

# Association of Dietary Behavior with Psychological Distress among House Officers in Karachi during Coronavirus Disease Pandemic

Dietary Behavior  
with  
Psychological  
Distress in  
Coronavirus

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## ABSTRACT

**Objective:** To observe the association between the officers' dietary behavior and psychological distress during the pandemic.

**Study Design:** Cross-sectional study

**Place and Duration of Study:** This study was conducted Department of Community Health Sciences Bahria University Medical and Dental College, Karachi at the June 2020 to July 2020.

**Materials and Methods:** The convenience sampling was used to collect data. A Chi-square test and bivariate Pearson correlation were conducted, and SPSS version 23 was used to analyze the data.

**Results:** A total of 161 house officers participated in the study, of which, most (73.9%) house officers were females, with a mean age of  $24.7 \pm 2.2$  years. An association between the officers' junk food consumption and psychological distress was found to be statistically significant,  $p < 0.05$ . Similarly, a significant positive correlation was observed between dietary behavior and distress,  $p < 0.05$ .

**Conclusion:** COVID-19 pandemic has increased the burden on healthcare professionals globally and to cope with the situation the house officers are resorting to harmful behaviors such as consuming an unhealthy diet in Karachi. If not addressed, these behaviors will last and deteriorate their overall health and wellbeing in the long run.

**Key Words:** COVID-19, Dietary behavior, Psychological distress, pandemic

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## INTRODUCTION

With the advent of the coronavirus disease (COVID-19) pandemic in Pakistan, medical workers faced extraordinary psychological pressure. This is because of the high risk of infection, insufficient safety equipment, tiredness, seclusion, and less family contact. The intensity of the situation resulted in mental health issues in the workers that affect their decision-making ability and may also have a detrimental effect on their overall wellbeing<sup>1</sup>. Chronic stress may affect behaviors, such as dietary behavior, and results in obesogenic patterns of diet in people with chronic stress.

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A study demonstrated a link between chronic stress and cortisol hypo-responsiveness with the consumption of palatable food habits<sup>2</sup>.

It is also observed that stress plays a significant role in food overconsumption, weight gain, and contributes to high obesity rates. Similarly, perceived stress and increased exposure to stress influence food choices and dietary behavior<sup>3</sup>. Stress-induced anorexia was present in rats exposed to chronic stress. However, their access to the standard diet is associated with decreased food utilization and weight reduction. In alike exposure to stress and the availability of calorie-rich palatable food, the rats frequently consumed an increased proportion of delicious food compared to the standard food and developed weight gain and obesity<sup>3</sup>. Likewise, the desire to eat palatably has also been observed in humans under stress. This phenomenon can be a result of the stress-buffering mechanism via activation of reward pathways in the brain<sup>3</sup>.

In the wake of the COVID-19 pandemic, young doctors are vulnerable to a high risk of infection and immense mental health problems<sup>1,4</sup>. These stressors may drag them towards stress coping behaviors, such as consuming an unhealthy diet. Various studies observed the stress among medical doctors during the pandemic<sup>5-9</sup>. However, studies on the association of

dietary behavior with psychological distress among medical doctors during COVID-19 in Pakistan are scarce. Therefore, in this study, we prompt to observe dietary behavior and its association with psychological distress in house officers (medical interns) working in tertiary care hospitals in Karachi during the pandemic.

**MATERIALS AND METHODS**

A web-based cross-sectional survey was conducted from 1<sup>st</sup> June 2020 to 31<sup>st</sup> July 2020. House officers of either sex, working in government and private sector tertiary care hospitals in Karachi, and agreed to participate in the study were included. While house officers with diagnosed mental health-condition were excluded from the study. The sample size of 278 was obtained, considering the population size of 1000, expected frequency of 50% (we considered 50% expected frequency as there was no specific previous literature available on this subject), with a 95% confidence level, a margin of error of 5%, and design effect of 1. Google form was disseminated and filled by the participants after reading an informed consent. The Google form includes questions on socio-demographic characteristics, work conditions, self-reported dietary behavior, and self-reported distress.

We collected data through the convenience sampling technique and statistical software for social sciences (SPSS) version 23 was used to analyze the data. A Chi-square test was used to determine the association between junk food consumption and psychological distress during the pandemic. In addition, to assess the correlation between the behavior and the distress during COVID-19, a bivariate Pearson correlation was also conducted. The ethical approval was taken from the ethical review committee of the Bahria university medical and dental college, Karachi, with a reference number ERC 43/2020, dated 28<sup>th</sup> April 2020.

The form used in this study encompassed participants' socio-demographic information, work condition, self-reported distress, and self-reported dietary behaviors. Socio-demographic information includes gender, age, marital status, social status, and income. Whereas work condition items comprise the health sector of work and working hours per week. Self-reported dietary behavior, questions on weekly junk food consumption before and during the COVID-19 period were included. Furthermore, to assess dietary behavior, items of Starting The Conversation (STC) questionnaire were also incorporated <sup>10</sup>. In addition, questions from Kessler's psychological distress scale (K10) were also included <sup>11</sup>.

The STC is a simplified validated questionnaire and is used to identify dietary patterns. It consists of eight items. Each item provides three options to select from i.e., most healthy dietary behavior, less healthy dietary behavior, and the least healthy dietary behavior, represented by the score 0, 1, and 2 respectively. The

sum of all items for each participant ranges from 0 to 16, the lower score is representative of healthy dietary behavior while a higher score reflects unhealthy dietary behavior <sup>10</sup>.

K10 is a validated questionnaire intended to measure self-reported distress over the most recent 4-weeks period. K10 is also utilized as a proxy for different levels of anxiety and depression severity. The instrument consists of 10 items and each item has 5 points Likert scale with scores from 1(none of the time) to 5(all of the time) respectively. The overall sum of all item scores for each participant can range from 10 to 50. A higher score is indicative of increased psychological distress <sup>11</sup>.

**RESULTS**

161 participants completed the questionnaires out of 290 distributed online forms, and the response rate was 55.5%. Most house officers were females while a majority of them were about 25 years or less. The mean age of the study participant was 24.7± 2.2 years. Many of the house officers were single (75.1%). Whereas more than half of the participants earn greater than 30,000 to 50,000 Pakistani rupees (64.6%). Additionally, nearly half of them work in the government sector (46.6%), while most (71.4%) work greater than 40 hours a week (Table 1).

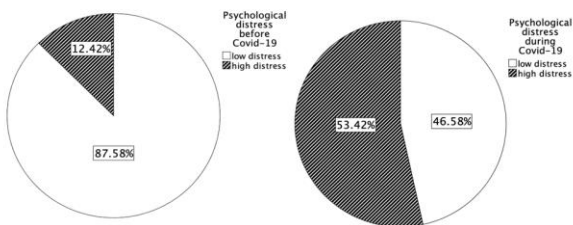
**Table No.1: Characteristics of house officers (n =161)**

Characteristics	n (%)
Gender	
Male	42 (26.1)
Female	119 (73.9)
Age	
≤ 25 years	141 (87.6)
>25 years	20 (12.4)
Marital status	
Single	121 (75.1)
Married	40 (24.9)
Income in Pakistani rupees	
Unpaid	8 (5)
10,000-30,000	49 (30.4)
>30,000-50,000	104 (64.6)
The health sector of work	
Government	75 (46.6)
Semi-private	50 (31.1)
Private	36 (22.4)
Working hours per week	
<40 hours	46 (28.6)
>40 hours	115 (71.4)

n: Number of house officers. %: Percentage of House officers

Figure 1 depicts self-reported psychological distress among house officers before and during the COVID-19 period. Before the start of the COVID-19 period, the percentage of participants who reported high psychological distress was only 12.42%. However,

during the COVID-19 period, the percentage of house officers who reported high distress increased to 53.42%.



**Figure No.1: Self-reported psychological distress among house officers before and during COVID-19 period**

A noticeable increase in the percentage of participants were observed who consumed junk food four or more times a week i.e., with high distress (9.9%) compared to the low psychological distress (3.1%) (Table 2). Additionally, there is a significant association between house officers' weekly junk food consumption and psychological distress levels during the COVID-19 period,  $X^2(2) = 6.099$ ,  $P\text{-value} = 0.047$  (Table 2).

**Table No.2: Chi-square analysis for house officers' junk food consumption with different psychological distress levels during the COVID-19 period (n=161)**

	Psychological distress in house officers		P-value
	Low distress	High distress	
<b>Weekly junk food consumption by house officers</b>			
< 1 time	38 (23.6%)	44 (27.3%)	0.047
1-3 times	32 (19.9%)	26 (16.1%)	
≥ 4 times	5 (3.1%)	16 (9.9%)	
Total	75 (46.6%)	86 (53.4%)	

Moreover, we compiled scores from the STC and K10 for running correlation analysis. The results showed a significant positive correlation between dietary behavior and psychological behavior ( $r = 0.315$ ,  $p = 0.044$ ). That is unhealthy dietary behavior of house officers increases as psychological distress increases.

**DISCUSSION**

This study observed an increase in self-reported psychological distress among house officers during the COVID-19 period compared to the period before it. Several studies conducted in other countries showed an increase in psychological distress among health care professionals during the COVID-19 period<sup>12-14</sup>. One of the reasons for it could be a lack of organizational readiness<sup>15</sup>. During the catastrophe of COVID-19, working changed entirely in all organizations because of a severe shortage of resources. These difficult circumstances have pressurized doctors to work long shifts and distorted work-life balance<sup>16</sup>. Huang and Zhao (2020) also reported that young health care workers developed a higher risk of mental illness

because of the increased work time during the pandemic<sup>17</sup>.

The results of our study also showed that junk food consumption is associated with psychological distress in house officers during the pandemic. The participants with junk food consumption of more than or equal to four times a week were far more with high psychological distress than lower psychological distress. In addition, we observed an increase in unhealthy dietary behavior of house officers with an increase in psychological distress. Various other studies showed that unhealthy dietary behavior can be triggered due to stress<sup>18-22</sup>. The likely cause that may have arisen this unhealthful behavior in the context of Pakistan might be "Pandemic anxiety". The pandemic anxiety is inclusive of work-related behavioral changes in diet and sleep, mental distress, ambiguity, dread, apprehension, nervousness, and concentration difficulty. In addition, lockdowns, social distancing, and quarantine also adversely affected the officers' mental health<sup>16</sup>.

To address mental health issues amid COVID-19, China succeeded to set positive examples and implement mental health interventions. The country assigned mental health professionals to provide psychological services to medical staff and patients within hospitals<sup>23-24</sup>. To reduce the adoption of pandemic-induced unhealthy behaviors, Health Belief Model (HBM) based interventions can be applied in Pakistan. In HBM, perceived self-efficacy reinforces positive steps and beliefs to overcome a given situation, hence, developing preventive behaviors. Therefore, stress appraisal and strategies to cope with stress can be achieved by amending behavior through motivation and encouraging lifestyle modification<sup>25</sup>. Likewise, unhealthy dietary behaviors as a result of psychological distress can be dealt by using HBM for the house officers. If remain unaddressed the behaviors may result in deterioration in their health and wellbeing in long run.

The design of this study was cross-sectional with its inherent limitation i.e., the temporal relationship cannot be ascertained between the exposure and outcome. Secondly, the results cannot be generalized to all house officers in Karachi as data was collected through convenience sampling. Therefore, longitudinal studies on this subject are warranted to explore the subject further and to establish the temporal relationship.

**CONCLUSION**

COVID-19 has immensely increased the burden on healthcare professionals globally. To cope with the situation the house officers are resorting to harmful behaviors such as consuming an unhealthy diet in Karachi. If not addressed appropriately these behaviors will last and deteriorate their overall health and wellbeing in the long run. Therefore, mental health

interventions are needed to mitigate these effects of the pandemic faced by the officers.

#### Author's Contribution:

Concept & Design of Study: Muhammad Talha Khan  
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Final Approval of version: Muhammad Talha Khan

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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