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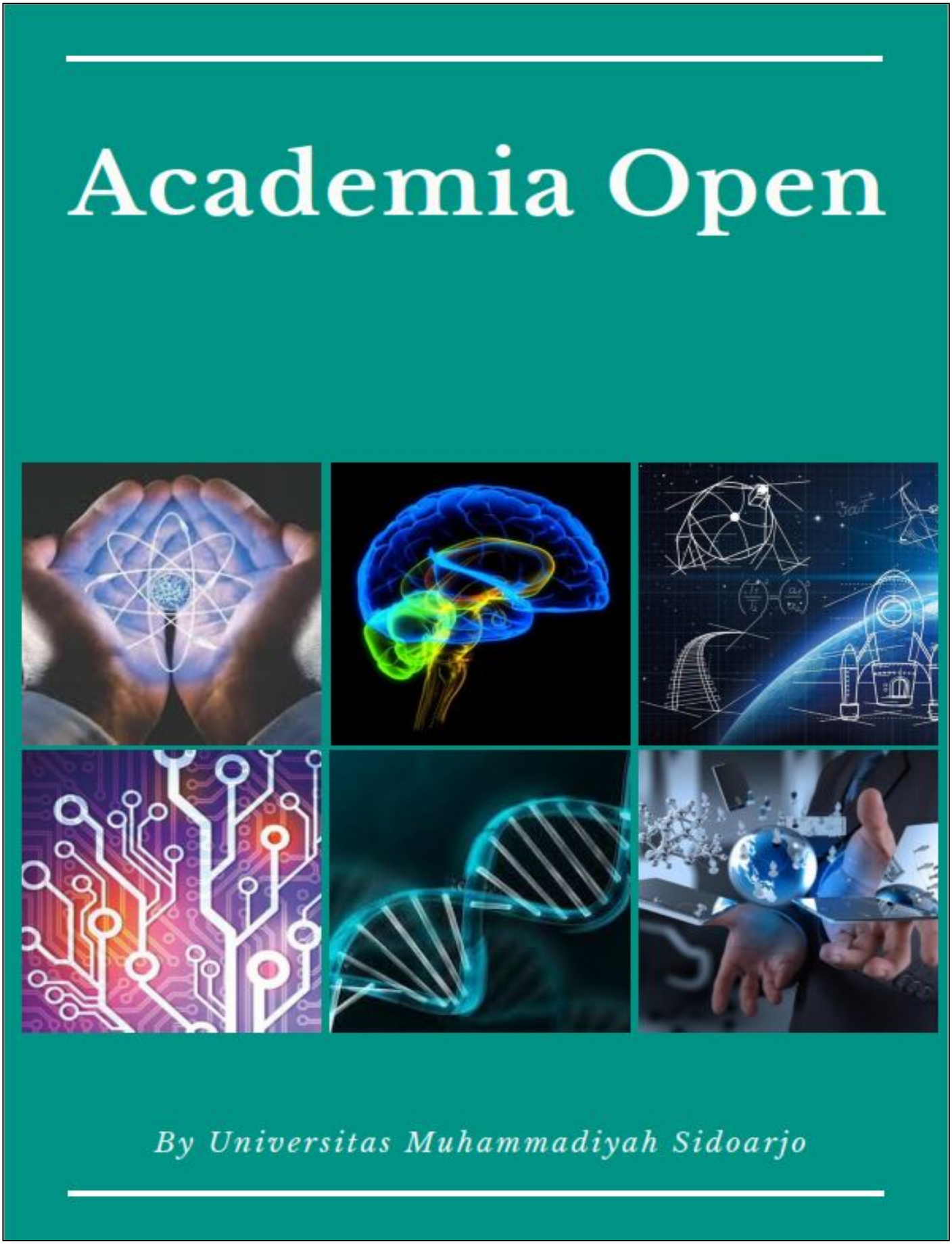

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Impact of COVID-19 on Dental Students' Psychological Health

Dampak COVID-19 terhadap Kesehatan Psikologis Mahasiswa Kedokteran Gigi.

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Abstract

This study investigates the psychological impact of the COVID-19 pandemic on dental students at Baghdad University College of Dentistry. Conducted between December 2021 and January 2022, this cross-sectional survey aligns with ethical guidelines and the Helsinki Declaration. The study utilized Cochran's equation to determine a sample size of at least 400, ensuring a 95% confidence level with a 5% margin of error. The Perceived Stress Scale (PSS) and the Covid Student Stress Questionnaire (CSSQ) were employed as primary tools, assessing general and COVID-19-related stress, respectively. A total of 411 students participated, with 67.50% experiencing moderate to severe stress (PSS <14) and 58.8% reporting average levels of COVID-related stress (CSSQ <7). Notably, there was a significant positive correlation between the PSS and CSSQ scores (P = 0.008). The analysis, conducted using IBM SPSS Statistics software V26, included descriptive statistics, Cronbach's alpha for reliability, and Pearson Correlation for assessing correlations. The findings indicate that a substantial proportion of dental students experienced heightened stress levels, potentially leading to mental health disorders like cognitive impairment. These results emphasize the need for universities to enhance psychological support and for government bodies to implement comprehensive health education and awareness programs. This study not only sheds light on the immediate psychological effects of the pandemic on dental students but also serves as a foundational reference for future interventions aimed at reducing stress levels in this demographic.

Highlights:

- Dental students have experienced significant psychological impacts from the COVID-19 pandemic.
- The pandemic has caused increased stress, anxiety, and depression among dental students.
- Remote learning and decreased clinical experience have contributed to the negative

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psychological effects.
- Providing social and emotional support is important in mitigating the psychological impact of the pandemic on dental students.

Keywords: COVID-19, SARS-CoV-2, Student, Dental, Stress

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INTRODUCTION

In November 2021, the world took a step backwards from easing COVID-19 restrictions, and they are sounding the alarm for what is coming next. Following the Alpha, Beta, Gamma, and Delta SARS-CoV-2 (VOCs), the World Health Organization (WHO) categorized the latest B.1.1.529 variation (Omicron) as a variant of concern VOC. [1]

The Omicron variant of COVID-19 has been detected in new regions across the world, including the United States, West Africa, the Gulf, and Asia, with American officials indicating that border restrictions will be tightened further due to worries that the new strain may be more transmissible than the old one . Individuals should take precautions (physical separation, hand cleanliness, wearing masks, avoiding crowded locations, getting vaccinated) to limit the risk of Omicron , according to the World Health Organization . [2]

It is common to feel stressed, anxious, or frustrated in situations that are unpredictable and changing, such as COVID-19, among other emotional reactions. Healthcare workers, children, possibly infectious patients, and quarantined families have all been reported to be in physical and psychological distress [3]

College students who have just returned from distance learning have suffered stress, anxiety, and sadness as a result of the abrupt change in learning methods and the return to communal living with roommates from various locations. According to one study, the emotional harm produced by this unexpected worldwide public health disaster might become a long-term health issue.

The COVID-19 pandemic has had a profound impact on dental students worldwide, presenting a myriad of challenges and disruptions to their education and well-being. With clinical experiences being a cornerstone of their training, the shift to remote learning and reduced patient volumes has significantly affected their ability to develop practical skills and gain exposure to diverse cases. [4]. Furthermore, the pandemic's uncertainty and isolation have taken a toll on students' mental health, leading to increased stress and anxiety. Adapting to stringent infection control protocols and concerns about exposure to the virus have added to their burdens. Financial strain due to the economic repercussions of the pandemic has also affected many dental students, exacerbating the challenges they face.[5][6] As the dental education community strives to overcome these obstacles, understanding and addressing the COVID-19 impact on dental students is crucial in providing the necessary support and resources to help them navigate these unprecedented times successfully.

The Perceived Stress Scale mainly focuses on students' feelings and thoughts during the last month. It’s the time when blended education is applied and the world takes steps toward COVID restriction reduction. The COVID Student Stress Questionnaire gives a close look at how medical students can deal with the impact of the COVID variant, Omicron, on their education and relationships. [7]

Understanding the psychological impact of the COVID-19 pandemic on dental students is crucial not only for their immediate well-being but also for the future of dental education. Educational institutions need to be aware of the specific challenges faced by dental students during times of crisis to implement targeted support systems and interventions [8]. By addressing the psychological needs of dental students, institutions can ensure a more resilient and adaptive learning environment, better preparing students to cope with potential disruptions in the future [9].

Finally, as students and faculty adjust to the pandemic, it will be critical to investigate the extent to which the improvements being implemented in response to COVID-19 affect medical education generally, as well as medical student career development and personal health and safety.

METHODS

A. Ethics

The study was carried out in compliance with Baghdad University College of Dentistry's experimental ethical guidelines project no. 643722. All respondents participated voluntarily, and the principles established in the Helsinki Declaration have been followed in this research [10]

B. Research design

A cross-sectional study was conducted at the College of Dentistry-Baghdad University, Iraq. An online questionnaire targeting final year (5th grade) dental students at the time, while the entire world was watching the Omicron news with bated breath between December 2021 and January 2022.

C. Sample size determination

To calculate an appropriate sample size to give an accurate result, we apply Cochran's equation, x =Z2pq\e2, with

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a margin of error of 5% and a confidence level of 95%. The appropriate sample size given the specified combination of precision, confidence, and variability is at least 400.

D. Data collection

The questionnaire starts with the Gender, then questions from the Perceived Stress Scale (PSS) and the Covid Student Stress Questionnaire (CSSQ) which were used as standardized measurement tools to collect social measurement data.[11][12]

The Perceived Stress Scale (PSS) is a tool for assessing stress. The questions on this scale focus on your feelings and ideas throughout the last month. It contained ten items, and each item was rated on a five-point Likert scale (0 meaning never, 1 for occasionally, 2 for sometimes, 3 for often, and 4 for always). Individual PSS ratings range from 0 to 40. Scores ranging from 0 to 13 indicate low stress. Scores ranging from 14 to 26 indicate moderate stress. Scores ranging from 27 to 40 indicate high perceived stress.

A Covid Student Stress Questionnaire (CSSQ), a tool for assessing covid related stress among university students, The CSSQ's three subscales evaluate students' stress to three extents: (1) relationships and academic life (i.e., relationships with families, coworkers, professors, and academic studies); (2) isolation (i.e., social isolation and couple relationships); and (3) fear of contagion. Seven items with response options on a five-point Likert scale, ranging from zero ("Not at all stressful") to four ("Extremely stressful"). From one to six scores indicate low levels of COVID-related stress among university students, 7–15 indicate medium levels of COVID-related stress, and 16 or more indicate high levels of COVID-related stress.

E. Statistical Methods

For data analysis, IBM SPSS Statistics software V26 was used. Descriptive statistics (graphical analysis) were conducted to calculate the mean, and standard deviation. Cronbach's alpha is used to assess the reliability, or internal consistency, of a set of scales or test items. Mann–Whitney U and Kruskal–Wallis tests were also used. To find the correlation, Pearson Correlation was used, and to explain the relation, linear regression was applied. Statistical significance (two-tailed) was defined as p 0.05.

RESULTS AND DISCUSSION

A. Result

Among 411 students, males accounted for 44.1 % and females accounted for 55.9 %. The questionnaires revealed satisfactory internal consistency (Cronbach’s alpha = 0.72 for the PSS and the CSSQ = 0.78). The data is normally distributed according to the Kolmogorov-Smirnov test. According to the results of the Perceived Stress Scale (PSS), the stress levels of the college students surveyed were found to be either low stress, medium stress, or high stress, accounting for 14.2%, 68.7%, and 17.1%, respectively.

The results of the Covid Student Stress Questionnaire (CSSQ) were found to be either low levels of Covid related stress (22.7%), average levels of Covid related stress (61.6%), or high levels of Covid related stress (15.6%) among university students. Table 1 summarises the Covid Student Stress level among the participant

Variable		Stress level	N%	Mean ± SD	P Value a
Relationships and Academic Life	Q1	Normal Minimal to moderate Severe to extreme	119 (28.9) 253 (61.6) 39 (9.5)	1.17 ±1.032	> 0.00 b
	Q2	Normal Minimal to moderate Severe to extreme	97 (23.7) 257 (62.5) 57 (13.8)	1.42 ±1.072	> 0.01 b
	Q3	Normal Minimal to moderate Severe to extreme	56 (13.7) 223 (54.1) 132 (32.2)	1.86 ±1.161	> 0.00 b
	Q4	Normal Minimal to moderate Severe to extreme	126 (30.8) 248 (60.3) 37 (9)	1.19 ±1.034	> 0.00 b
Isolation	Q1	Normal Minimal to moderate Severe to extreme	88 (21.4) 228 (55.4) 95 (23.1)	1.54 ±1.188	> 0.00 b
	Q2	Normal Minimal to moderate	120 (29.2) 229 (55.7) 62 (15.08)	1.37 ±1.149	> 0.01 b

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		Severe to extreme			
Fear of Contagion	Q1	Normal Minimal to moderate Severe to extreme	68 (16.6) 205 (49.8) 138 (33.6)	1.90 ±1.232	> 0.02 b
a By Kruskal–Wallis tests b Significant p-value <0.05.					

Table 1. *COVID stress levels among the participant*

The result of Pearson's correlation revealed a correlation value of .008 between the two variables, which would indicate that a significant and positive relationship exists between the two. A positive correlation signifies that if variable PSS goes up, then CSSQ will also go up. Table: 2 Assessment of correlation between CSSQ with PSS

		CSSQ	PSS
CSSQ mean	Pearson Correlation	1	.181**
	Sig. (2-tailed)		.008
	N	411	411
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 2. *Assessment of correlation between CSSQ with PSS*

The correlation coefficient for CSSQ's three subscales, which are relationships and academic life, with the isolation and fear of contagion shows a significant and positive relationship; the isolation with the fear of contagion also shows a significant and positive relationship. Table: 3

		Isolation
Relationships and Academic Life	Pearson Correlation	.441**
	Sig. (2-tailed)	.000
	N	411
		Fear of Contagion
Relationships and Academic Life	Pearson Correlation	.359**
	Sig. (2-tailed)	.000
	N	411
		Isolation
Relationships and Academic Life	Pearson Correlation	.318**
	Sig. (2-tailed)	.002
	N	411

Table 3. *The correlation coefficient for CSSQ's three subscales*

B. Discussion

Regardless of the specifics of each medical student's situation, all students have faced difficulties as a result of the COVID-19 pandemic's widespread consequences. The major factors affecting the students' mental health are the public health emergency caused by COVID, the uncertainty it has caused, and its potential for serious harmful impact on the individual and society. Medical education as a whole, as well as medical student career advancement, personal health, and safety, are all affected [13].

At the end of 2021, when the world was taking steps toward easing Corona restrictions, the Omicron news overwhelmed the whole world. Anticipation and caution are how everyone looks forward to what's coming. We can understand the impact of the COVID pandemic and its subsequence among university students using the Perceived Stress Scale (PSS), which provides a close look at students' feelings and thoughts over the last month in conjunction with the CSSQ and its three subscales.

The majority of students, as the result revealed, have medium levels of stress with an average level of COVID-19-related stress, and this is explained by their fear of the unknown, this agrees with the finding of Wang et al., 2020 that the large percentage of students reported that their stress and anxiety had increased during the pandemic[14]. Stress is caused by the struggle that arises from having high expectations and setting unattainable goals [15]. The research findings revealed that there is a minimal mean value difference between genders, which is in agreement with the findings of Zhan et al.'s study, which found relatively insignificant differences between genders, grades, and professional groupings. [16].

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The COVID Student Stress Questionnaire (CSSQ) results show a significant correlation between each of the two factors of its three subscales: the relationships with families, coworkers, professors, and academic studies affected by social isolation, and this can be explained as the majority of students expressed academic concerns due to difficulties concentrating, fear, and worrying about academic progress and performance, as well as difficulties adjusting to distance learning[17][18].

The fear of contagion is associated with the concern of becoming infected, the fear of infecting others (e.g., family, and friends), and the fear of becoming a source of contagion to others [12][19][20].

The result of this study shows a highly significant correlation between the fear of contagion and the other two factors: relationships and academic life, and isolation, because at the time this study was conducted, there was little information about Omicron yet announced. Although the Omicron variant is considered to be milder than previous COVID variants, much remains unknown about this newly emerged variant; infected individuals can potentially transmit it to the vulnerable population, including the elderly, those who are immunocompromised, and those who are suffering from comorbid diseases and coinfections; even if such people are vaccinated, omicron infection can cause complicated illness or death [21][22][23].

The COVID-19 virus, in its various forms, continues to have a significant impact on medical education as a whole, as well as medical student careers, health, and safety. Therefore, the COVID crisis should be considered as a lesson, and the whole world should have a backup plan to deal with any future pandemic disaster.

CONCLUSIONS

The coronavirus pandemic and the changes that came with it, not just the disease but the social implications of the disease, have changed the course of mankind. Everyone, including myself, has a story to tell about their impact on our lives. However, the psychological health of medical students is a high priority. Universities should improve psychological supervision, while relevant government institutions should perform comprehensive and in-depth health education and awareness programs. In addition, this data could also be used as a baseline for further study to find an effective intervention measure to reduce students' stress levels.

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