

Dietary Habits and Choices before and During COVID-19 Pandemic Among Medical Students of Pakistan

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Abstract

Objective: COVID-19 pandemic which was emerged in China and in December 2019 but later it was become a pandemic and Pakistan also get affected from it due to which all educational institution gets closed on 14th March. This study was aimed to explore the changes in dietary habits and choices among medical students of Pakistan.

Methods: An online survey was conducted in June 2020 involving 385 medical and dental students of the age (16-31 years) from different medical colleges. After providing informed consent participants complete this online survey.

Results: Majority students were having normal BMI (18.5-24.9) having no dietary problem and not currently losing weight. Majority of students used to skip meals before COVID-19 but during COVID-19 this ratio lessened out, the ratio to eat in between meals had increased as 260(79%) females and 43(76.8%) males during the period of COVID-19 but the habit to eat at night was same before and during COVID-19. About the preference of food, we found that student's preference towards fresh fruits, pasta and rice, bread /cereals, pulses, snacks, fruit juices, soft/fizzy drinks, tea/coffee, milk remained the same. Preference of cakes and ice-cream, pizza, packed/readymade food decreased during COVID-19.

Conclusion: Healthy preferences and habits during COVID-19 among medical students were founded in this study.

Keywords: COVID-19, Dietary habits, Dietary preferences

Introduction

COVID-19 was first reported in Wuhan city of China in December 2019 in March 2020 WHO declared it as Pandemic.¹ In Pakistan first case of COVID-19 was reported on 26th March in Karachi. But later on all educational institution get closed on 14th March 2020. As a result of mandatory lockdown produced problems like low mod irritability, psycho-

logical distress, anger, exhaustion and insomnia. These stressful events effect the eating patterns.¹ Stress alter overall eating habits resulting under and over eating which is influenced by the severity of stress. Acute stress which leads to the activation of the sympathetic adrenal medullary system (release of catecholamines) which may decrease food intake.² Anxiety, uneasiness, anger, apathy is commonly accompanying chronic stress due to hyperactivation of hypothalamic pituitary adrenal axis which lead to increase in the release of the cortisol which is referred as a stress hormone which cause some individual to binge eating.²⁻³

Some diets are having positive effect on mood possibly by providing polyphenols, vitamins and tryptophan for serotonin production. Psychological factors have great influence on the dietary preference.⁴ It is recommended by the WHO "If you must stay at home, maintain a healthy lifestyle - including proper diet, sleep, exercise and social contacts with loved ones at home and by email and phone with other family and

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friends.”⁵ Healthy preferences of the food such as plenty fresh fruits and vegetables (because they have excess of anti-oxidant and anti-inflammatory substances),¹ avoiding caffeine (because it increase feeling of anxiety and agita-tion),⁶ are very much necessary as to maintain good health and immunity at the time of COVID-19 Pandemic.

Nationwide lockdown in Pakistan due to COVID-19 may potentially alter dietary habits of students by forcing them to stay at home for a prolonged period of time, often with unlimited access to food and lower physical activity. This is of particular concern in the case of individuals with pre-existing nutritional issues.

Medical education is itself very stressful and due to lockdown, medical institutes did not get proper time to maintain the system of online classes and students were also not prepared to take online classes this result creating stress in students.

Keeping in view all the factors, this study was designed to determine the dietary habits and food choices among medical students before and during COVID-19 Pandemic

Methods

This cross-sectional study was conducted in June 2020 by anonymous online survey by convenience sampling. Ethical approval for this study was taken by the Ethical Review Board of CMH Lahore Medical College and institute of Dentistry. The data was collected by questionnaire having two parts: demographic information (having age, gender, and BMI) and pretested questionnaire for eating habits and preference of food.⁷ Total 385 respondents took part in the study after the informed consent. Data analysis was performed by using the Microsoft Excel 2016 and IBM Statistic version 20. Microsoft excel was used to editing and coding and then the excel file was imported to SPSS software. Descrip-tive statistics (frequency, percentage) and Chi square test was executed by using the SPSS software. P-value less than or equal to 0.05 was taken as significant.

Results

Table (1) showed that the student population were female (85.5%) and male (14.5%) of age between (16-31 years). The higher percentage of age group (73.5%) were of 21 years and younger. Regarding the

BMI higher percentage of students (65.7%) were in normal range of BMI between 18.5-24.9.

There were 181(55%) students who used to skip their meals before COVID-19 (p value 0.004) and about 167(50.8%) of students skipped meals during COVID-19 (p value .000).240(72.9%) of students used to eat in between their meals before COVID-19 (p-value 0.609). 260(79%) of students agreed that they eat in between their meals during COVID-19 (p-value 0.705). 219(66.6%) students agreed with statement that they eat at night before COVID-19 (p-value .009). 215(65.3%) students agreed that they eat at night during COVID-19 (p-value 0.374). 231(70.2%)females 47(83.9%) males had no dietary problem (p-value 0.065).

Table-2 and Table-3 showed students preferences of food before and during COVID-19 respectively. It showed that more students 202(61.4%) had fresh fruits everyday during COVID-19 and 147(44.7%) had fresh fruits everyday before this pandemic. Prefrence of eating raw vegetables also increased among medical students during COVID-19 because 117(35.6%) females and 42.9% male had raw

Table 1: Demographic Charateristics of Participants

Character	Frequency	Percent
Age		
21 years and younger	283	73.5
22-25 years	100	26.0
26 years	1	0.3
31 years	1	0.3
Gender		
Male	56	14.5
Female	329	85.5
BMI		
Underweight(below18.5)	70	18.2
Normal (18.5-24.9)	253	65.7
Overweight (25-29.9)	57	14.8
Obese (30 above)	5	1.3

vegetables everyday.

Discussion

This study showed that majority of students used to skip meals before COVID-19 but during COVID-19 this ratio lessened out, the ratio to eat in between meals had increased as 260(79%) females and 43(76.8%) males during the period of COVID-19 but the habit to eat at night was prevelant both before and during COVID-19. Excessive eating (in between meals or at night) might be a way to cope stress.⁸ Majority of students had no dietary problem and not curruently loosing weight and have normal BMI (18.5-24.9).Regarding diet preferences; before

COVID-19 majority had cakes and ice-cream 2-3 times a week however during COVID-19 majority students never had cakes and ice-cream. Majority had pizza 1-2 times a month before COVID-19 however during COVID-19 they never had pizza. Before COVID-19 majority had Packed/ready food everyday however during COVID-19 majority never had packed/ready food. Preference of students towards fresh fruits, pasta and rice, bread /cereals, pulses, snacks, fruit juices, soft/fizzy drinks, tea/coffee, milk remained the same. Adequate fruits and vegetables are healthy preferences as they have several vitamins like vitamin A, B-complex, C and D and micronutrients help to boost immunity.⁹ Vitamin C reduce oxidative stress in body and modulate immune response.⁹ Preference of cakes and ice-cream , pizza, packed/ready made food decreased during COVID-19. That is the medical students changed the habits during COVID-19. Increase in food intake was founded but it was actually the response of body to chronic stress.^{2,3} Evidences shows that in vivo social isolation is related to the increased food

consumption.¹⁰ However, there is no diet that is proven as having nutrients that prevent or treat the COVID-19 but balanced diet having proper nutrient intake is necessary because it is essential to maintain immunity against COVID-19.⁹

Conclusion

Change in the dietary habits and choices of medical students was found during COVID-19. Overall it revealed that good dietary changes were found among the medical students of Pakistan in current Pandemic situation.

Authors Contribution

AN, RM, AA: Literature search, study design and concept, questionnaire design, data collection.

FI: Drafting, revision and final approval.

RKA: Data analysis, data interpretation and drafting

HR: Drafting revision and final approval.

Conflict of Interest: None

Table 2: Dietary Habits before COVID-19

QUESTIONS	GENDER	NEVER		EVERYDAY		TWICE A DAY		2-3 TIMES A WEEK		1-2 TIMES A MONTH		P-Value
		count	%age	count	%age	count	%age	count	%age	count	%age	
BEFORE COVID-19												
Fresh fruits	Male	4	7.1	29	51.8	3	5.4	20	35.7	0	.0	0.156
	Female	45	13.7	147	44.7	10	3.0	106	32.2	21	6.4	
Raw vegetables	Male	11	19.6	18	32.1	5	8.9	21	37.5	1	1.8	.020
	Female	106	32.2	79	24.0	10	3.0	104	31.6	30	9.1	
Cakes and ice-cream	Male	19	33.9	4	7.1	1	1.8	18	32.1	14	25.0	0.172
	Female	72	21.9	59	17.9	5	1.5	110	33.4	83	25.2	
Pasta and Rice	Male	10	17.9	12	21.4	5	8.9	24	42.9	5	8.9	0.136
	Female	28	8.5	101	30.7	17	5.2	148	45.0	35	10.6	
Bread/cereals	Male	7	12.5	31	55.4	4	7.1	11	19.6	3	5.4	0.753
	Female	36	10.9	179	54.5	18	5.5	86	26.1	10	3.0	
Pulses	Male	9	16.1	14	25.0	2	3.6	27	48.2	4	7.1	0.919
	Female	42	12.8	81	24.6	20	6.1	162	49.2	24	7.3	
Pizza	Male	18	32.1	6	10.7	4	7.1	11	19.6	17	30.4	0.714
	Female	90	27.4	43	13.1	13	4.0	79	24.0	104	31.6	
Snacks	Male	16	28.6	15	26.8	5	8.9	16	28.6	4	7.1	0.001
	Female	34	10.3	160	48.6	24	7.3	92	28.0	19	5.8	
Packed/Ready food	Male	18	32.1	9	16.1	5	8.9	16	28.6	8	14.3	0.289
	Female	89	27.1	93	28.3	20	6.1	71	21.6	56	17	
Fruit juices	Male	12	21.4	18	32.1	3	5.4	20	35.7	3	5.4	0.59
	Female	61	18.5	116	35.3	15	4.6	98	29.8	39	11.9	
Soft/Fizzy drinks	Male	19	33.9	10	17.9	6	10.7	12	21.4	9	16.1	0.447
	Female	115	35.0	62	18.8	15	4.6	72	21.9	65	19.8	
Tea/Coffee	Male	13	23.2	23	44.1	9	16.1	7	12.5	4	7.1	0.734
	Female	61	18.5	147	44.7	71	21.6	33	10.0	17	5.2	
Milk	Male	11	19.6	27	48.2	10	17.9	6	10.7	2	3.6	.010
	Female	78	23.7	142	43.2	19	5.8	73	22.2	17	5.2	

Table 3: *Dietary Preferences among Medical Students during COVID-19*

QUESTIONS	GENDER	NEVER		EVERYDAY		TWICE A DAY		2-3 TIMES A WEEK		1-2 TIMES A WEEK		p-value
		Count	%age	count	%age	count	%age	count	%age	count	%age	
Fresh fruits	Male	4	7.1	37	66.1	5	8.9	10	17.9	0	.0	0.771
	Female	24	7.3	202	61.4	40	12.2	56	17.0	7	2.1	
Raw vegetables	Male	11	19.6	24	42.9	3	5.4	16	28.6	2	3.6	.760
	Female	74	22.5	117	35.6	19	5.8	95	28.9	24	7.3	
Cakes and ice cream	Male	26	46.4	3	5.4	3	5.4	11	19.6	13	23.2	0.605
	Female	135	41.0	29	8.8	8	2.4	69	21.0	88	26.7	
Pasta and Rice	Male	11	19.6	7	12.5	7	12.5	24	42.9	7	12.5	0.038
	Female	43	13.1	85	25.8	16	4.9	133	40.4	52	15.8	
Bread/Cereal	Male	9	16.1	27	48.2	5	8.9	12	21.4	3	5.4	0.655
	Female	56	17.0	161	48.9	16	4.9	65	19.8	31	9.4	
Pulses	Male	10	17.9	13	23.2	2	3.6	27	48.2	4	7.1	0.368
	Female	35	10.6	96	29.2	23	7.0	142	43.2	33	10.0	
Pizza	Male	28	50.0	5	8.9	3	5.4	3	5.4	17	30.4	0.137
	Female	150	45.6	24	7.3	5	1.5	49	14.9	101	30.7	
Snacks	Male	21	37.5	14	25.0	5	8.9	8	14.3	8	14.3	.110
	Female	94	28.6	100	30.4	12	3.6	84	25.5	39	11.9	
Packed/Ready food	Male	23	41.1	9	16.1	4	7.1	11	19.6	9	16.1	0.311
	Female	155	47.1	53	16.1	7	2.1	57	17.3	57	17.3	
Fruit juices	Male	13	23.2	26	46.4	4	7.1	10	17.9	3	5.4	0.486
	Female	57	17.3	134	40.7	23	7.0	81	24.6	34	10.3	
Soft/Fizzy drinks	Male	21	37.5	9	16.1	5	8.9	14	25.0	7	12.5	0.054
	Female	161	48.9	37	11.2	10	3.0	57	17.3	64	19.5	
Tea/Coffee	Male	21	37.5	20	35.7	8	14.3	4	7.1	3	5.4	0.052
	Female	64	19.5	139	42.2	71	21.6	35	10.6	20	6.1	
Milk	Male	8	14.3	32	57.1	12	21.4	2	3.6	2	3.6	.010
	Female	61	18.5	171	52.0	29	8.8	53	16.1	15	4.6	

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