ORIGNAL ARTICLE

Junk Food Consumption, awareness and its Health Consequences among Undergraduates of a Medical University

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ABSTRACT

Objective: To assess the consumption patterns and health consequences of junk foods among students of medical university Karachi, Pakistan.

Methods: A study was conducted among 370 students in a Public Sector University, Karachi from March to November 2017. Medical undergraduates, (1-5 academic year),of both gender were conveniently selected. The average age of the medical students was 18 to 24 years, majority were females. Information regarding junk food eating pattern, preference, timings of consumption, influence of nutritional information on the choice of junk food, any history of physical and psychiatric ailments in past six months were collected. A pretested, both open and close ended self-administered questionnaire consisting of 26 questions were used to collect data to assess the knowledge and health consequences regarding junk food consumption.

Results: Out of total 370 participants, 91.4% had the knowledge about the risk and strong connection between weight gain and obesity. Despite of this, 92% participants were consuming junk food. One out of every three students (34.9%) reported hygiene problems, (95%) gastrointestinal issues and (20%) complained about dental problems. A significant association of junk food consumption with feeling drowsiness/lethargic (p-value <0.001) was observed. Moreover, knowledge regarding high risk of non-communicable diseases among junk foods users also found significantly higher (p-value 0.045).

Conclusion: Current study revealed that, though awareness regarding health hazards of the junk food was found higher among medical students, its consumption is highly prevalent.

Key words: Junk foods, consumption, awareness, health consequences, medical undergraduates.

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INTRODUCTION

Junk food or fast food refers to as 'food that is quick to prepare and serve'.[1] These include processed, canned and packed food items as well as 'high-calorie' meals served at restaurants and cafeterias such as burgers, pizzas, fried chicken, potato fries, sausages, salty snacks, carbonated drinks and beverages, desserts and chocolates.[2] The ongoing nutrition transition towards 'energy-dense' foods began in the 1970s and was initially confined to the developed countries undergoing rapid industrialization and modernization.[3]

However, with globalization this trend has spread to developing countries as well. What was once considered a part of Western-style diet is now ubiquitous even in low and middle-income countries and Pakistan is no exception.[4] Junk food industry has been found to be the second largest industry in Pakistan with over 169 million consumers.[5]

Concurrent with this change in dietary patterns is the fearsome rise in obesity and obesity related disorders.[6] Obesity is now a global phenomenon and a major public health challenge in both developed and developing countries. During the 17-year period between 1998 and 2015, obesity prevalence almost doubled in low and middle-income countries, and this increase was seen among all age groups including children.[7]

The 'obesogenic' potential of junk foods can be assigned to their high proportions of refined carbohydrates, added sugars, trans- and saturated fats, and almost twice the energy density than what is recommended as part of healthy diet.[8] Their salt content is also very high which not only increases the risk of elevated blood pressure but also aggravates the preexisting metabolic syndrome and insulin resistance.[9] Increased intake of junk food raises the risk of metabolic syndrome in consumers up to 150%, that of diabetes mellitus up to 68% and of cardiovascular mortality by 162%.[8] These deleterious consequences can be explained in parts, by various metabolic disturbances that occur following the consumption of such foods including dyslipidemia, oxidative stress, low levels of antioxidants and the induction of a pro-inflammatory state in general.[10]

Medical students comprise a well-informed and well-educated group of adolescents when it comes to health-related issues. The consensus is that since medical students have a thorough knowledge of the pathophysiology of different diseases they are less likely to fall prey to unhealthy lifestyle.[11] Medical students of today are the doctors of tomorrow and since their practice serve as example for their patients, it is imperative that they adopt healthier life style choices. Studies conducted in the past have shown that although medical students had a greater knowledge of health issues related to diet, lifestyle and exercise, their practices were not very different from those of non-medical students.[11,13] No study has however focused primarily on the use of junk food among medical students. To fill this gap in literature and to see whether similar trend was prevalent in junk food usage, current cross-sectional study was conducted on medical students of a public-sector university and inquired them about them their habits and attitudes regarding junk food consumption.

METHODS

This study was conducted from April 2017 to October 2017 among students of a public-sector medical university enrolled in first to final years of the MBBS program. A total of 370 students were included in the study after obtaining informed written consent. Ethical approval for the study was obtained from the Institutional Review Board. Non-probability convenient sampling was employed to select the students and the sample size was calculated using Open epi software. A pretested, open ended self-administered questionnaire consisting of 26 questions was used to collect data on knowledge, attitude and practice of medical students regarding junk food consumption.

Information regarding junk food consumption, reasons of preferring junk food, types of junk food consumed, timings of junk food consumed, Influence of nutritional information on the choice of junk food, any oral hygiene problem, any history of gastroenteritis in past six months, feeling of abdominal discomfort or bloating, and passing stool/moving bowels were noted.

All the data were kept anonymous and no identifiable information was obtained from the participants. Data were entered in Microsoft Excel 2016 and later analyzed using SPSS version 21. The numerical variables were presented as means and standard deviations while categorical

variables were expressed as frequencies and percentages. Chi-square test was employed to assess whether junk food eaters were more likely to have different health problems than non-eaters and to see whether any significant differences existed in their knowledge and attitude. A p-value of <0.01 was considered statistically significant.

RESULTS

Of the 370 participants, only 30 (8.1 %) claimed that their junk food consumption was nil. Most of the participants (n=229, 61.9%) admitted to having junk food 1-2 times a week. Many of the participants (n=216, 63.5 %) prefered junk foods because of taste and palatability. Most (n=106, 31.2%) students consumed junk food at day time, i.e. 2-6 pm. Burger was the most commonly consumed junk food item (n=129, 37.9%) followed by pizza (n=127, 37.3%), potato fries (n=62, 18.2%) and sandwiches (n=22, 7.6%). (Table 1)

When asked about different health problems, 34.9% (129) students reported having oral hygiene problem, 16.8% (62) had a history of gastroenteritis in the past six months and 4.9% (18) had constipation, 44.6% (165) complained of occasional abdominal discomfort and bloating while 11.9% (44) had this complain more often. (Table 2)

Knowledge of health hazard of junk food was satisfactory in most of the students. (Table 3)

Despite of this, majority of the students (122, 35.4%) believed that nutritional information partly affected their choice of junk food.

A significant association of junk food consum - ption with drowsiness / lethargic (p-value <0.001) was observed. Moreover, knowledge regarding high risk of non-communicable diseases among junk foods users also found significantly higher (p-value 0.045). (Table 4).

Table 1. Pattern of Junk food consumption among medical students of a public sector medical university (n = 370).

	n	%
Do you usually eat junk food?		
No	30	8.1
Yes	340	91.9
How many times a week you continue junk food?		
0	30	8.1
1-2	229	61.9
3-4	67	18.1
More than equal to 5	44	11.9
Do you drink carbonated beverages?		
No	66	17.8
Yes	304	82.2
How often? (n = 304)		
Daily	54	17.8
Weekly	157	51.6
Monthly	93	30.6
Why you prefer junk food? (n = 340)		
Feel satisfied, satiation	36	10.6
Easy to eat & dispose	59	17.4
Tasty palatable	216	63.5
Readily Wallace	15	4.4
Cost price	14	4.1
What do you usually choose junk food in restaurant? (n = 340)		
Burger	129	37.9
Pizza	127	37.3
French fries	62	18.2
Sandwich	22	6.5
What time of a day do you eat junk? (n=340)		
11-12 PM	73	21.5
2-6 PM	106	31.2
6-10 PM	93	27.3
After 10 PM	68	20.0

DISCUSSION

This study sought to explore junk food consumption habits among medical students, the hypothesis being that because of their superior knowledge regarding health-related issues, medical students will be less likely to indulge in unhealthy dietary practices. Our results however proved otherwise as a vast majority of the medical students were habitual junk food eaters despite

Table 2. Pattern of health hazards of Junk food consumption among medical students of a public sector medical university (n = 370)

	n	%
Do you have any oral hygiene problem?		
No	241	65.1
Yes	129	34.9
Type of oral problem (n = 129)		
Discoloration	26	20.2
Sensitivity	43	33.3
Caries	17	13.2
Missing teeth	13	10.1
Filling	30	23.3
Do you have any history of gastroenteritis in past six months?		
No	308	83.2
Yes	62	16.8
Do you often feel abdominal discomfort or bloating?		
No	161	43.5
Yes	44	11.9
Sometime	165	44.6
How often do you pass stool in a day		
Daily	274	74.1
Alternative day	59	15.9
3 to 4 days	19	5.1
Constipated	18	4.9
Do you feel drowsy, poor concentration and lethargic?		
Never	111	30.0
Often	104	28.1
Sometime	155	41.9

Table 3. Awareness of health hazards of Junk food consumption among medical students of a public sector medical university (n = 370)

	n	%
Junk food consumption lead to extra weight gain		
No	45	12.2
Yes	325	87.8
Frequent consumption of junk food increases the risk of NCDs		
No	58	15.7
Yes	207	55.9
Don't Know	105	28.4
Junk food consumption strongly associated with insulin resistance & T2DM		
No	83	22.4
Yes	287	77.6
Junk food leads increases the risk of heart failure		
No	34	9.2
Yes	336	90.8
Junk food in the main cause of Obesity		
No	32	8.6
Yes	338	91.4
Junk food is carcinogenic for kidney & esophagus		
No	112	30.3
Yes	258	69.7

T2DM: Type II diabetes mellitus, NCD: Non-communicable disease

being aware of the adverse health consequences associated with such foods. These results are consistent with similar studies conducted in the past which revealed that dietary habits of medical students were in no way different from non-medical students with medical students being even more inclined towards junk food consumption.[11] Not surprisingly, medical students were found to have enough knowledge of the harmful effects of junk food consumption, however the incorporation of this knowledge into their own lifestyles was largely deficient.

The prevalence of junk food consumption is higher among children and adolescents as compared to other age groups[13,14] which is worrisome because unhealthy dietary practices in childhood and adolescence are likely to persist into adulthood which may increase the risk of several metabolic disturbances.[15] Various reasons have been attributed to the preference of junk food among young people which include taste, quick availability, convenience, stress, and time constraints.[11,16,17] Research has shown even more complex phenomena underlying these preferences. One hypothesis called 'The Salted Food Addiction Hypothesis' suggest that salted food may stimulate opioid receptors in the pleasure centers of our brain and this effect might be a stronger determinant of 'craving' for salted food than the 'taste' or 'palatability'.[18] Since junk food items have high salt content, this pleasure effect is perhaps the real driving force for the

Table 4: Association of knowledge and habits of students with the consumption of junk food (n=370)

Characteristics	Don't eat junk food n (%)	Eat junk food n (%)	Odds ratio	P value	95% CI
Oral hygiene problem					
No	21 (70)	220 (64.7)	1.27	0.560	0.56-2.86
Yes	9 (30)	120 (35.3)			
Pass stool/move bowels					
Daily	22 (73.3)	252 (74.1)	0.960	0.925	0.41-2.24
Does not pass stool daily	8 (26.7)	88 (25.9)			
Often feel abdominal discomfort					
No	10 (33.3)	151 (44.4)	0.601	0.210	0.28-1.33
Yes	20 (66.7)	183 (55.6)			
Experienced gastroenteritis in past six months					
No	25 (83.3)	283 (83.2)	1.01	0.989	0.37-2.74
Yes	5 (16.7)	57 (16.8)			
Feel drowsy/lethargic					
No	22 (73.3)	89 (26.2)	7.75	<0.001	3.33-18.04
Yes	8 (26.7)	251 (73.8)			
JF eating may lead to NCD					
No	8 (26.7)	155 (45.6)	0.434	0.045	0.189-1.02
Yes	22 (73.3)	185 (54.4)			
Education can change the behavior towards JF					
Agree	27 (90)	294 (86.9)	1.41	0.58	0.41-4.83
Disagree	3 (10)	46 (13.5)			
CI: Confidence Interval, JF: Junk Food, NCD: Non-communicable disease					

craving' and over consumption of junk foods among the people. Evidence also suggests that consumption of items having high fat and sugar content lead to enhanced engagement of reward circuitry in brain that can be attributed to accelerated dopamine signaling in adolescence.[19] Since adolescents are more prone to engage in reward seeking behaviors they are more likely to indulge in over-consumption of junk foods.[12,20]

Taste preference was the prime reason for opting for junk food items in the current study. This has also been discovered in other studies, although those were not specifically targeted towards medical students.[11,17,21] However, what is seemingly an innocuous reason for junk food preferences among adolescents could in fact be a result of complex alterations in the reward circuitry of the adolescent brain.[19] These palatable foods are thought to disrupt and overstimulate the mesocorticolimbic systems leading to blunting of reward responses which in turn causes an increased urge to consume junk foods.[22]

A study conducted by Rubina et al in Pakistan reported the lack of time to be the main barrier in the adoption of healthy dietary habits, among both medical and non-medical students.[11]

A significant number of students in our study justified their junk food preference with the excuse that 'junk foods were easy and quick to consume and dispose of' which could be the result of time constraints that medical students face on a daily basis. However, it should be noted that junk food consumption is not a unifactorial problem and many factors could co-exist. It would therefore require the development of a 'Web of Causation' model to accurately predict the contribution of both genetic and environmental factors to the widespread consumption of junk food not only among medical students but in adolescents in general.

Our study also found statistically significant association of junk food consumption with poor concentration, lethargy and drowsiness. However, since this is a cross-sectional study, a cause-and-effect relationship could not be established. Prospective studies are needed to

determine whether these effects were caused by Junk Food consumption or whether deficient concentration, lethargy and drowsiness caused a person to indulge in such habits.

CONCLUSION

This study found a massive gap between knowledge of the students about the junk foods and their practice of eating junk food. This study concludes that despite of information about the ill effects of junk foods, eating junk foods are prevalent among medical undergraduates. It also highlights the need for educational program, Provision of nutritional education and information about junk foods within the medical institutes with involvement of their parents and national assessment and its related public, social and national factors could help. Despite the information about the ill effects, eating junks are exceedingly prevalent between medical students. Massive gap is seen in students between awareness and their practice regarding consumption of junk diets.

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