

Research Article

Eating Habits and Nutritional Status of Female Students of a Medical College of Lahore

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Abstract | Eating habits have strong relationship with nutritional status of any person. Modification of these habits in the adolescent period can prevent malnutrition resulting in prevention of many non-communicable diseases. Additionally, with best eating habits female doctors can be a role model for their patients.

Objectives: This study was designed to access the dietary habits, nutritional status and their association in young adolescent female medical students.

Methodology: A cross sectional descriptive study was carried out in Medical College of Lahore. A total of 114 female students from 1st year and 2nd year were selected. Their socio-demographic characteristics, dietary habits and nutritional status were assessed through a questionnaire. Hemoglobin levels were measured by Sysmex while mid upper arm circumference and (MUAC) and body mass index (BMI) were measured with the help of measuring tape and weighing machine, respectively.

Results: Mean age of the students was 19.5 ± 2.1 . All the participants were unmarried, 108 (94.7%) liked traditional food, and 84 (73.3%) had a habit of daily breakfast intake. Most of the students (n=73, 64%) were consuming fast/junk food while 81(71.1%) of the students used to take meat and meat products three times a week. A total of 42 respondents (36.8%) were underweight while 41 (36%) were anemic. Positive association was found between eating habits and hemoglobin levels ($p = 0.001$). Relationship between regular intake of breakfast with BMI and MUAC was also positive ($p = 0.003$ and 0.02 , respectively).

Conclusion: It is concluded that eating habits affect the nutritional status of adolescent females, while skipping breakfast is associated with anemia.

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Keywords | Young adolescents, Dietary habits, Nutritional status, Hb, BMI, MUAC

Introduction

Eating habits and nutrition are interrelated; both carry great importance in public health and impart an important preventive role in non-communicable diseases.⁽¹⁾ Eating habits especially in teenagers are affected by physiological, cultural and psychosocial factors. Students, during adolescent period, settle

in a new environment that affects their lifestyle and dietary habits. In addition to that metabolic processes are changed and if dietary habits are not healthy it can cause malnutrition^(2,3).

Nutritional status is a complex interplay of many factors like age, sex, marital status, educational attainment, income, food preference and dietary hab-

its. Higher BMI is associated with Consumption of canned goods and dairy products while consumption of fruits, grains, and vegetables keeps the BMI normal⁽⁴⁾.

Malnutrition is a rising problem of adolescents. Malnutrition is responsible for 11 % of the global burden of disease and is considered the number one risk to health worldwide while 37.5million (51.7 %) of Pakistanis are suffering from malnutrition⁽⁵⁾. Food deficits have negative effect on the physical growth and development, immune status of the person, physical fitness and the ability to work, mental fitness and learning ability⁽⁶⁾.

Knowledge of healthy lifestyle and dietary habits of medical students is considered to be the best when we compare it to other students.⁽⁷⁾ However, on reality grounds no evidence indicates that this knowledge is transformed into practical habits to maintain good health⁽⁸⁾. Healthy eating habits of medical students are far more important as they are future practitioners and role models for other population and the students who themselves do not adopt healthy eating habits; they will not be a good example of health promotion for their patients. World-over studies have been done on assessment of knowledge and practices regarding healthy habits such as eating and sleeping habits, nutrition, smoking and drug abuse among medical students⁽⁹⁾. In a study conducted at Japan, almost 50% of the dental students were not taking one of the three main meals while in another cross sectional survey in UAE, a large number of medical students were malnourished and most of them had a belief that their activity levels were not sufficient, level of stress very high and their diet unhealthy⁽¹⁰⁾. A study conducted at Baqai Medical University; in 2005 revealed 97 % respondents were consuming junks whereas 60% reported about use of whole grain food in their diet ⁽¹¹⁾.

Both obesity and underweight issues are more common in female students ⁽⁵⁾. Their nutritional status is more significant as they are future mothers and role model physicians for female patients. However limited data is available regarding nutritional status of female medical students, the present study will highlight dietary habits and nutritional status of female medical students.

Methods

A descriptive cross sectional study was conducted

in Ameer-ud-din Medical College Lahore. Females constitute more than 50% of the class. Canteen facility is available and there are many food outlets situated on the roads linked to college. All female students, both hostilities and day scholars of first year and second year (114 in number) were included in the study. Duration of study was four months (July, 15-November 15). Purposive sampling was conducted where all female medical students of first year and second year residing in hostel and day scholars were included, and students suffering from some disease or not willing to participate were excluded from the study. Informed consent was taken from all students. A structured questionnaire, pretested and finalized was used to collect information about dietary habits. Sysmex automated apparatus was used to test Hemoglobin in the blood. BMI was calculated by recording weight and height of students while MUAC was measured with the help of measuring tape. All this information was then used for Nutritional Assessment. Data collected was sorted, organized and entered on Statistical Package for Social Sciences (SPSS) version 19.0. Tests were applied on available sampled population to compute the association between different dietary patterns, nutritional status and socio demographic factors.

Permission to collect data was taken from Ethical committee of IPH, Lahore and from Ameer-ud Din Medical College. Verbal consent was obtained from female students included in the study and confidentiality and privacy was assured.

Results and Discussion

Majority of the participants, 113 out of 114 (99.1%), were Muslims. Regarding age, majority 60(52.6 %) of subjects were between 19-21 years and 54(47.4%) were between 17-19 years of age (the mean age 19.51+₁). All participants (100%) were unmarried. About 73(64%) had family income of more than 50,000 rupees. Regarding educational status parents of all the students were literate. Regarding locality of the respondents, 72(64.9 %) were local residents and 40 were (35.1%) were living in the hostel. 96(84.2%) belonged to a nuclear family type while only 18(15.8 %) had joint family system.

Out of 114 participants 108 (94.7%) liked traditional food. Majority 95 (83.3%) preferred to eat with their family and 84 (73.3%) had a habit of taking

daily breakfast, 79 (69.3%) were taking meal thrice a day, 73 (64%) were consuming fast/junk food but 74 (64.9%) did not like eating from street vendors. Only 52 (45.6%) and 49 (43%) eat vegetables and fruits daily. Proper water intake is absent in 90 (79%), 72 (63%) take sweet drinks and 98 (86%) did not take multivitamin.

Poor eating habits, common among students of colleges and universities, are associated with the development of many chronic health conditions such as diabetes mellitus, hypertension and cardiovascular diseases. Major contributing factors of poor eating habits include eating unhealthy and junk food, refraining from eating fruits, vegetables and dairy products⁽¹³⁾. Schools and fast food restaurants usually do not offer healthful foods as preserved foods have longer shelf life and are inexpensive. Because of their relative high cost and low shelf life, providing fresh food is not as convenient as junks⁽¹⁴⁾. Most of the studies conducted in Pakistan addressed either eating habits & knowledge of students about diet⁽¹⁵⁾ or focused on BMI and frequency of overweight among students⁽¹⁶⁾. Present study, focused on association between eating habits and nutritional status revealed that poor eating habits were associated with anemia among medical students. Although majority of the students liked traditional food and preferred eating with the family, taking regular breakfast and 3 meals per day but regular fruits and vegetable consumption was observed among less than half of the students (Table 1). Majority of the students preferred junk and fast food however eating from street vendors was disliked by them. Only a few students were taking meat and 10 glasses of water regularly. Similar results were found in a study in Greece by Michal Chourdakis *et al.*, 2010⁽¹⁷⁾ who have reported that although students preferred regular intake of breakfast but intake of fruits and vegetables daily was relatively less.

Anthropometric measurements of college students of 4 different countries in a study by Emilia Kolarzyk *et al.*, 2005⁽¹⁸⁾ showed average BMI of 21 similar to present study (Table 2) but study of Chaudhry *et al.*, 2012 in Lahore in General College students revealed that 76 % students were overweight compared to 15.7% in our study group (Table 2)⁽²¹⁾ while study conducted in Lahore Medical College showed that 27% were overweight⁽¹⁶⁾. The Kolarzyk *et al.*, 2005 also revealed better milk and milk products consumption (71%) compared to 41% in our study group (Table 1) where

roti was the most frequently food consumed. Use of sugar was similar in students of present study and those of Poland while use of other food items like eggs, potatoes, maize and rice etc., were different. Butter was most frequently consumed product in all nations (81%) dissimilar to 18.4 % in our study group.⁽¹⁸⁾

Table 1: Eating habits among respondents

Characteristics		Observation	%
Like traditional food	Yes	108	94.7
	No	6	5.3
Eating with family	Yes	95	83.3
	No	19	16.7
Regular break fast	Yes	84	73.3
	No	30	26.3
Taking 3 meals per day	Yes	79	69.3
	No	35	30.7
Like fast/junk food	Yes	73	64
	No	41	36
Like eating from street vendors	Yes	40	35.1
	No	74	64.9
Taking vegetables daily	Yes	52	45.6
	No	62	54.4
Taking fruits daily	Yes	49	43
	No	65	57
Taking meat regularly	Yes	40	35.1
	No	74	64.9
Consumption of 10 glasses of water daily	Yes	24	21.1
	No	90	78.9
Consumption of sweet drinks daily	≤1	72	63.2
	>1	42	36.8
Consumption of tea/coffee	≤2	73	64
	>2	41	36
Regular intake of multi-vitamins	Yes	16	14
	No	98	86

Strong association between MUAC and nutritional habits was found in our study group as in a study conducted by S.R.Yallamarju and colleagues in India, revealing MUAC as a fast measure for assessment of nutritional status.⁽¹⁹⁾ Association between eating habits and low Hb, leading to anemia was found significant (p value 0.001) in our study (Table 4) whereas association of eating habits with other parameters of Nutritional Assessment like BMI and MUAC were not significant. Similar results were found in a study conducted by Alhassan in Saudi female students

where 64% female students were found anemic secondary to bad eating habits⁽²⁰⁾. Association between socio demographic characteristics and eating habits was found insignificant in this study (Table 3), in a study conducted by Kurbaran and colleagues in 2011 at Dubai similar results were revealed⁽²¹⁾. Majority of students in the present study were taking breakfast. This result was similar to study by Moturi *et al.*, 2007. Same was the case as far as consumption of junk food and dietary choices were concerned. Although frequency of eating favorite food (23%) was similar in both studies but there was a difference in dietary choice regarding balanced food (33%) in comparison to 19.3% in our study group. This study showed a positive association between regular intake of breakfast and nutritional status (Table 4). Significant value of 0.003 was noted between regular breakfast intake and MUAC. In contrast to this, no association between these two could be established in study by Moruti *et al.*, 2007⁽²²⁾.

Table 2: Nutritional assessment of the respondents

Characteristics		Observation	%
BMI (Body mass index)	Under weight	42	36.8
	Normal	54	47.4
	Overweight	18	15.7
MUAC (Mid upper arm circumference)	Under Nourished	51	44.7
	Normal	50	43.9
	Over Weight	13	11.4
Hemoglobin (Hb)	Normal	41	36.0
	Abnormal	73	64.0

Less than half of the respondents had normal BMI and MUAC. Hemoglobin analysis revealed even a worse situation; only 36% respondents had normal Hb levels.

Table 3: Association of eating habits with nutritional status

Characteristics	Categories	Poor eating habits	Good eating habits	P value
Hemoglobin	Normal	36	33	0.001
	Abnormal	9	36	
BMI	Normal	57	39	0.610
	Abnormal	12	6	
MUAC	Normal	58	43	0.074
	Abnormal	11	2	

Bivariate analysis shows that good eating habits are associated with hemoglobin (p value=0.001)

Table 4: Association between regular intake of breakfast and nutritional status

Charac- teristics	Catego- ries	Regular intake of breakfast		P value
		Yes	No	
Hemoglo- bin	Normal	48	21	0.278
	Abnormal	36	9	
BMI	Normal	66	30	0.003
	Abnormal	18	0	
MUAC	Normal	71	30	0.019
	Abnormal	13	0	

Bivariate analysis shows that regular intake of breakfast is associated with BMI (p value =0.003) and MUAC (p value= 0.019).

Conclusion

This study could not establish association between socio-demographic characteristics and nutritional status, however, eating habits were found to effect nutritional statuses. Most of the students with poor eating habits were found anemic and the students who were in the habit of skipping breakfast were malnourished.

Author's Contribution

Naveed Akhtar and Humaira Zareen: Conceived and designed the study, collected the data and wrote the article.

Rubina Sarmad: Supervised the research, conceived and designed the study, collected the data and wrote the article.

References

1. Harmone E, Kahn R, Robertson RM. Preventing Cancer, Cardiovascular Disease, and Diabetes. *Diabetes Care*. 2004;27(7):1812-24. <https://doi.org/10.2337/diacare.27.7.1812>
2. Ganasegeran K, Al-Dubai SA, Qureshi AM, Al-Abed A-AA, Rizal A, Aljunid SM. Social and psychological factors affecting eating habits among university students in a Malaysian medical school: a cross-sectional study. *Nutrition Journal*. 2012;11(1):1. <https://doi.org/10.1186/1475-2891-11-48>
3. Kerstetter JE, Holthausen BA, Fitz PA. Nutrition and nutritional requirements for the older adult. *Dysphagia*. 1993;8(1):51-8. <https://doi.org/10.1007/BF01351480>
4. A.Bender D, Nutritional status. 2005 [cited 2016]; Available from: <http://www.encyclopedia>.

- com/.
5. Nordqvist C. Nutrition / Diet.Malnutrition: Causes, Symptoms and Treatments. 2016; Available from: <http://www.medicalnewstoday.com>.
6. wikipedia. Diet (nutrition). 2016 [cited 2016]; Available from: [https://en.wikipedia.org/wiki/Diet_\(nutrition\)](https://en.wikipedia.org/wiki/Diet_(nutrition)).
7. Soriano J, Moltó J, Manes J. Dietary intake and food pattern among university students. *Nutrition Research*. 2000;20(9):1249-58. [https://doi.org/10.1016/S0271-5317\(00\)00217-7](https://doi.org/10.1016/S0271-5317(00)00217-7)
8. Sakamaki R, Toyama K, Amamoto R, Liu C-J, Shinfuku N. Nutritional knowledge, food habits and health attitude of Chinese university students—a cross sectional study. *Nutrition Journal*. 2005;4(1):1. <https://doi.org/10.1186/1475-2891-4-4>
9. Trichopoulou A, Naska A, Orfanos P, editors. Eating out: Habits, determinants, and recommendations for consumers and the european catering centres—the hector project. *annals of nutrition and metabolism 2009: Karger Allschwilerstrass 10, CH-4009 Basel, Switzerland*.
10. Colić Barić I, Šatalić Z, Lukešić Ž. Nutritive value of meals, dietary habits and nutritive status in Croatian university students according to gender. *International journal of food sciences and nutrition*. 2003;54(6):473-84. <https://doi.org/10.1080/09637480310001622332>
11. Nisar N, Qadri M, Fatima K, Perveen S. Dietary habits and life style among the students of a private medical university Karachi. *JPMAThe Journal of the Pakistan Medical Association*. 2008;58(12):687-90.
12. Ashraf M. Frequency of overweight and obesity in students of medical college of Lahore. *Ann Pak Inst Med Sci*. 2012;8(2):137-40.
13. Flegal KM, Carroll MD, Ogden CL, Johnson CL. Prevalence and trends in obesity among US adults, 1999-2000. *Jama*. 2002;288(14):1723-7. <https://doi.org/10.1001/jama.288.14.1723>
14. Khazan O. Why Don't Convenience Stores Sell Better Food? 2005 [cited 2016]; Available from: <http://www.theatlantic.com>.
15. Sajwani RA, Shoukat S, Raza R, Shiekh MM, Rashid Q, Siddique MS, et al. Knowledge and practice of healthy lifestyle and dietary habits in medical and non-medical students of Karachi, Pakistan. *Journal of the Pakistan Medical Association*. 2009;59(9):650.
16. Daud S, Javaid F. Estimation of Body Mass Index (BMI) in Medical Students. *Pak J Med Health Sci*. 2011;5(4):702-5.
17. Chourdakis M, Tzellos T, Papazisis G, Toulis K, Kouvelas D. Eating habits, health attitudes and obesity indices among medical students in northern Greece. *Appetite*. 2010;55(3):722-5. <https://doi.org/10.1016/j.appet.2010.08.013>
18. Kolarzyk E, Kwiatkowski J, Lang-Młynarska D. [Nutritional model and nutritional behaviors depending on BMI value among students of the Collegium Medicum of Jagiellonian University in Cracow]. *Przegląd lekarski*. 2002;60:43-7.
19. S.R.Yallamaraju ,Rahchit Mahrota.Use of mid upper arm circumference for assessment of nutritional status of OFSM students.*J Int Soc Prev Community Dent*. 2014 Dec; 4(Suppl 2): S122–S125. <https://doi.org/10.4103/2231-0762.146217>
20. Al Hassan NN. The prevalence of iron deficiency anemia in a Saudi University female students. *Journal of Microscopy and Ultrastructure*. 2015;3(1):25-8. <https://doi.org/10.1016/j.jmau.2014.11.003>
21. Neslişah R, Emine AY. Energy and nutrient intake and food patterns among Turkish university students. *Nutrition research and practice*. 2011;5(2):117-23. <https://doi.org/10.4162/nrp.2011.5.2.117>
22. Hill AJ. The psychology of food craving. *Proceedings of the Nutrition Society*. 2007;66(02):277-85. <https://doi.org/10.1017/S0029665107005502>