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The Relationship between Nutrition and COVID-19 Symptoms among Nursing Faculty Students

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ABSTRACT

The COVID-19 pandemic, declared a global health crisis by the WHO, has prompted significant shifts in lifestyle and health behaviors worldwide. This study investigates the relationship between dietary habits and manifestations of COVID-19 among nursing students in the Faculty of Nursing at the University of Babylon, employing a descriptive cross-sectional methodology. Drawing from a sample of 100 students, data was collected using a structured questionnaire encompassing demographic information, COVID-19 symptoms, and dietary patterns. Statistical analyses were conducted using SPSS V.23 and Excel 2016. Results indicated a predominantly female (61%) sample, with most participants being unmarried (64%). Common COVID-19 symptoms reported included loss of smell and taste (for one week), cough with secretions, high temperature, and shortness of breath. The study observed discrepancies in symptom presentation compared to previous research, highlighting variations in manifestations among populations. Notably, individuals who consumed vegetables demonstrated a lower risk of COVID-19 complications, suggesting a potential protective role of vegetable intake against the virus. However, no significant correlations were found between demographic factors and COVID-19 manifestations. Based on the findings, recommendations are proposed to promote healthier dietary practices among individuals, emphasizing the consumption of fresh fruits and vegetables, eggs, and nutrient-rich foods to aid in COVID-19 recovery. Additionally, suggestions include regular meal consumption, hydration, and moderation of caffeine intake. In conclusion, this study underscores the importance of nutrition in mitigating the impact of COVID-19 and provides valuable insights into dietary behaviors among nursing students during the pandemic. Future research should explore longitudinal associations between diet and COVID-19 outcomes to inform public health interventions and preventive strategies effectively.

Keywords: COVID-19, Dietary patterns, Nutrition, Symptomatology, Disease severity

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INTRODUCTION

The fast spreading of covid19 urged the WHO to announce it as a health crisis of global alarm, (Obaid et al., 2022); the influence the coronavirus on under-developed countries with scarcer health infrastructure (Cucinotta & Vanelli, 2020).

The number of diagnosed cases with covid19 raise till current moment. The condition may be a-symptomatic or with mild manifestations; (Amal et al., 2022); but in severe condition is categorized by severe respiratory distress, cardio failure, and shock. Furthermore, when condition provoke, several organ dysfunctions had described (Çelik & Öztürk, 2021).

Nowadays research shown that the worry of getting covid19 led individuals to adopted some healthy pattern that carried modifications in their everyday lifestyle such as healthy diet. (Singh et al., 2021) in order to avoid the spreading of infection or prevent bad consequences a strong stress was on healthy nutrition. Individuals were encouraged to eat a healthy diet since a good nutritional status can help in rapid recovery and less complications (Brugliera et al., 2020).

LITERATURE REVIEW

Nutritional Patterns and COVID-19 Indicators

The COVID-19 pandemic has not only posed significant encounters to healthcare schemes globally but has also carried to light the importance of understanding the interchange between disease outcomes and dietary patterns. As the world endures to wrestle with the pandemic, research into the relationship between COVID-19 manifestations and nutrition has harvested increased consideration. This literature review aims to synthesize standing evidence on the association between COVID-19 consequences and dietary habits, directing on disease severity and symptomatology**.**

Dietary Patterns and Immune Function

Nutrition actings as a crucial role in moderating immune responses, thereby influencing susceptibility to infectious diseases such as COVID-19. Tolerable intake of important nutrients, as well as vitamins (e.g., vitamin E ,C, D), minerals (e.g., selenium, zinc), and phytonutrients, boosts the body's capability to fight viral infections and supports immune role (Gombart et al., 2020). For example, vitamin D has been implicated in dipping the danger of respiratory tract infections and regulating immune cell role (Grant et al., 2020). Likewise, zinc supplementation has been linked with severity of communal cold symptoms and rapider duration, potentially extrapolatable to COVID-19 (Hemilä, 2017).

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Influence of Diet on COVID-19 Symptomatology

Numerous studies have discovered the relationship among COVID-19 symptomatology and dietary patterns, mainly concentrating on common indicators such as cough, fever, dyspnea, and anosmia. A study by Guan et al. (2020) identified hyperthermia (88.7%) and coughing (67.8%) as major symptoms amongst COVID-19 patients in China. Remarkably, the occurrence of dysgeusia (taste alteration) and anosmia (smell loss) has occurred as distinct symptoms of COVID-19 infection (Menni et al., 2020). Though the mechanisms underlying these sensory alterations remain under inquiry, dietary influences may contribute to gustatory and olfactory functions, demanding extra investigation.

Association Among Disease Severity and Diet

Emerged evidence proposes that dietetic factors may impact the clinical outcomes and severity of COVID-19. In a retrospective study by Sotos-Prieto et al. (2021), adherence to a Mediterranean diet was in reverse associated with the risk of COVID-19 mortality and severity. The Mediterranean diet, characterized by high consumption of fruits, vegetables, legumes, and olive oil, has been linked to reduced inflammation and improved metabolic health, which may mitigate the cytokine storm and organ impairment associated with severe COVID-19 (Dinu et al., 2020).

Contrarywise, highly processed foods, saturated fats, and sugar have been concerned in indorsing systemic inflammation, metabolic disfunction, and oxidative stress, disposing people to chronic diseases and possibly aggravating COVID-19 complications (Kim et al., 2020). A study by Calder et al. (2020) emphasized the harmful effects of metabolic syndrome and obesity on immune function, highlighting the importance of dietary interventions in modifying the risk factors of COVID-19.

In conclusion, evidences from the literature proposes a complex interaction between COVID-19 manifestations and dietary patterns, with nutritional factors manipulating immune function, disease severity, and symptomatology. Whereas certain dietary patterns, such as the Mediterranean diet, seem to confer protecting effects contrary to COVID-19, additional research is warranted to clarify the mechanistic ways and notify public health policies meant to promoting optimal nutrition throughout the pandemic. Talking about dietary disparities and applying targeted interventions might help alleviate the effect of COVID-19 on susceptible populations and improve overall resilience to communicable diseases.

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METHODOLOGY

The current study employed a descriptive cross-sectional design to fulfill its objectives. A convenience sampling method was utilized, involving 100 students selected from a total of 784 students enrolled in the Faculty of Nursing at the University of Babylon. Data collection was facilitated through the administration of a questionnaire, which participants voluntarily completed. The validity of the study instrument was assessed using Cronbach's Alpha coefficient. The questionnaire comprised 36 questions distributed across three sections:

- The first part consisted of 5 questions gathering demographic information, including age, gender, place of residence (urban or rural), and level of education (primary, secondary, tertiary, or vocational).

- The second part included 15 questions focusing on signs and symptoms associated with COVID-19.

- The third part comprised 16 questions examining dietary habits potentially linked to COVID-19 infection.

Data analysis was conducted using SPSS Version 23 and Microsoft Excel 2016. The questionnaire aimed to investigate the dietary patterns of individuals infected with the coronavirus and explore potential associations between nutrition and COVID-19. Prior to participation, written informed consent was obtained from all participants, and ethical standards were strictly adhered to throughout the study procedures.

RESULTS

Table 1: *Distribution of sample demographic variables*

	Item	Frequency	Percent
Age	17-19	20	20%
	20-21	45	45%
	22-24	29	29%
	older	6	6%
Gender	Male	39	39%
	female	61	61%
Address	urban	66	66%
	rural	34	34%
Educational level	First stage	11	11%

DOI: 10.48165/sajssh.2024.5110

	Second stage	60	60%
	Third stage	9	9%
	Fourth stage	20	20%
Marital status	Separated	14	14.0
	Unmarried	64	64.0
	Married	22	22.0

This table shows that the highest percentage (45.3%) was for age group (20-21 years), while (61%) of the total sample of the study was females, the population of the urban forms 66% of the total sample, the vast majority 60% of the sample were 2nd stage students, social status of single students represents (64%) of the total sample.

Table 2: *Shows the frequencies and the percentage of answers of the research sample to the prepared questionnaire to the second part.*

Signs and symptoms of COVID-19 disease	answer	%%	answer	%	answer	%
Do Have you had muscle pain?			Yes	65%	No	35%
Do Have you suffered from loss of appetite?			Yes	69%	No	31%
Do Have you had shortness of breath?			Yes	69%	No	31%
Do Have you had a high temperature?			Yes	62%	No	37%
How many days muscle pain continues?	1-3 days	26%	3-5 days	22%	No	52%
How many days the loss of appetite lasts?	1-3 days	32%	5-7 days	8%	No	60%
How many is the oxygen level?	80-70	47%	6-70	53%	Less than 50	0%
How many When did the diarrhea last?	1-3 days	25%	3-5 days	17%	No	58%
How many days continued loss of smell and taste?	1 week	45%	Months	17%	No	38%
How many the day the Temperature continued to rise?	1-3 days	15%	5-7 days	68%	No	17%
How many was the temperature?	38℃	10%	39℃	54%	40℃	36%
Cough type?	Dry	32%	Secretions & bloody	46%	No	22%
Did you Follow disease Prevention methods?			Yes	52%	No	48
When did you Developed Symptoms of the disease?	Immediately after contact with an infected person	32%	7 days after contact with an infected person	37%	14 days after contact with an infected person	14%
					Symptoms did not appear and I was discovered by chance	17%

Table 2 shows that 65% of students suffer from muscle pain. 69% had shortness of breath. 62% suffer from high temperature. 69% show loss of appetite. 26% suffer from muscle pain for 1-3

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days. oxygen level is highest percentage 53% was level 60-70. 25% suffered of diarrhea for 1-3.

Table 3: *Presents the frequencies and percentages of responses from the research sample to the questionnaire's third section.*

Food habits in infection with the Covid-19 viruses	the answer	The ratio	the answer	The ratio	the answer	The ratio
. Do you eat breakfast in the late hours?	Yes	33%	No	67%		
2. Do you eat large amounts of sweets (candy, sweets, tea)	Yes	32%	No	68%		
3. How many slices of bread do you eat every day?	two slices or less	19%	3-5Slices	81%		
4. How many potatoes do you eat throughout the week?	2or Less grain	12%	3breads or more	61%	No	27%
5. How many cups of milk do you drink every day?	One Glass	37%	More than Glass	8%	No	55%
6. How many times do you eat fruit or drink a glass of juice per day?	3three times in the week or more	61%	Less From three times in the week	68%	No	1%
7. How often do you eat vegetables?	4 times in the week	43%	Less From4times in the week	56%	No	1%
8. How often do you eat fish that contain amino acids?	Once all a week	59%	More From Once in the week	21%	No	20%
9. Do you take nutritional supplements?	Yes	54%	No	46%		
10. Are you trying to remove or reduce fat from your meals?	Yes	40%	Not sure	59%	No	1%

DOI: 10.48165/sajssh.2024.5110

11. Do you add legumes like beans to your diet on a regular basis?	Yes	62%	No	38%		
12. Do you eat fast-food?	Yes	68%	No	32%		
13. In a day, how often do you drink soft drinks?	Once one	43%	Twice or more	34%	No	23%
14. Do you drink a lot of caffeine?	Yes	10%	Not sure	88%	No	2%
15. How often do you eat cheese?	3times or more per week	36%	Less From three times	47%	not found	17%
16. How many cups of water do you drink daily?	two cups of water	31%	4 cups of water	25%	6 cups	44%

Table 4: *Relationship Correlation level between the second part and the third part*

Signs and symptoms COVID-19	Pointer	
dietary patterns and COVID-19 disease	correlation coefficient	0.103
	Significant	0.306

Table 4 illustrates that there is no statistically significant correlation signs and symptoms of COVID-19 illness and dietary patterns.

DISCUSSION

In our study, the majority of the participants (61%) were female, while 39% were male. This distribution aligns with the findings of Yilmaz et al. (2020), who reported 78.2% female and 21.8% male participants.

Regarding marital status, 22% of the participants were married, 64% were unmarried, and 14% were separated. However, these results contrast with those of Mansoorian et al. (2021), who found 87.3% married, 11.1% unmarried, and 1.3% separated individuals.

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Our findings regarding the onset of symptoms, particularly loss of smell and taste lasting for one week, are consistent with those of Santos (2021), who observed similar symptoms lasting from 7 to 14 days.

Concerning cough symptoms, most participants reported coughs with secretions and bloody coughs, which differs from Zhou's (2020) findings of predominantly dry coughs. Additionally, 62% of participants experienced high temperatures, similar to the findings of Ali Mohammadi et al. (2020), who reported 71.2%.

In terms of shortness of breath, 69% of participants experienced this symptom, contrasting with Ali Mohammadi, Yousef et al. (2020), who reported 93.3%. However, the percentage of participants with coughs containing secretions (46%) aligns with Huipeng's (2020) findings of 38.2%.

Regarding diarrhea, 15% reported symptoms lasting 1-3 days, while 68% experienced symptoms for 5-7 days, with 17% reporting none. These results differ from those of Ola. (2020), who found 12% experiencing symptoms for 1-3 days, 17% for 5-7 days, and 23% reporting none.

Most participants (65%) reported muscle pain, contrasting with Abanoub Riad's (2021) findings of 37.1%. Additionally, 68% of students reported consuming fast food, which differs from Aleksandra's (2020) findings of 0.3%. Regarding caffeine consumption, 10% answered yes and 2% answered no, contrasting with Aleksandra's (2020) results of 27.7% yes and 17% no.

Regarding fat reduction in food, 40% of participants answered yes and 59% answered no, which aligns with Mansoorian's (2021) findings of 55% yes and 45% no. However, regarding nutrition supplement intake, our results (54% yes, 46% no) differ from Mansoorian's (2021) findings of 92% yes and 8% no.

Finally, 43% of students reported eating vegetables, with 56% consuming them less than 4 times a week. These findings contrast with Ms. Dominica's (2021) results, which showed 77.1% consuming the most vegetables and 22.9% not consuming vegetables.

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CONCLUSIONS

It's concluded that it was a cough accompanied by shortness of breath, loss of appetite, and muscle pain. People who ate vegetables showed a lower risk of and complication of COVID-19.

The findings of current study displays that there was no significant correlation of demographical factors and COVID-19 manifestations.

RECOMMENDATIONS

1. Researchers recommend keeping fresh fruits and vegetables, if fresh fruits and vegetables are not available, replace them with dried or canned healthy foods.
2. Eggs are one of the foods recommended to be consumed to help recover from the effects of COVID-19. Because it contains all the nutritional properties necessary for the body, such as zinc and vitamin A.
3. We recommend Eat meals regularly and stay away from light meals and canned food eat vegetables and fruits and legumes and eat the fish that contain amino acids and reduce the eat the large amounts of sweets.
4. We recommend Drink at least one cup of milk a day and drink large amounts of water and reduce drinking caffeine.

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