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Short Communication

Nutritional Status and Dietary Pattern of Undergraduate Medical Students of Central India

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Abstract: This study explores dietary pattern adopted by the undergraduate medical students and variation in nutritional status among medicos. Objectives were to compare the nutritional status of localites and hostelite medical students and to study their dietary pattern. It was a cross sectional study carried out in 100 medical undergraduate students. 50 hostelite and 50 localite undergraduate medical students were interviewed from 1st May to 20th July 2014. Students were subjected to sociodemographic profile, dietary history by 24 hr recall method, history related to dietary practices and anthropometric measurements [body mass index (BMI), Waist hip ratio (WHR), Waist height ratio (WHtR)]. On comparison of nutritional status, malnutrition (underweight: 40%, overweight: 6%) was found to be common amongst hostelites. On analyzing the dietary pattern of undergraduates' daily consumption of high fibre was more in localites (46%) than hostelites (6%) whereas the daily consumption of junk food (16%) and visit to hotels (12%) was more in hostelites. On anthropometric study waist circumference of localite females (14%) was more than that of hostelite girls (4%). Similarly WHR was more amongst localite females (12%) than that of hostelite females (4%). However, on applying student's t test, no significant difference was found in mean values of BMI, WHR and WHtR (p value>0.05). Our study revealed that majority of the hostelites had high prevalence of malnutrition (both underweight and overweight). The reason for hostelites falling prey to malnutrition is mainly unhealthy dietary pattern comprising of high consumption of junk food, high frequency of visiting hotels and low fiber diet.
Keywords: Dietary pattern, nutritional status, medical student, hostelites, localites, malnutrition.

INTRODUCTION

All time along, basic needs of life food, clothing and shelter has made the man dance. Narrowing our gaze towards food we have been thriving for qualitizing it since ages. Earlier people secured food through agriculture and hunting. Now, revolutions have set in, and a new concept of food industry has been introduced. Increasing urbanization has influenced dietary patterns and lifestyles of individuals, not all of which are positive. Changes in diets, patterns of work and leisure also referred to as "nutrition transition" contributes to the causal factors underlying non-communicable diseases in poorest countries. The pace of the changes seems to be accelerating in the low-income and middle-income countries [1].

Dietary changes characterizing the "nutrition transition" include both quantitative and qualitative changes in diet. The adverse dietary changes include intake of higher energy density diet with a higher level of for fat and added sugars, reduced intakes of complex carbohydrates, dietary fibre and reduced fruit and vegetable intakes [1]. These dietary changes are compounded by lifestyle changes with reduced physical activity at work and during leisure time [2]. At the same time, however, we continue to face food shortages and nutrient inadequacies.

With this background, the present study has been undertaken to study the nutritional status and dietary pattern amongst the undergraduate medical students.

MATERIAL AND METHODS

Study design and the participants

A cross sectional study was carried out in 100 students. 50 hostelites and 50 localite

undergraduate medical students from Indira Gandhi Medical College (IGGMC), Nagpur were interviewed.

Study period

The present study was conducted from 1st May to 30th July 2014.

Data collection

After obtaining written informed consent from the study subjects, they were subjected to detail sociodemographic profile, dietary history by 24 hr recall method as well as history related to dietary practices. In addition, anthropometric measurements [body mass index (BMI), Waist hip ratio (WHR), Waist height ratio (WHtR)] were assessed by means of measuring tape. Also thorough general and systemic examination of the study subjects was done. Data was collected with the aid of preformed structured questionnaire.

Ethics committee approval

The study was approved by Institutional Ethics Committee (IEC).

Data management and statistical analysis

Percentages and chi square test trend was used to analyze the data using Open Epi Info statistical package programme version 2.3 year 2009. Statistical significance was assessed at a type I error rate of 0.05.

RESULTS

Table 1 shows the mean nutritional and anthropometric values amongst study subjects. It was observed that the overall mean deficit calories, deficit proteins and all the anthropometric measurements (WHR and WHtR) except BMI were found to be more among hostelites as compared to localites. However, on applying t test, the difference between the two groups was not found to be statistically significant (p>0.05). BMI distribution among study subjects showed that majority of students (40%) residing at hostel were underweight as compared to localites (10%). Moreover, prevalence of overweight was also found to be higher among hostelites (6%) as compared to localites (4%) as shown in Table 2. However, on applying chi square test (Normal Vs overweight) no statistically significance difference was found between the two groups (p>0.05).

Considering the frequency of consumption of high fiber diet among medicos (Table 3), daily consumption of fiber rich diet was greatest among localites (46%) when compared with hostelites (20%). Also, the difference between them was found to be statistically highly significant (χ^2 =13.04, df 1, p<0.001). As shown in Table 4, it was also observed that hostelite medicos mainly cherished junk foods. Since the frequency of consuming junk foods daily was found to be higher among hostelites (16%) than those residing at home (2%). Also, frequency of consumption of junk foods thrice or more than thrice was also found to be very high among hostelites (40%) than localites (24%) as evident by statistically significant difference between the two groups (p<0.01) .

Moreover, increased frequency of consumption of hotel food was also found to be high among hostelites (36%) than localites (10%) as shown in Table 5. Chi square test applied was found to be highly significant between hostelites and localites (p<0.01). Table 6 shows the WHR distribution among study subjects. It was seen that high WHR (>01 in males & >0.85 in female students) was more among female localites (12%) as compared to female hostelites (6%), Whereas high WHR was slightly more among male localites (50%) as compared to male hostelites (48%).

Table 1: Mean nutritional and anthropometric values amongst study subjects

Sl. No.	Nutritional & anthropometric parameters	Hostelites	Localites	t test p value
1.	**Deficit calories**	607.62 ± 535.22	529.16 ± 498.21	>0.05
2.	**Deficit proteins**	21.08 ± 12.29	20.69 ± 12.53	>0.05
3.	**Body mass index (BMI)**	20.83 ± 3.20	20.93 ± 3.05	>0.05
4.	**Waist hip ratio (WHR)**	0.824 ± 0.08	0.820 ± 0.08	>0.05
5.	**Waist height ratio (WHtR)**	0.467 ± 0.04	0.465 ± 0.05	>0.05

Table 2: Distribution of study subjects according to Body mass index (BMI)

Sl. No.	Classification		BMI	Hostelites	Localites	Total	Risk of co-morbidities
1.	**Underweight**		<18.5	20 (40)	05 (10)	25	Low
2.	**Normal**		18.5-24.99	27 (54)	41 (82)	68	Average
3.	**Overweight**		≥25				
	a.	**Pre-obese**	25-29.99	03 (6)	02 (4)	05	Increased
	b.	**Obese class I**	30-34.99	0	02 (4)	02	Moderate
	c.	**Obese class II**	35-39.99	0	0	0	Severe
	d.	**Obese class III**	≥40	0	0	0	Very severe

Figures in parentheses indicate percentage. Normal Vs Overweight χ^2 = 0.026 df 1 p >0.05

Table 3: Distribution of study subjects according to frequency of high fiber diet

Sl. No.	Frequency of high fibre diet (per week)	Hostelites	Localites	χ^2 test df 1 p value
1.	Once	06 (12)	01 (2)	<thrice Vs more than thrice 13.04 <0.001
2.	Twice	20 (40)	07 (14)	
3.	Thrice	06 (12)	06 (12)	
4.	More than thrice	08 (16)	13 (26)	
5.	Daily	10 (20)	23 (46)	

Figures in parentheses indicate percentage

Table 4: Distribution of study subjects according to frequency of junk food

Sl. No.	Frequency of junk food (per week)	Hostelites	Localites	χ^2 test df 1 p value
1.	Once	02 (4)	12 (24)	< thrice Vs more than thrice 8.392 <0.01
2.	Twice	20 (40)	25 (50)	
3.	Thrice	11 (22)	08 (16)	
4.	More than thrice	09 (18)	04 (8)	
5.	Daily	08 (16)	01 (2)	

Figures in parentheses indicate percentage

Table 5: Distribution of study subjects according to frequency of hotel food

S.N.	Frequency of hotel food (per week)	Hostelites	Localites	χ^2 test df 1 p value
1.	Once	12 (24)	27 (54)	< twice Vs more than twice 9.54 <0.01
2.	Twice	20 (40)	18 (36)	
3.	Thrice	05 (10)	02 (4)	
4.	More than thrice	13 (26)	03 (6)	

Figures in parentheses indicate percentage

Table 6: Distribution of study subjects according to Waist hip ratio (WHR)

S.N.	Waist hip ratio		Hostelites		Localites	
	Male	Female	Male	Female	Male	Female
1.	<01	<0.85	24 (48)	23 (46)	25 (50)	19 (38)
2.	>01	>0.85	01 (2)	02 (4)	0	06 (12)

Figures in parentheses indicate percentage

DISCUSSION

We evaluated the nutritional status of undergraduate medical students of Indira Gandhi government medical college (IGGMC), Nagpur. Present study showed malnutrition more among the hostelites than localites. Mostly the hostelites were underweight (40%).

The factors responsible for malnutrition were consumption of low fibre diet, high frequency of consumption of junk food and hotel food in a week. Besides the average quality of food in mess and tiffin consumed by hostelites over the excellent quality of home-made food consumed by localites also led to predisposition of hostelites being underweight. Further reasons contributing to it were easy availability of milk, non-vegeterian food, fruit juice and salad to localites in comparison with the hostelites.

The lack of health and or nutrition literacy and the degree to which fast food are embedded in the social structure are interconnected with various health problems. The lack of information about food choices, nutritional information and its application, less or difficult availability to healthy foods, and a range of cultural influences and socioeconomic considerations like low levels of education and high levels of poverty decrease opportunities for healthy eating and living [4, 5].

Lifestyle and obesity related diseases are increasing around the world. Increasingly widespread application of some modern food processing technologies may have been contributed to this. The food processing industry is a major part of modern economy, and as such it is influential in political decisions such as nutritional recommendations, agricultural subsidizing. In general, fresh foods have short shelf-life and are less profitable to produce and sell than are processed foods. Effective production of cheap foods with a long shelf-life is more the trend in any known profit-driven economy. Thus, the consumers have to choose between more expensive, but nutritionally superior fresh foods, and cheap, usually nutritionally inferior processed foods. Consumption of nutritionally inferior foods has been increasing because

processed foods are often cheaper, more convenient in purchasing, storage, preparation and are more available [4, 5].

CONCLUSION

Our study revealed that majority of the hostelites were malnourished (underweight: 40%; overweight:6%) in comparison with the localites (Underweight: 10%; overweight: 4%). Thus it is evident from the present study that students lack nutrition literacy and are incapable for making healthy choices regarding their nutritional habits, the dietary pattern and the lifestyle they have adopted. It is, therefore, of utmost importance that students should be properly educated about healthy nutritional practices that are to be adopted to have sound health free from various health problems like obesity, hypertension, cardiovascular diseases etc.

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