

Assessment of Eating Habits and Food Purchasing Behavior Changes among Cairo University 4th Year Medical Students during COVID-19 Pandemic, 2021

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Abstract

COVID-19 disease has spread rapidly all over the world. Radical measures have been taken by governments to prevent the spread of the disease. University students had been interrupted for several classes because of the pandemic. Objectives: (1) Assess the changes in eating habits among the medical university students during COVID-19 pandemic. (2) Measure the change in food purchasing behavior during COVID-19 pandemic. Methods: observational analytical cross sectional study design using self-administered online questionnaire. Results: There is no statistical difference in most of eating habits before and during the pandemic except for causes of skipping meals with p-value less than 0.05. Regarding food purchasing behavior more than half (58.7%) of them started cleaning all packaged food with wet napkins and (79%) of them started throwing all disposable shopping bags. Conclusion: there is almost no effect of COVID-19 pandemic on eating habits among the 4th grade Medical Students Cairo University. There is positive shift to healthier specific shopping practices and food purchasing behavior during the pandemic.

Key words: COVID-19, eating habits, food purchasing, medical students.

Introduction

In December 2019, new corona virus disease (COVID-19) disease spread worldwide and became countries priority (*Yilmaz et al., 2020*). In February 2020, the Egyptian Ministry of Health reported the first case of COVID-19 disease (*EMRO, 2020*). In March 2020, the Egyptian government declared a set of decisions to prevent COVID-19 transmission. These measures included curfew, closure of schools and universities and closing all restaurants, cafes, etc. (*Reuters, 2020*).

Youth and young generations are more autonomous and during this stage family and social network influences starts to change (*Nelson et al., 2008*). Moreover, university students show increased level of stress and frequently report poor dietary practices (*Nelson et al., 2008*). Furthermore, medical students in particular are affected by stresses due to multiple causes as; perfectionism, competitiveness, due dates, and exam pressure (*Health action UK, 2019*). Consequently, social and psychological factors are considered vital factors of eating habits among medical students (*Ganasegeran et al., 2012*). Due to the COVID-19 pandemic's lockdown and drastic changes in lifestyle, there were high rates of anxiety among university students (*Wang and zhao,*

2020). During the lockdown some reported increased eating especially “comfort food”, particularly chocolate, desserts and salty snacks in response to anxiety (Scarmozzino and Visioli 2020).

As regards nutrition, poor nutrition has been linked to many infections either bacterial or viral. Also COVID-19 severe cases have been reported in individuals with chronic conditions that are partly related to nutrition as diabetes and cancer (HSPH, 2020). Furthermore during COVID-19 pandemic, food purchasing behavior was affected and panic buying occurred which may be explained by group psychology and existence of bad mood (WANG and Na 2020). These authors recommended governments to work on citizen education to reduce panic buying behavior (WANG and Na 2020).

Medical university students are considered a vulnerable group necessitating a significant adjustment in many activities, particularly eating patterns and food purchasing behavior. Studying how the COVID-19 pandemic has affected the eating habits and food purchasing behavior to find out future recommendation for combating future crises.

Study Objectives

Assess the changes in eating habits among medical university students during COVID-19 pandemic. Measure the change in food purchasing behaviour among medical university students during COVID-19 pandemic.

Participants and Methods

Study Design: Observational, analytical cross sectional study.

Study setting and population: Accessible 4th year medical students, Cairo University.

Sample Type and Size: Non- random convenient sample of 300 students were recruited to participate in the study from accessible 4th grade Kasr Alainy medical students. This sample was based on the assumption that 54% of the students in the population have the factor (habits changes) (El Mani et al., 2020). The sample needed was 249 which were increased to 300 after calculating a 10% non-response, with 5 % absolute precision, 95% confidence interval.

Data Collection Tool and Technique: Self- administered online questionnaire.

Data Management and Statistical Analysis: Data was coded, managed and analysed using the Statistical Package of Social Science Software program, version 21 (SPSS). The data were summarized using mean, and standard deviation for quantitative variables; and frequency and percentage for qualitative ones. Chi-square test was used in comparison, and the level of significant difference was $p \text{ value} \leq 0.05$.

Ethical Consideration: The procedures were followed in the study in accordance with the ethical standards of the responsible committee on human experimentation and with Helsinki Declaration. The data was anonymous with no identifiable data. The research protocol was approved by Faculty of Medicine Cairo University Research Ethics Committee (REC) (MS-257-2021).

Results

More than half of the studied group were males (60%) with a mean age (22±1.6 years); while more than two thirds (67.7%) were Egyptians. Almost 46% were living in cities with their families. More than one third maintained their weight during COVID-19 pandemic (37%) and perceived their health status as good (37.7%) (Table 1). Regarding shopping practices during COVID-19 pandemic only (46%) started preparing shopping list, (40.7%) started food storing, (26.7%) started practicing online grocery shopping, (73.3%) started reading food label (either all the times or sometimes) and (84.7%) sanitized and cleaned groceries (either all the times or sometimes) (Table 2)

Table (1):
Socio-demographic, Health and Self- perceived Status among the Studied Participants

Variable		
Age (Mean ± SD)	22 ±1.6	
Gender	N	%
Male	180	60
Female	120	40
Nationality		
Egyptian	203	67.7
Non-Egyptian	97	32.3
Residence		
In village with family	71	23.7
In village alone	4	1.3
In city with family	138	46
In city alone	87	29
Weight change during COVID-19 pandemic:		
Weight loss	62	20.7
Weight gain	102	34
No change	111	37
Can't determine	25	8.3
Perceived health status during COVID-19 pandemic:		
Excellent	40	13.3
Very good	103	34.3
Good	113	37.7
Fair	35	11.7
Poor	9	3
Total	300	100

Table (2):
Shopping Practices during COVID-19 Pandemic among the Studied Participants

Variable	N	%
Preparing shopping list:		
Yes	138	46
No	162	54
Starting storing food:		
Yes	122	40.7
No	178	59.3
Practicing online grocery shopping:		
Yes	80	26.7
No	220	73.3
Reading food labels:		
Yes, all the times	54	18
Yes, but not all the times	166	55.3
No	80	26.7
Sanitizing and cleaning groceries:		
Yes, all the times	140	46.7
Yes, but not all the times	114	38
No	46	15.3
Total	300	100

Concerning food purchasing behavior during COVID-19 pandemic, more than two thirds of the students (69%) didn't use gloves when buying food, whereas (73%) of them started paying more attention for nutritional values and ingredients of products. More than half (61%) of them started buying ready to eat food. Nearly two thirds (63.7%) started using vinegar and lemon salts to clean vegetables and fruits. More than half of them (58.7%) started cleaning all packaged food with wet napkins and More than three fourth (79%) started throwing all disposable shopping bags. Majority of them started preferring branded and packaged products instead of open products (83%) (Table 3).

The Comparison between Eating Habits be

Eating habits	
Type of most consumed meals during the week	Home
	Froze to-ea
	Fas
Number of meals / day	1-2
	3-4
	> 5
Eating breakfast everyday	Y
	N
Skipping meals	Y
	N
Reasons for skipping meals	
To reduce food intake	Y
Lack of time	Y
To lose weight	Y
Lack of appetite	Y
Fasting	Y
Number of cups of water /day	1-4
	5-7
	> 8

Table (3):
Food Purchasing Behavior during COVID-19 Pandem

Variable
Using gloves while buying all food including fruits and
Yes, every time
Yes, but not every time
Not at all
Paying more attention for nutritional values and ingredie
Yes, every time
Yes, but not every time
Not at all
Making pastries at home instead of buying th
Yes, every time
Yes, but not every time
Not at all
Instead of cooking food at home start buying ready t
Yes, every time
Yes, but not every time
Not at all
Starting using vinegar and lemon salts to clean vegetab
Yes, every time
Yes, but not every time
Not at all
Cleaning all packaged food with wet napkin
Yes, every time
Yes, but not every time
Not at all
Throwing all disposable shopping bags:
Yes, every time
Yes, but not every time
Not at all
Keeping the products you buy on the balcony to be exp
Yes, every time
Yes, but not every time
Not at all
Preferring branded and packaged products instead of o
Yes, every time
Yes, but not every time
Not at all
Total

COVID-19 pandemic imposed a huge impact on people's life style with many consequences (*Di Renzo et al., 2020*). During the pandemic, the current study demonstrated that less than half of the participants started making a shopping list, and started food storing, while more than one third of the participants started online grocery shopping, majority started reading food label and sanitized their hands (always, often, or sometimes). *Cheikh Ismail et al., 2020* found that the majority of the participants started making a shopping list. While less than half of the participants started practicing online grocery shopping, more than half of the participants did not practice online grocery shopping, and less than half of the participants did not practice reading food labels, and sanitizing or cleaning groceries either all the time or sometimes.

This goes hand in hand with a survey conducted in Saudi Arabia where 60% of the participants didn't practice online grocery shopping (*Ben Hamed et al., 2021*). A study revealed that the majority practiced online grocery shopping (*Chen et al., 2021*). This is may be due to the fear of contamination, however some still prefer regular visits to the grocery instead of online. Regarding purchasing behaviors during the pandemic, the current study showed that the majority started paying more attention for nutritional values and ingredients, started eating healthy food, and started using vinegar and lemon salts to clean their hands. The majority started cleaning all packaged food with wet napkins, and started preferring branded and packaged products. More than two thirds of them didn't use gloves when buying food, and more than half of them didn't use the balcony to be exposed to sun.

A cross sectional study conducted on university students in Saudi Arabia showed an increase in using gloves while buying food, cleaning all packaged food with wet napkins, using vinegar, lemon salt to purify vegetables and fruits, disposing of food waste, and using the balcony, preferring branded and packaged products instead of fresh products. Regarding knowledge towards the role of some food items, the current study showed that the medical students thought that adequate consumption of red, yellow, and orange-colored fruits and vegetables are important for health. A study conducted in Turkey found also that university students thought that adequate diet is important in COVID-19 infection reduction, however, the majority thought that red, yellow, and orange-colored fruits and vegetables are important for health.

Concerning the change in eating habits during the pandemic, the current study demonstrated that there is no statistical difference in eating habits before and during the pandemic (p-value more than 0.05). Similarly, a survey covered 17 countries in the Middle East and North Africa (MENA) region showed that less than half of the participants reported improvement in eating habits during the pandemic while about one third reported worsening in eating habits (*Abouzeid et al., 2021*). Another study showed that skipping meals decreased during the pandemic (*Cheikh Ismail et al., 2020*).

As regards water consumption, the current study showed that the majority of the participants consumed more water before and during the pandemic among the male participants.

reported increase in water consumption during COVID-19 pandemic (Cheikh Ismail et al., 2020, Abouzid et al., 2021).

Strengths and limitation of the study

Strengths: online questionnaires provide the opportunity to collect data remotely due to the COVID-19 pandemic, which is clearly advantageous when social distance is needed and face-to-face interviews are challenging and dangerous. The study establishes a baseline for subsequent research on the pandemic effects in this area.

Limitation of the study: The future researchers should be aware of specific restriction on the research methods and tools that have an impact on the research. Nonrandom convenient sample in this study, made it difficult to generalize the study's findings to all university students.

Conclusion

Youth are vulnerable stage of life that needs special attention especially during crisis and emergency.

Recommendation

More attention should be directed to ensure good and healthier eating habits and food purchasing behaviors among university students. These could be achieved by triangulation of efforts at both policy and implementation level. This includes: formulating a framework for government readiness for upcoming crises which should be evidence based incorporating both national and international experiences; incorporating nutritional basics to university student's academic curriculum; implementing awareness campaigns about the appropriate food; Nutritional Information Education Communication Programs (IECP) for medical and non-medical university students. Regarding future research gaps, researches should find out the pandemic's medium- and long-term effects on food related behaviors, such as food shopping/sourcing, consumption, and preparation.

Abbreviations

COVID-19: Corona Virus Disease of 2019.

MENA: Middle East and North Africa.

REC: Research Ethics Committee.

SPSS: Statistical Package of Social Science Software Program.

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References

- Abouzid M., El-sherif D. M., Eltewacy N. K., Dahman N. B. H, Okasha S. A., Ghozy S., Islam S. M. S. and EARG collaborators (2021).**
Influence of COVID-19 on Lifestyle Behaviors in the Middle East and North Africa Region: A Survey 5896 Individuals, *Journal of Translational Medicine* 19, No. 129. <https://doi.org/10.1186/s12967-021-02767-9>
- Ben Hassan T., El Bilali H., Allayari M.S., Berjan S. and Fotina O. (2021).**
Food Purchase and Eating Behavior during the COVID-19 Pandemic: A Cross-Sectional Survey of Russian Adults, *Appetite* 165. <https://doi.org/10.1016/j.appet.2021.105309>
- Cheikh Ismail L., Osaili T.M., Mohamed M.N., Al Marzouqi A., Jarrar A.H., Abu Jamous D.O., Magriplis E., Ali H.I., Al Sabbah H., Hassan H., Al Marzooqi L.M.R., Stojanovski L., Hashim M., Shaker O.R.R, Saleh S.T. and Al Dhaheri A.S. (2020).**
Eating Habits and Lifestyle during COVID-19 Lockdown in the United Arab Emirates: A Cross-Sectional Study, *Nutrients Journal*, doi: 10.3390/nu12113314
- Chen H.W.J., Marzo R.R. and Anton H. (2021).**
Dietary Habits, Shopping Behavior and Weight Gain during COVID-19 Pandemic Lockdown among Students in A Private University in Selangor, Malaysia. *Journal of Public Health Research*. 2021; 10(2_suppl). Doi:10.4081/jphr.2021.2921
- Di Renzo L., Gualtieri P., Cinella G., Bigioni G., Soldati L., Attina A., Bianco F.F., Caparello G., Camodeca V., Carrano E., Ferraro S., Giannattasio S., Leggeri C., Rampello T., Lo Presti L., Tarsitano M.G. and De Lorenzo A. (2020) .**
Psychological Aspects and Eating Habits during COVID-19 Home Confinement: Results of EHLC-COVID-19 Italian Online Survey, *Nutrients*, 12(7), 2152. <https://doi.org/10.3390/nu12072152>
- El-Mani S. F., Mansour R. M., Abdessamad E. A., Al-Abbar E. A., Sallouf N. and Amer R. (2020).**
Factors Influencing Eating Behavior of Benghazi University students, *Asian Journal of Medical Sciences*, Vol. 11, Issue 4.
- EMRO, (2020).**
retrieved from <https://www.emro.who.int/media/news/update-on-covid-19-in-the-eastern-mediterranean-region.html> accessed on 20-11-2023.
- Ganasegeran, K., Al-Dubai, S.A., Qureshi, A.M., Al-Abed, A.A.A., Am, R. and Aljunid, S.M., (2012).**
Social and psychological factors affecting eating habits among university students in a Malaysian medical school: a cross-sectional study. *Nutrition journal*, 11, pp.1-7.
- HSPH (Harvard School of Public Health), (2020).**
Retrieved from <https://www.hsph.harvard.edu/nutritionsource/2020/04/01/ask-the-expert-the-role-of-diet-and-nutritional-supplements-during-covid-19/> accessed on 3-12-2023.

Health Action UK, (2019).

Retrieved from <https://www.healthactionresearch.org.uk/mental-health/challenges-for-medical-student/> accessed on 20-11-2023.

Nelson, M.C., Story, M., Larson, N.I., Neumark-Sztainer, D. and Lytle, L.A., (2008).

Emerging adulthood and college-aged youth: an overlooked age for weight-related behavior change. *Obesity*, 16(10), p.2205.

Reuters (2020).

Retrieved from <https://www.reuters.com/article/health-coronavirus-egypt-idINKBN21B1N1/> accessed on 20-11-2023.

Scarmozzino, F. and Visioli, F., 2020.

Covid-19 and the subsequent lockdown modified dietary habits of almost half the population in an Italian sample. *Foods*, 9(5), p.675.

Wang C and Zhao H (2020)

The Impact of COVID-19 on Anxiety in Chinese University Students. *Front. Psychol.* 11:1168. doi: 10.3389/fpsyg.2020.01168

Wang, H.H. and Na, H.A.O., (2020).

Panic buying? Food hoarding during the pandemic period with city lockdown. *Journal of Integrative Agriculture*, 19(12), pp.2916-2925.

Yilmaz, H.Ö., Aslan, R. and Unal, C., (2020).

Effect of the COVID-19 pandemic on eating habits and food purchasing behaviors of university students. *Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)*, 15(3).

تقييم التغيرات في العادات الغذائية و سلوك شراء الغذاء بين طلاب كلية الطب الفرقة
الرابعة جامعة القاهرة خلال جائحة كوفيد ١٩ ٢٠٢١

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الملخص العربي

انتشر مرض كوفيد-١٩ بسرعة في جميع أنحاء العالم. وقد اتخذت الحكومات تدابير جذرية لمنع انتشار المرض. و طلاب الجامعة انقطعوا عن الدراسة لعدة فصول دراسية بسبب الوباء. الأهداف: (١) تقييم التغيرات في العادات الغذائية بين طلاب كلية الطب خلال جائحة كوفيد-١٩. (٢) قياس التغير في سلوك شراء الغذاء خلال جائحة كوفيد-١٩. الطرق: تصميم دراسة مقطعية تحليلية رصدية باستخدام استبيان يستكملة الطالب عبر الانترنت الكترونيا. النتائج: لم ترصد الدراسة تغيرات في عادات الاكل بين طلاب بين طلاب كلية الطب خلال جائحة كورونا. الا ان سلوكيات الشراء اظهرت ان أكثر من النصف (٥٨.٧%) بدأوا في تنظيف جميع الأطعمة المعبأة باستخدام المناديل المبللة، وبدأ (٧٩%) منهم في رمي جميع أكياس التسوق التي تستخدم لمرة واحدة. الاستنتاج: لا يوجد أي تأثير تقريباً لجائحة كوفيد-١٩ على العادات الغذائية لدى طلاب الطب الفرقة الرابعة جامعة القاهرة. هناك تحول إيجابي نحو ممارسات تسوق و شراء المواد الغذائية أكثر صحة أثناء الوباء.

الكلمات المفتاحية: كوفيد-١٩، العادات الغذائية، شراء الغذاء، طلاب كلية الطب.