Research Article

A COMPREHENSIVE STUDY ON COVID-19'S MENTAL HEALTH IMPACT IN MEDICAL STUDENTS

Yousif Ali Yaseen[#], Aleen Sardar Al-Noori[**], Soleen Sardar Zuhdi[***], Azri Salih Haji Sgery[****]*

[*]**Department of Medicine, College of Medicine, University of Duhok, Kurdistan Region, Iraq.**

[**]**Department of Microbiology, College of Medicine, University of Duhok, Kurdistan Region, Iraq.**

[***]**Department of Medicine, Duhok Medical Research Center, College of Medicine, University of Duhok, Kurdistan Region, Iraq.**

[****]**Department of Medicine, Duhok General Health Directorate, Duhok, Kurdistan Region, Iraq.**

Abstract

Background and objective: During the current global crisis, people seek the latest updates about COVID-19, which might come with a negative effect on their mental health. This study aims to assess the effect of COVID-19 news follow-up on developing internet addiction, stress, depression, and insomnia among medical students at the early phase of COVID-19 pandemic.

Method: An online cross-sectional study was conducted among medical students between 5th until 12th of April, 2020. 345 students participated from all 6 stages. IAT, DASS and ISI questionnaires assessed internet addiction, stress, depression, and insomnia. A single-structured question evaluated the percentage of online time used to follow COVID-19 news.

Results: 32.5% of the participants were significantly following up COVID-19 news. The relation of following up COVID-19 news to internet addiction (p=0.004), stress (p=0.019), depression (p=0.018), and insomnia (p=0.001) were statistically significant. Nevertheless, the relation of age and gender to following up COVID-19 news was statistically non-significant with p values of 0.124 and 0.145, respectively. Among significant COVID-19 news followers, the prevalence of internet addiction was 86.9%, stress was 54.5%, depression was 71.4% and insomnia was 91.9% all were higher compared to the overall sample.

Conclusion: Despite the current pandemic state of coronavirus, only 32.5% of the participants were significant COVID-19 news followers. Nevertheless, the present study unfolds that adverse outcomes can develop among this group, as a significant association was found between following up on COVID-19 news and internet addiction, stress, depression, and insomnia. *ASEAN Journal of Psychiatry, Vol. 24 (S4) December, 2023; 1-9.*

Keywords: COVID-19; Depression; Insomnia; Internet Addiction; Mental Health; Medical Students; Social Media; Stress; SARS-CoV-2

Introduction

Coronavirus disease (COVID-19), caused by the novel Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), is regarded as a serious public health concern worldwide that could present with variable clinical manifestations [1-4]. The disease was first reported in Wuhan, China at December 2019 [5-6]. By March 11th, 2020, the disease became pandemic [7].

Concerns regarding mental health consequences were inevitable following the emergence of the new virus and early reports focused on psychological distress, mainly stress, depression, anxiety, and insomnia [8-10]. Additionally, Safety

measures that are taken globally at the time of COVID-19 pandemic were regarded as risk factors of psychological distress [8,11].

The physical and mental health of medical students is known to be at risk of disturbance due to high levels of stress, later, anxiety and depression follow in many cases [12]. The prevalence rate of anxiety and depression among medical students worldwide is estimated to be 33.8% and 27.2%, respectively, with the highest rates of anxiety being reported among medical students in Middle East and Asia [13,14]. Although several factors can influence the psychological state such as gender, personality traits, believes and socioeconomic state, previous researchers found that academic stressors and non-academic stressors such as financial stress, high familial expectations, and fear of future failure in the medical career, can also predispose medical students to psychological distress [12-15].

Additionally, the impact of COVID-19 pandemic on the sleep quality was another subject of investigation, especially the impact on medical students [16,17]. Poor sleep qualities were reported among medical students, specifically among students concerned about the impact of the pandimicty on their education and work [18].

COVID-19 pandemic generated significant mental health problems on population generally and health-care workers and medical students specifically [8-9,19]. Moreover, online learning, and the fear of being at higher risk of getting infected with the virus or spreading the infection to their beloved ones in addition to many other factors had an impact on medical students [20-22].

This study aimed at assessing the impact of following COVID-19 news on developing internet addiction, stress, depression, and insomnia among medical students during the period of early COVID-19 pandemic and lockdown.

Materials and Methods

Survey procedure and sampling

This cross-sectional, questionnaire-based survey, was conducted online among students of the University of Duhok-College of Medicine during one week period, from 5th-12th of April 2020, at the time of global COVID-19 pandemic, city lockdown and social distancing, about 2 weeks after social distancing and lockdown started in the province. The total number of the participants reached 345 students.

The study was approved by the scientific and ethical committee of University of Duhok College of Medicine.

Data collection

Data were collected by a self-administered standardized survey based on internationally validated and reliable questionnaires, namely the Internet Addiction Test, Insomnia Severity Index and the Depression Anxiety Stress Scales (DASS 21) with an additional question about the percentage of online time spent following COVID-19 news.

Internet Addiction Test (IAT)

The presence and severity internet addiction were measured through the use of internet addiction test. This test consists of a 20-item, scaled from 0 to 5 corresponding to "Not Applicable" and "Always", respectively. The cut-off scores used was the same as standard, i.e. a score of 0-30 corresponded to normal levels of internet usage, while 31-49, 50-79 and 80-100 corresponded to mild, moderate and severe dependence upon the internet, respectively.

Stress and depression

Stress and Depression were measured using The Depression Anxiety Stress Scales (DASS-21). The scale consists of a 21-item, 4-point Likert scale from 0 to 3 representing "did not apply to me at all" and "applied to me very much, or most of the time" respectively. Only stress and depression subscales were used: the cutoff scores used for each subscale were: stress: normal (0-7), mild (8-9), moderate (10-12), severe (13-16) and extremely severe (17+); depression: normal (0-4), mild (5-6), moderate (7-10), severe (11-13) and extremely severe (14+).

Insomnia

For this section, the Insomnia Severity Index (ISI) was used, which is a 7-item self-reported questionnaire assessing the nature, severity, and impact of insomnia. A 5-point Likert scale was used to score the items from 0 to 4 corresponding to No problem at all and very severe, respectively. The scores were evaluated as follows: No clinically significant insomnia (0-7); Subthreshold insomnia or mild insomnia (8-14); Clinical insomnia

(moderate severity) or moderate insomnia (15-21); and Clinical insomnia (severe) or severe insomnia (22-28). A cut of a score of 14 was used to detect clinical insomnia.

COVID-19

This section was consisting of only one question, asking the participants to choose among multiple choices about the percentage of online time spent searching for COVID-19 news during the last week, the period of the global pandemic and city lockdown. The choices were 0-20%, 21-40%, 41-60%, 61-80% and 81-100% with scores above 40% being considered as significant enough, and the group be known as COVID-19 news followers.

Statistical analysis

Data have been analyzed using SPSS version 26. These Data were described by frequencies and percentages. Pearson Chi-Square was used to assess the association between categorical variables and a p-value less than 0.05 was considered statistically significant.

Results

Table 1 displays the socio-demographic characteristics of participants. The highest number of participants, according to the stage, was from stage four, which accounted for 22.0% of the total sample and the lowest number of the participants was from stage six which accounted for 12.2% of the total sample. The study population comprised students at an age ranged between 17 and 28 with a mean of 21.1 ± 1.8 years, of which students in the age range of 21-24 encountered the highest number in the study (58%). The percentage of female participants (61.4%) was higher than the percentage of male participants (38.6%).

Table 2 demonstrates the prevalence of variables among the sample. Most of the students were spending 0%-20% of the online time to search about COVID-19, with the prevalence of those who spent >40% of their online time following the COVID-19 news was 32.5%. The prevalence of internet addiction among the participants was 74.8%, stress was 42.9% and depression was higher than stress, 59.7%, while insomnia had the highest prevalence, 50.1%.

Table 1. Socio-demographic characteristic of the students (sample).

Character	No. (%)
Stage	
First	54 (15.7)
Second	50 (14.5)
Third	67 (19.4)
Forth	76 (22.0)
Fifth	56 (16.2)
Sixth	42 (12.2)
Age in years	
17–20	126 (36.5)
21–24	202 (58.6)
25–28	17 (4.9)
Gender	
Female	212 (61.4)
Male	133 (38.6)
Total	345 (100)

Table 2. Number and percentage of students, according to each variable.

Variable		N (%)	Prevalence	Mean (SD)
Covid-19 news search			32.50%	41% (22.7%)
	0-20%	139 (40.3)		
	21–40%	94 (27.2)		
	41–60%	60 (17.4)		
	61–80%	44 (12.8)		
	81–100%	8 (2.3)		
Internet addiction			74.80%	42.1 (16.8)
	No-Addiction	87 (25.2)		
	Mild	143 (41.4)		
	Moderate	110 (31.9)		
	Severe	5 (1.4)		
Stress			42.90%	14.8 (9.7)
	Normal	197 (57.1)		
	Mild	49 (14.2)		
	Moderate	40 (11.6)		
	Severe	43 (12.5)		
	Extremely Severe	16 (4.6)		
Depression			59.70%	13.1 (10.2)
	Normal	139 (40.3)		
	Mild	50 (14.5)		
	Moderate	90 (26.1)		
	Severe	28 (8.1)		
	Extremely severe	38 (11.0)		
Insomnia			84.30%	14.6 (6.4)
	No clinically significant	54 (15.7)		
	Subthreshold	118 (34.2)		
	Moderate severity	115 (33.3)		
	Severe	58 (16.8)		
Total		345 (100)		

According to Table 3, the prevalence of internet use for searching COVID-19 news increases by the increase of the age and was higher among female participants 35.4%, who were spending>40% of their online time following COVID-19 news, nevertheless, no significant statistical association was found between following COVID-19 news and age and gender with (p=0.124 and 0.145), respectively.

Table 4 shows the relation of using internet to search for COVID-19 news to internet addiction, stress, depression, and insomnia. According to the data, a significant statistical relationship was found between following COVID-19 news and the later variables; p values were 0.004, 0.019, 0.018 and 0.001, respectively. The prevalence of internet addiction, stress, depression and insomnia among COVID-19 news followers were 86.9%, 54.5%, 71.4%, and 91.9%, respectively.

Table 3. Relationship of COVID-19 news search according to socio-demographic data of the students (sample).

Character	**COVID-19***	**p-value**	**58 (16.8)**
	>40%	≤ 40	
Age			0.124 **
17–20	36 (28.6)	90 (71.4)	
21–24	67 (33.2)	135 (66.8)	
25–28	9 (52.9)	8 (47.1)	
Gender			0.145 **
Female	75 (35.4)	137 (64.6)	
Male	37 (27.8)	96 (72.2)	
Total	112 (32.5)	233 (67.5)	
Note: *COVID-19's Question; **Pearson Chi-Square, level of significance <0.05.			

Table 4. Relationship of COVID-19 news search to stress, depression, and insomnia among students (sample).

		COVID-19*			
		> 40 %	**≤ 40 %**	**Total**	**P-value**
Internet addiction					0.004**
	No-internet addiction	16 (18.4)	71 (81.6)	87 (100)	
	Mild	48 (33.6)	95 (66.4)	143 (100)	
	Moderate	45 (40.9)	65 (59.1)	110 (100)	
	Severe	3 (60)	2 (40)	5 (100)	
Stress					0.019**
	Normal	51 (25.9)	146 (74.1)	197 (100)	
	Mild	16 (32.7)	33 (67.3)	49 (100)	

	Moderate	17 (42.5)	23 (57.5)	40 (100)	
	Severe	20 (46.5)	23 (53.5)	43 (100)	
	Extremely severe	8 (50)	8 (50)	16 (100)	
Depression					0.018**
	Normal	32 (23.0)	107 (77.0)	139 (100)	
	Mild	17 (34.0)	33 (66.0)	50 (100)	
	Moderate	36 (40.0)	54 (60.0)	90 (100)	
	Severe	9 (32.1)	19 (67.9)	28 (100)	
	Extremely severe	18 (47.4)	20 (52.6)	38 (100)	
Insomnia					0.001**
	No clinically significant	9 (16.7)	45 (83.3)	54 (100)	
	Subthreshold	34 (28.8)	84 (71.2)	118 (100)	
	Moderate severity	39 (33.9)	76 (66.1)	115 (100)	
	Severe	30 (51.7)	28 (48.3)	58 (100)	
Total		112 (32.5)	233(67.5)	345 (100)	
Note: *COVID-19 question; **Pearson Chi-Square, level of significance <0.05.					

Discussion

The human health was under a major threat with the emergency of COVID-19 as the disease was able to have an impact on various systems of the body [23-26]. The psychological effect of COVID-19 is a trending topic since the emergency of the virus and researchers studied various aspects of the disease on the mental health of the human being [8-11,16-21]. This study aimed at assessing the impact of following COVID-19 news on developing internet addiction, stress, depression, and insomnia among medical students. The total number of participating students reached 345; 32.5% of them followed COVID-19 news significantly enough. The study reported a significant impact of COVID-19 news to follow up on internet addiction, stress, depression, and insomnia.

The prevalence of stress, depression, and insomnia among students following SARS-CoV-2 news was 54.5%, 71.4%, and 91.9%, respectively. Additionally, the prevalence of internet addiction was higher compared to the non-significant followers, 86.9% compared to 69.5%. These findings on one hand are in line with other studies on the impact on medical student's mental health, on another hand; it reported much higher prevalence [17, 27]. This could be due to the effect of isolation and quarantine as the study was done during the early phase of the pandemic [27]. Additionally, the scale used to identify cases in our study might have impacted the findings.

The impact of COVID-19 pandemic on mental health of students can be regarded as a serious concern as studies identified a rise of the impact on mental health [27]. Insomnia can be predictive of depression and vice versa [28-30] hence, a vicious cycle can be predicted. As medical students are already at risk of depression, insomnia, stress and internet addiction from academic stress [31-33]. The overwhelming circumstances of COVID-19 can be regarded as the cause behind the stress experienced [34], using internet, mainly social

media, to obtain more information can be regarded as the coping mechanism, however, the presence of contradicting information, misinformation, and inability to discern which information on social media is correct and which is not, could have made stress inevitable and lead to more internet use in order to cope, this ended in vicious cycle. Additionally, the negative perception of the news could have directly attributed to depression, according to Aaron Beck [35]. Hence, presence of COVID-19 due to online learning and other factors [8,11,20,22] could have magnified the impact of one or more of the pervious psychiatric illness and placed students at risk of entering the vicious cycle. On the same line, according to the hyperarousal hypothesis, stress and depression can lead to emotional and CNS arousal, and subsequently to insomnia [36].

In the current study, the number of female participants outnumbers the males, which might be due to the already higher number of female students in the Duhok Medical College. However, no significant association was present between gender and various age groups concerning COVID 19 news follow up, despite that the prevalence of following COVID 19 news was higher among females than males and was increasing with the increase in age.

Conclusion

The present study unfolds that medical students are keeping up with the news about the novel coronavirus, at most (32.5%) of the participants was significantly following COVID-19 news. The current study strongly suggest that following COVID-19 news is significantly associated with higher levels of internet addiction, stress, depression, and insomnia among participants; prevalence were 86.9%, 54.5%, 71.4%, and 91.9%, respectively, among COVID-19 news followers.

Limitation

No scale was available to assess following news for COVID-19 pandemic. Additionally, there were no researches assessing stress, depression, and insomnia before COVID-19 pandemic. The sample size was relatively small.

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Authors' Contributions

X Chen, CQ Ai, TT Xu attended to the patient. X Chen wrote the manuscript. X Wang and L Pan gave conceptual advice. All authors read and approved the final manuscript. ASHS wrote the first draft. All authors contributed in proof reading. The final version was updated by ASHS, YAY and ASA.

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Corresponding author: Yousif Ali Yaseen, Department of Medicine, College of Medicine, University of Duhok, Kurdistan Region, Iraq

E-mail: yousif.ali@uod.ac

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