315724.2003.10719307
- Affenito SG. Breakfast: a missed opportunity. *Journal of the American Dietetic Association*. 2007;107(4):565-569. doi:10.1016/j.jada.2007.01.011
- Utter J, Scragg R, Mhurchu CN, Schaaf D. At-home breakfast consumption among New Zealand children: associations with body mass index and related nutrition behaviors. *Journal of the American Dietetic Association* 2007;107(4):570-576. doi:10.1016/j.jada.2007.01.010
- Ruxton CHS, Kirk TR. Breakfast: a review of associations with measures of dietary intake, physiology and biochemistry. *British Journal of Nutrition* 1997;78(2):199-213. doi:10.1079/bjn19970140
- Mullie P, Clarys P, De Ridder D, et al. Breakfast frequency and fruit and vegetable consumption in Belgian adolescents A cross-sectional study. *Nutrition & Food Science*. 2006;36(5):315-326. doi:10.1108/00346650610703162
- Pendergast FJ, Livingstone KM, Worsley A, McNaughton SA. Correlates of meal skipping in young adults: a systematic review. *International Journal of Behavioral Nutrition and Physical Activity*. 2016;13(1). doi:10.1186/s12966-016-0451-1
- Ferrer-Cascales R, Sánchez-SanSegundo M, Ruiz-Robledillo N, Albaladejo-Blázquez N, Laguna-Pérez A, Zaragoza-Martí A. Eat or Skip Breakfast? The important role of breakfast

- quality for health-related quality of life, stress and depression in Spanish Adolescents. *International Journal of Environmental Research and Public Health* 2018;15(8):1781. doi:10.3390/ijerph15081781
16. Deliens T, Clarys P, De Bourdeaudhuij I, Deforche B. Determinants of eating behaviour in university students: a qualitative study using focus group discussions. *BMC Public Health*. 2014;14(1). doi:10.1186/1471-2458-14-53
17. Sato-Mito N, Sasaki S, Murakami K, et al. The midpoint of sleep is associated with dietary intake and dietary behavior among young Japanese women. *Sleep medicine* 2011;12(3):289-294. doi:10.1016/j.sleep.2010.09.012
18. Tanaka M, Mizuno K, Fukuda S, Shigihara Y, Watanabe Y. Relationships between dietary habits and the prevalence of fatigue in medical students. *Nutrition (Burbank, Los Angeles County, Calif)* 2008;24(10):985-989. doi:10.1016/j.nut.2008.05.003
19. Young JS, Bourgeois JA, Hilty DM, Hardin KA. Sleep in hospitalized medical patients, part 1: factors affecting sleep. *Journal of hospital medicine* 2008;3(6):473-482. doi:10.1002/jhm.372
20. Smith C. Sleep states and memory processes. *Behavioural Brain Research*. 1995;69(1-2):137-145. doi:10.1016/0166-4328(95)00024-n
21. Gomes AA, Tavares J, de Azevedo MHP. Sleep and Academic Performance in Undergraduates: A multi-measure, multi-predictor approach. *Chronobiology International* 2011;28(9):786-801. doi:10.3109/07420528.2011.606518
22. Ozilgen S. Gender is correlated with body mass index, eating habits and exercise frequency in students attending a private university in western Turkey. *Acta alimentaria*. <http://agris.fao.org/agris-search/search.do?recordID=US201700094563>. Published 2017. Accessed July 22, 2019.
23. Moy FM, Johari S, Ismail Y, Mahad R, Tie FH, Wan Ismail WA. Breakfast Skipping and Its Associated Factors among Undergraduates in a Public University in Kuala Lumpur. *Malaysian Journal of Nutrition*. 2009;15(2):165-174. <https://www.ncbi.nlm.nih.gov/pubmed/22691814>. Accessed July 22, 2019.