



Breakfast Eating Habits and Its Influence on Nutritional Status

Pratiti Haldar¹ Alex James² Uma Negi³

¹Department of Child Health Nursing, College of Nursing, Graphic Era Hill University, Bhimtal, Uttarakhand, India

²Department of Medical-Surgical Nursing, College of Nursing, Graphic Era Hill University, Bhimtal, Uttarakhand, India

³Department of Child Health Nursing, Pal College of Nursing and Medical Sciences, Haldwani, Uttarakhand, India

Address for correspondence Pratiti Haldar, PhD, Department of Child Health Nursing, College of Nursing, Graphic Era Hill University, Bhimtal 263136, Uttarakhand, India (e-mail: pratitihaldar@gehu.ac.in).

J Health Allied Sci^{NU}

Abstract

Background Breakfast intake is considered as one of the most important factors in nutrition for adolescents, but the intake of breakfast has declined in past 25 years especially among adolescents. Breakfast not only fuels your body but also aids in carrying out whole day activities by providing the required energy.

Objectives The objectives of the study were to identify the breakfast eating and skipping patterns, identify the nutritional status, and find association between breakfast skipping and nutritional status among nursing students.

Methods To achieve this aim, a cross-sectional survey was performed among nursing students. The data related to patterns of breakfast skipping and eating was collected followed by assessment of nutritional status by checking weight and height of each student and was interpreted as per the World Health Organization criteria.

Results Out of 437 samples, a majority of 305 (69.8%) students belonged to (17–21) years of age and most of the students 409 (93.6%) were females. It was found that approximately 214 (48.97%) students were skipping breakfast three times in a week. A significant association was found between nutritional status and breakfast skipping ($\chi^2 = 6.61$, $p = 0.03$).

Conclusion Breakfast being first meal of the day not only provides us energy but also maintains our nutrition on everyday basis. Thereby, the study concludes that breakfast skipping affects nutritional status if skipped for more than twice in a week on a longer run. Thus, the students should be motivated to have breakfast before beginning their everyday's activity.

Keywords

- ▶ breakfast eating
- ▶ breakfast skipping
- ▶ body mass index
- ▶ nursing students
- ▶ nutritional status
- ▶ World Health Organization

Introduction

Breakfast consumption is considered as most imperative meal of the day as it reduces the risk of overeating or munching in between the meals and thereby reduces the chances of obesity.¹ This not only meets the nutritional needs of the body but also builds additional body reserves of energy.^{2,3}

To achieve adequate nutrients and maintain good physical and mental health, breakfast is very important. This is also been supported by various controlled studies that emphasize the effect of breakfast eating patterns on physiological response, attitudes, and academic achievements.⁴

There are wide variety of evidences supporting that influence of breakfast eating and impact of energy and

DOI <https://doi.org/10.1055/s-0043-1777021>.
ISSN 2582-4287.

© 2023. The Author(s).

This is an open access article published by Thieme under the terms of the Creative Commons Attribution License, permitting unrestricted use, distribution, and reproduction so long as the original work is properly cited. (<https://creativecommons.org/licenses/by/4.0/>)

Thieme Medical and Scientific Publishers Pvt. Ltd., A-12, 2nd Floor, Sector 2, Noida-201301 UP, India

nutrition on children and adult health.^{5,6} Breakfast is considered as part of a healthy diet because it is associated with healthier macro- and micronutrient consumption, body mass index (BMI), and lifestyle. It also supports in improvement in cognitive function and academic performance, leading to the provision of breakfast initiatives by public health bodies.

A systematic review points out that breakfast eating is better and has positive effects than skipping breakfast and has more apparent effect among children whose nutritional status is compromised.⁷ Another systemic review points out that adolescents who regularly eat breakfast have decreased chances of being overweight.⁸ A cross-sectional study conducted among adolescents of Aligarh (India) found that 33.8% (478/1416) adolescents do not take their breakfast regularly and also odds' of being overweight/obese was found to be 3.44 in children having breakfast less than two times a week and 2.08 consuming three to five times/week, as compared with the ones having it regularly.⁹

The concern of today's health is the maintenance as well as the restoration of health. Earlier healthcare was directed toward hospitalized patients, but nowadays it involves concept of continuity of care, that is, from hospital to home-based care during the convalescent period.¹⁰ Students who regularly consume breakfast are considered to have better nutritional status as they habitually consume good nutrients.¹¹

This study is, therefore, conducted to investigate the prevalence of breakfast skipping among nursing students and its effect on their nutritional status.

Methodology

A cross-sectional study was conducted on students in the age group of 17 to 26 years of selected Nursing Colleges of Haldwani block, Uttarakhand. Eligibility criteria being age between 17 to 26 years, undergraduate, diploma and post-graduate Nursing students studying in the college and school of nursing gave consent to participate in the study. Excluded

students were students who were not willing to participate in the study and students posted in nightshift and external posting. The sample size calculated was 437 with nonresponse rate. *Nonprobability—enumerate sampling technique* was used for data collection. Ethical approval was received from institutional research committee. Confidentiality and anonymity of all the subjects were maintained and informed consent was obtained from each participant.

The data collecting tools were prepared by the researcher and consisted of demographic Performa and Likert scale on patterns of breakfast eating. It was further categorized into *breakfast skipping patterns, breakfast eating patterns, food choice pattern, favorite meal for breakfast, and food items and beverages*. The tools were sent to experts for validation, were pretested, and reliability of the tool was conducted (0.76). Anthropometric Performa was prepared and collected by researcher to find BMI that was computed by formula (weight [kg]/ height² [in meters]). The weighing scale and inch tape used were calibrated.

Only 437 students participated in the study. The gathered data was coded in SPSS version 20 and descriptive statistics (frequency and percentage) was used to describe the collected data and inferential statistics (χ^2) was used to find association among variables and draw inferences. The statistical significance criteria were *p*-value less than 0.05.

Results

The results showed that out of 437 samples, a majority of 305 (69.8%) students belonged to (17–21) years of age and most of the students 409 (93.6%) were females. Majority of student's 250 (57.2%) place of stay was home (see **Table 1**).

The prevalence of breakfast skipping was calculated by several times students skip breakfast in a week and if they skipped breakfast for three or more than three times in a week, they were considered as breakfast skippers that was assessed by recall method using Likert scale. It was found that approximately 214 (48.97%) students were skipping breakfast three or more times in a week.

Table 1 Description of sample characteristics, *n* = 437

Sample characteristics		Frequency (f)	Percentage (%)
Age	17–21	305	69.8
	21–26	132	30.2
Gender	Male	28	6.4
	Female	409	93.6
Place of stay	Home	250	57.2
	Hostel	80	18.3
	Postgraduate	107	24.5
Type of family	Joint	130	29.8
	Nuclear	307	70.2
Diet type	Nonveg	350	80
	Vegetarian	87	20
Preferred breakfast place	Mess	80	18.3
	Outside	107	24.5
	Home	250	57.2

Table 2 Distribution of students based on breakfast skipping, $n = 437$

Skipping patterns	Everyday, f (%)	More than thrice, f (%)	Thrice, f (%)	Twice, f (%)	Once, f (%)	Never, f (%)
Skipped breakfast in a week	47 (10.8)	69 (15.4)	49 (11.2)	96 (22.2)	92 (21.2)	84 (19.2)
Skipped breakfast in a fortnight	22 (5.0)	104 (23.8)	46 (10.5)	69 (15.8)	85 (19.4)	111 (25.5)
Fast in a week	29 (6.6)	36 (8.2)	30 (6.9)	37 (8.5)	104 (23.8)	201 (46.0)
Skipped breakfast last week	28 (6.4)	46 (10.5)	42 (9.6)	55 (12.6)	94 (21.5)	172 (39.4)
Skipped breakfast and dinner together	12 (2.7)	28 (6.5)	27 (6.2)	52 (11.9)	68 (15.5)	250 (57.2)

The data related to breakfast eating patterns was categorized into breakfast skipping patterns, and breakfast eating patterns.

Information regarding breakfast skipping pattern was collected via Likert scale. The data distribution presented in **Table 2** shows that only 92 (21.2%) out of 437 students skip breakfast once in a week. About 111 (25.5%) never skipped breakfast in a fortnight, 201 (46%) students never fast, 172 (39.3%) students had never skipped breakfast last week, and 250 (57.2%) students never skipped breakfast and dinner altogether.

A Likert scale was used to identify breakfast eating patterns and it was found that 173 (44.2%) students never ate breakfast before going to clinical duty, 103 (23.7%) students never had adequate time to eat breakfast, and 175 (40.04%) students never eat brunch (see **Table 3**).

Nutritional status was assessed by computing BMI. The researcher himself checked height and weight of the students participating in the study and computed through the formula described in methodology. It was interpreted as according to the World Health Organization: Below 18.5—underweight, 18.5 to 24.9 normal or healthy weight, 25.0 to 29.9 overweight, and 30.0 and above obese. In this study, overweight and obesity were merged and considered overweight. The data found shows that maximum number of (228; 52.2%) students were normal weight, 175 (40%) were underweight, and only 34 (7.8%) of the students were overweight and obese. The means and standard deviation for height, weight,

and BMI found were 159.22 ± 7.23 , 50.81 ± 10.49 , and 19.97 ± 3.49 .

The chi-squared values revealed that there is statistically significant association found ($\chi^2 = 6.61$, $p = 0.03$) between nutritional status and breakfast skipping at 0.05 level (see **Table 4**). The data inferred that the students who skip breakfast for more than twice in a week on longer run tend to be overweight as compared with the regular breakfast eaters.

Discussion

Skipping breakfast is increasing among students of all age groups and even in adults. The pattern of skipping varies from individual to individual. It is also important to note that parental influence on the offspring's breakfast eating is likely to be age-specific, because the eating habits of teenagers are less under parental control than those of young children.¹²

In our study, it was found that the prevalence of breakfast skipping among nursing students was 214 (48.97%). In a similar study conducted by Adesola et al¹³ in Nigeria reported that approximately 52% of students skip breakfast with 40.8% as low feeding allowances. Correspondingly, another study conducted on skipping breakfast and nutritional status among school children studying in 5th, 6th, and 7th grade from city of Salta found that approximately 55.1% of students skip breakfast out of 283 students.¹⁴

Table 3 Frequency and percentage distribution of nursing students on patterns of breakfast eating, $n = 437$

Breakfast eating pattern	Everyday, f (%)	More than thrice, f (%)	Thrice, f (%)	Twice, f (%)	Once, f (%)	Never, f (%)
Breakfast eaters before 8 am	32 (7.3)	64 (14.6)	37 (8.4)	25 (5.7)	86 (19.7)	193 (44.3)
Breakfast before going to clinical/classes in a week	43 (9.8)	57 (13.0)	40 (9.2)	49 (11.2)	75 (17.2)	173 (39.6)
Adequate time to have breakfast	63 (14.4)	112 (25.6)	40 (9.2)	47 (10.7)	72 (16.5)	103 (23.6)
Junk and fast-food eaters	29 (6.6)	47 (10.8)	38 (8.7)	82 (18.8)	130 (29.7)	111 (25.4)
Last week eating breakfast outside	44 (10.0)	47 (10.7)	46 (10.5)	61 (14.0)	87 (20.0)	152 (34.8)
Brunch eaters	25 (5.7)	43 (9.9)	36 (8.2)	43 (9.9)	115 (26.3)	175 (40.0)
Substitute breakfast with milk	23 (5.3)	33 (7.6)	18 (4.1)	46 (10.5)	73 (16.7)	244 (55.8)
Get up early to eat breakfast	98 (22.4)	45 (10.3)	36 (8.2)	32 (7.3)	69 (15.8)	158 (36.0)
Finish breakfast completely	55 (12.6)	60 (13.7)	51 (11.7)	60 (13.7)	98 (22.4)	113 (25.9)

Table 4 Association between breakfast skipping and nutritional status among the nursing students

Variable	Underweight (n = 175)	Normal (n = 228)	Overweight (n = 34)	χ^2	df	p-Value
Breakfast skippers	85	140	20	6.6 ^a	2	0.03 ^a
Breakfast nonskippers	90	88	14			

^aIndicates the level of significance ($p \leq 0.05$).

This study also found that approximately 175 (40%) of the students were underweight and 44 (7.7%) of the students were overweight and there was a significant association between breakfast skipping and nutritional status. The findings of this study were supported by a study conducted by Thompson-McCormick et al¹⁵ among ethnic Fijian adolescent girls in which approximately 68% students were found to skip breakfast and a significant association was found with obesity and overweight. Another study conducted by Berkey et al¹⁶ among breakfast skipping and weight change in adolescents showed that normal weight children who skip breakfast gained weight over the years.

Conclusion

Overall, this study revealed that breakfast skipping has an influence on nutritional status and skipping of breakfast on a longer run for more than two times in a week can lead to adverse health in future. It is very important to create awareness among students and motivate them to eat breakfast regularly. Most of us not only students tend to skip breakfast in our busy routine as not able to make up adequate time for it. Thus, it is very important to inculcate healthy eating habits in students that could lead to improvement not only in their health but also lives in future run.

Sources of Funding

None.

Conflicts of Interest

None declared.

References

- Nicklas TA, O'Neil C, Myers L. The importance of breakfast consumption to nutrition of children, adolescents, and young adults. *Nutr Today* 2004;39(01):30–39
- Giovannini M, Agostoni C, Shamir R. Symposium overview: do we all eat breakfast and is it important? *Crit Rev Food Sci Nutr* 2010; 50(02):97–99
- Jackson LW. The most important meal of the day: why children skip breakfast and what can be done about it. *Pediatr Ann* 2013;42 (09):184–187
- ALBashtawy M. Breakfast eating habits among school children. *J Pediatr Nurs* 2017;36:118–123
- Nicklas TA, Bao W, Webber LS, Berenson GS. Breakfast consumption affects adequacy of total daily intake in children. *J Am Diet Assoc* 1993;93(08):886–891
- Morgan KJ, Zabik ME, Stampely GL. The role of breakfast in diet adequacy of the U.S. adult population. *J Am Coll Nutr* 1986;5(06): 551–563
- Hoyland A, Dye L, Lawton CL. A systematic review of the effect of breakfast on the cognitive performance of children and adolescents. *Nutr Res Rev* 2009;22(02):220–243
- Szajewska H, Ruszczynski M. Systematic review demonstrating that breakfast consumption influences body weight outcomes in children and adolescents in Europe. *Crit Rev Food Sci Nutr* 2010; 50(02):113–119
- Faizi N, Khan IM, Amir A, Azmi SA, Ahmad A, Khalique N. Breakfast skipping and proposed effects of breakfast on obesity: a school-based study in adolescents in Aligarh, India. *Ann Trop Med Public Health* 2014;7:43–47
- Sohi D. *A Comprehensive Textbook of Nutrition and Therapeutic Diets: Elements of Nutrition*. 2nd ed. Delhi: Jaypee Publishers; 2012:39–45
- Garg M, Rajesh V, Kumar P. Effect of breakfast skipping on nutritional status and school performance of 10–16 years old children of Udupi district. *Health Popul Perspect Issues* 2014;37 (03):98–117
- Keski-Rahkonen A, Kaprio J, Rissanen A, Virkkunen M, Rose RJ. Breakfast skipping and health-compromising behaviors in adolescents and adults. *Eur J Clin Nutr* 2003;57(07):842–853
- Adesola OA, Ayodeji RAM, Akorede QJ, Oluranti O. Breakfast habit and nutritional status of undergraduates in Ekiti state, Nigeria. *Sci J Pub Health*. 2014;2(04):252–256
- Gotthelf SJ, Tempestti CP. Breakfast, nutritional status, and socioeconomic outcome measures among primary school students from the City of Salta: a cross-sectional study. *Arch Argent Pediatr* 2017;115(05):424–431
- Thompson-McCormick JJ, Thomas JJ, Bainivualiku A, Khan AN, Becker AE. Breakfast skipping as a risk correlate of overweight and obesity in school-going ethnic Fijian adolescent girls. *Asia Pac J Clin Nutr* 2010;19(03):372–382
- Berkey CS, Rockett HRH, Gillman MW, Field AE, Colditz GA. Longitudinal study of skipping breakfast and weight change in adolescents. *Int J Obes Relat Metab Disord* 2003;27(10):1258–1266