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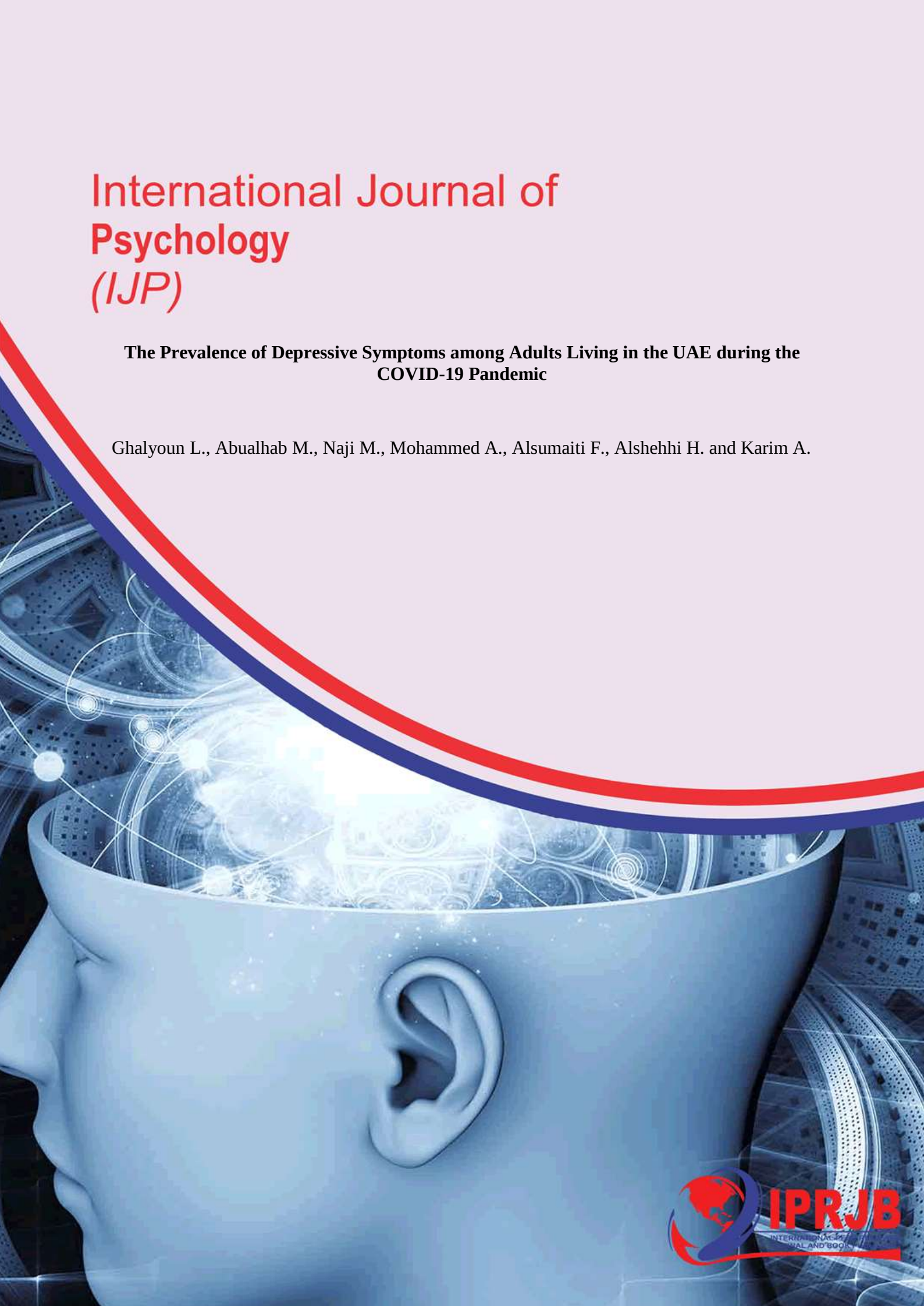

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The Prevalence of Depressive Symptoms among Adults Living in the UAE during the COVID-19 Pandemic

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Abstract

Purpose: To investigate the prevalence of depressive symptoms among adults living in the UAE during the COVID-19 pandemic.

Methods: This cross-sectional study used a self-administered anonymous online questionnaire distributed in both Arabic and English via social media platforms. A total of 261 adults living in the UAE were included in the study, using a non-probability volunteer sampling. Univariate and bivariate analyses of the acquired data were analyzed using SPPS Statistics version 26. Patients clinically diagnosed with depression were excluded from this study.

Findings: Overall, the prevalence of depression among our studied population was 63%. Several parameters were correlated with depression to assess their associations. A lower household income was found to be linked to a greater likelihood of developing depression, as 74.6% of depressed subjects had an income lower than 20,000 Dhs (p=0.003). Age also had a significant correlation (95% CI, p=0.003) with depression, and those in the younger age group (18-25 years) had a greater prevalence of depression than did those in the older age group. Difficulty performing daily activities, restless sleep, feeling lonely, feeling sad, feeling inadequate, and losing hope were the most commonly reported symptoms in depressed subjects. A total of 78.21% of our participants did not know about hotlines when they were depressed; however, this difference was not statistically significant (95% CI, p=0.178).

Unique Contribution to Theory, Practice and Policy: Depression was prevalent in 63% of our participants. A lower household income and younger age were associated with a greater risk of depression. We believe that our findings will encourage institutions and government authorities to implement awareness programs about depression awareness and screening for depression. Families should support individuals seeking professional help, particularly if their depressive symptoms are severe or persistent.

Keywords: *Depression, CES-D Questionnaire, Prevalence, Mental Health, COVID-19*

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INTRODUCTION

COVID-19 is an infectious disease with symptoms ranging from flu-like symptoms to severe respiratory distress. It is caused by a mutating virus known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Most infected people will experience mild to moderate symptoms and recover shortly afterward. Unfortunately, those who suffer a serious form of the disease are more at risk of dying due to complications from the disease. Notably, all age groups can contract coronavirus disease 2019 (COVID-19) and face severe consequences, such as death. Hence, it is important to follow the precautionary guidelines to protect us from contracting the disease. Some countries enforced a lockdown to further prevent the spread of the virus (Organization, 2020).

The worldwide crisis that occurred due to the COVID-19 pandemic led to hospitalization and increased death rates (Wu et al., 2021), and several regulations were imposed, such as social distancing measures, self-quarantine, and isolation, which led to negative consequences for mental health (AlAzzam et al., 2021) and the appearance of depressive symptoms. To emphasize, Lockdowns and other restrictive measures implemented during the COVID-19 pandemic, though crucial for controlling the virus, had significant psychological repercussions that directly contributed to an increase in depressive symptoms. Social isolation, a consequence of enforced distancing and stay-at-home orders, deprived individuals of regular social interactions, leading to loneliness and emotional distress. The sudden disruption of daily routines, including work, education, and recreational activities, created a sense of instability and uncertainty, further exacerbating feelings of anxiety and depression. Additionally, the economic stress caused by job losses, reduced income, and financial insecurity added to the mental health burden, while limited access to mental health services and other support resources during lockdowns made it more challenging for individuals to cope with these growing pressures. Collectively, these factors created a fertile ground for the rise in depressive symptoms observed during the pandemic. (Holmes, E. A., et al., 2020).

According to the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-V), major depressive disorder is a mood disorder characterized by symptoms of either depressed mood throughout the day or loss of interest in routine activities. Either one of these two symptoms must be present along with the other 4 symptoms for a minimum of 2 weeks to clinically diagnose an individual with major depressive disorder. Other symptoms include changes in appetite, sleep disturbance, suicidal ideation, and poor concentration. These symptoms must be present nearly every day to qualify for a diagnosis (Bains & Abdijadid, 2023). Several studies across the UAE aimed to identify the prevalence of depression before the COVID-19 pandemic, including two in Sharjah (Hamdan et al., 2008; Sulaiman et al., 2010), two in Al Ain (Abu Mellal et al., n.d.) and one in Dubai (Ahmed et al., 2009), with a prevalence rate ranging from 12.5-28.6%. Accordingly, research exploring the impact of the COVID-19 pandemic on mental health commenced with several views supporting the deleterious effect this pandemic created, from the anxiety of testing positive to the grief of losing someone due to infection (AlAzzam et al., 2021). According to a meta-analysis conducted in China that investigated the prevalence of mental health problems during the COVID-19 pandemic, the overall prevalences of depression, anxiety, distress, and insomnia were 31.4%, 31.9%, 41.1%, and 37.9%, respectively (Wu et al., 2021). These studies reflect the consequences of this pandemic on the mental health of people worldwide.

There are few studies discussing the prevalence of depression in the UAE population, and we have barely managed to find a study that had a similar aim; however, they utilized different tools and methods to analyze their data (Cheikh Ismail et al., 2021; Vajpeyi Misra et al., 2022). Due to the scarcity of this topic, it was difficult to compare our hypothesis with other research regarding the UAE population. Which furthers our point of the importance of exploring this aspect of the pandemic and its effect on the UAE population. Moreover, this study is the first to investigate Adults in the UAE offering unique insights on prevalence of depression during the pandemic, which has been overlooked in the current literature.

This study employs the stress-diathesis model to describe a relationship between individual vulnerabilities and environmental stressors that were aggravated by the pandemic. Individuals across the globe can share similar vulnerabilities such as poor socioeconomic status or genetic predisposition on top of the environmental stress caused by the COVID-19 crisis from lockdowns, job loss, and health concerns. We attempted to validate it by finding a significant correlation through bivariate statistical analysis between the prevalence of depression as the reference variable to other factors and vulnerabilities, most notably age and household income.

Several factors contribute to the need for such a study in the UAE. Mental health is an important aspect of public health; for that reason, identifying mental health prevalence can help healthcare providers allocate appropriate resources to address mental health needs. Additionally, each country may experience different effects of the pandemic according to government responses and healthcare infrastructure; thus, the prevalence of depression can also reflect how the pandemic has uniquely impacted the adult population of the UAE. Essentially, appropriate mental health measures and interventions must be tailored to the needs of the UAE population (Thomas et al., 2020).

We aimed to investigate the prevalence of depressive symptoms among adults living in the UAE during the COVID-19 pandemic.

METHODOLOGY

Study Design and Sampling

A cross-sectional study was conducted over two months starting in February 2021. The target population was adults living in the UAE who had access to social media platforms. Adults who were clinically diagnosed with depression were excluded from the study. English or Arabic proficiency was also necessary to ensure proper comprehension of the questionnaire. Nonprobability volunteer sampling was employed to ensure complete autonomy on the self-administered questionnaire.

Study Tool

The scale utilized for this study was the Center for Epidemiological Studies Depression (CES-D; CESD, 2021), which measures depressive symptoms among participants. The instrument contained 20 items that rated the frequency of experiencing symptoms associated with depression over the past week, namely, decreased appetite, loss of interest, and disordered sleep. For each item, the response could range from 0 to 3 (0 = rarely or none of the time, 1 = some or little of the time, 2 = moderately or much of the time, 3 = most or almost all the time). The final score was a continuous scale that could span from 0 to 60, with higher scores indicating frequent depressive symptoms. The CES-D also provided cutoff scores that aided in identifying individuals at risk for clinical depression. The tool has already been validated in

several studies and was reliably used in this study to diagnose depressive symptoms (Jiang et al., 2019).

Data Collection

The questionnaire was divided into 3 sections, namely, demographic, scale, and COVID-19-related questions, for a total of 36 questions. To mitigate self-selection bias, the survey was self-administered through web platforms. However, we acknowledge the limited options available to control such bias. As a result, we believe that most of our participants were motivated to participate due to their depressed state. The questionnaire was digitized on Google Forms and distributed online via hyperlinks, considering the social distancing measures imposed during the COVID-19 pandemic, which restricted in-person interactions for data collection purposes. Both Arabic and English versions of the questionnaire were provided. The raw data collected from the questionnaire were transferred to Excel for initial processing, followed by secondary processing using SPSS software to obtain meaningful information through precise data revision.

Data Analysis

We performed univariate and bivariate analyses of the acquired data. In univariate analysis, frequency tables, bar graphs, and pie charts were generated by SPSS Statistics version 26, which reflects the distribution of observations based on several options for a variable. Bivariate analysis was performed to compare two variables using statistical tests depending on the nature of the data. The chi-square test was the statistical test of choice in the comparison of two categorical variables coupled with close inspection of the p value to the proposed 5% type 1 error to determine the significance of the variables compared. Several tests were conducted as part of the statistical inferences to determine the most reasonable direction of the suggested hypothesis at the start of the research. Moreover, descriptive statistics were calculated to emphasize the distribution, location, and spread of the data. The data were found to be skewed to the right because of outliers. Therefore, the median was reported as a measure of central tendency. Furthermore, the interquartile range was delineated to describe the variability of the data.

When calculating the most common depressive symptoms among our study participants, the frequencies of symptoms 1-4 were obtained by adding the “most” and “occasionally” responses, whereas the frequencies of symptoms 5-6 were calculated by adding the “rarely” and “sometimes” responses. It is important to note that the total for the occupation demographic was lower because only employed participants who chose to specify their occupation were counted, and the total for the openness about mental health was lower because it is an optional question since only those who had mental illness could choose to answer this question.

RESULTS

Characteristics of the Study Population

Of the 383 participants who completed the online questionnaire, only 257 met the inclusion criteria and were included in this study. Table 1 illustrates the demographic characteristics of the study participants, where 156 (60.70%) of the participants were in the 18-25 years age group (p=0.003, Table 1). Females (70.43%) represented two-thirds of the entire sample. There was a minor discrepancy in the participants' ethnic backgrounds; 50.97% of them were not Middle Eastern, while those of Middle Eastern origin made up 49.03% of the participants.

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Regarding employment status, most of the participants were students (50.97%), and most were not students; most of them worked in the engineering sector (31.15%). A total of 42.41% of the participants were residents of Sharjah, and most of the participants were not living alone (93.77%). Those who obtained higher education accounted for 57.59% of the total sample population. A total of 34.63% of the study participants fell into the second highest income range, which was between 21,000 and 50,000 Dhs (p= 0.003, **Table 1**).

Table 1: Study Parameters and Their Prevalence of Depression

Dependant Variables	Total (N=257)	Prevelance of Depression No.%	P Value
Gender			
Male	76 (29.6%)	55.3% (42)	0.094
Female	181 (70.4%)	66.3% (120)	
Age			
18-25	156 (60.7%)	69.2% (108)	0.003
26-35	63 (24.5%)	61.9% (39)	
36+	38 (14.8)	39.5% (15)	
Employment			
Employed	90 (35%)	54.4% (49)	0.14
Unemployed before COVID	32 (12.5%)	62.5% (20)	
Unemployed after COVID	4 (1.6%)	50% (2)	
Student	131(51%)	69.5% (91)	
Social Status			
Unmarried	186 (72.4%)	66.1% (123)	0.096
Married	71 (27.6%)	54.9% (39)	
Occupation	(N=61)		
Healthcare	5 (8.2%)	60% (3)	0.103
Education	2 (3.3%)	50% (1)	
Finance/Business	7 (11.5%)	57.1% (4)	
Civil defence	8 (13.1%)	87.5% (7)	
Management	17 (27.9%)	82.4% (14)	
Engineering	19 (31.1%)	36.8% (7)	
Others	3 (4.9%)	66.7% (2)	
Emirates			
Sharjah	109 (42.4%)	62.4% (68)	0.827
Northern Emirates	65 (25.3%)	66.2% (43)	
Southern Emirates	83 (32.3%)	61.4% (51)	
Living Alone			
Yes	16 (6.2%)	81.3% (13)	0.119
No	241 (93.8%)	61.8% (149)	
Household Income			
<20k AED	114 (44.4%)	74.6% (85)	0.003
21K-50K AED	89 (34.6%)	53.9% (48)	
>50k AED	54 (21%)	53.7% (29)	
Diagnosed with COVID			
Yes	37 (14.4%)	62.2% (23)	0.905
No	220 (85.6%)	63.2% (139)	
Household Diagnosed with COVID			
Yes	109 (42.4%)	65.1% (71)	0.549
No	148 (57.6%)	61.5% (91)	
COVID Related Death			
Yes	160 (62.3%)	64.4% (103)	0.568
No	97 (37.7%)	60.8% (59)	
Awareness of Hotlines			
Yes	56 (21.8%)	55.4% (31)	0.178
No	201(78.2%)	65.2% (131)	
Openness About Mental Health	(N=144)		
Yes	53 (36.8%)	69.8% (37)	0.622
No	91 (63.2%)	73.6% (67)	

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COVID-19 Impact: Prevalence, Household Infections, and Personal Connections to Fatalities

Regarding COVID-19-related questions in the questionnaire, 14.4% of our participants were diagnosed with COVID-19 at some point in time. Additionally, 42.41% admitted that they had members of their household who were infected with COVID-19. A considerable proportion of participants (62.26%) knew that they had died from COVID-19. The vast majority (78.21%) of participants did not know the designated hotlines when feeling depressed; however, the differences were not statistically significant **(Table 1).**

Scoring Based on the CES-D Tool

After calculating the total CES-D score for the sample population of 257 adults, a histogram was created **(Figure 1).**

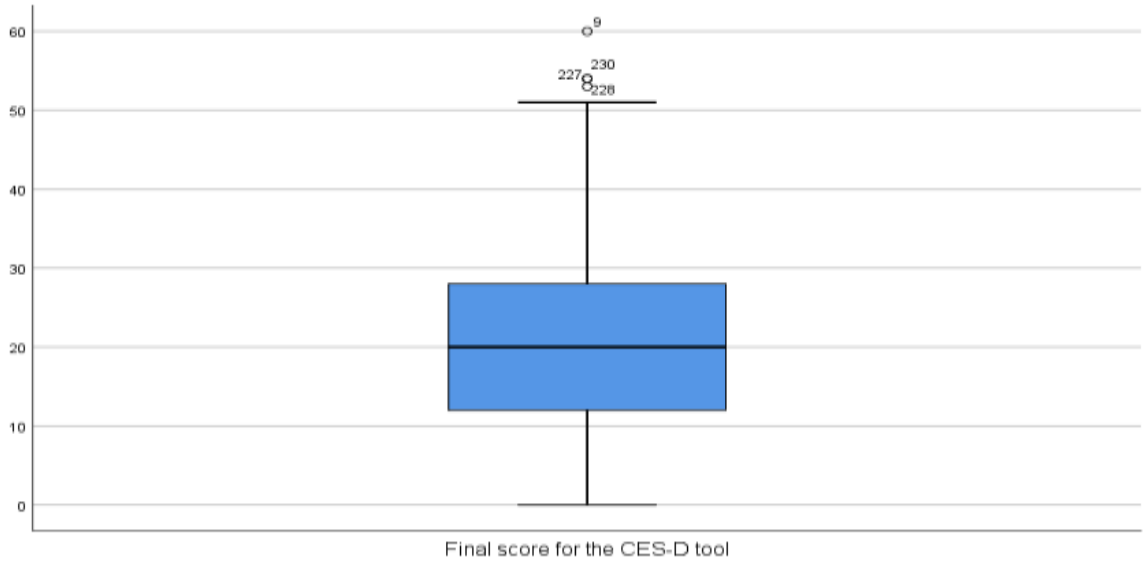

Figure 1: Boxplot of the Final Scores of the CES-D Tool

The median central tendency score was 20. To describe our measure of variability around our median, the interquartile range was 17, Q1 was 12, and Q3 was 28.50. After removing the outliers from our existing data, our population number decreased to 253. When bivariate analysis was repeated on the edited data, we noted no change in the already significant parameters, which were age and household income. Hence, the data presented and discussed in this research paper include outliers.

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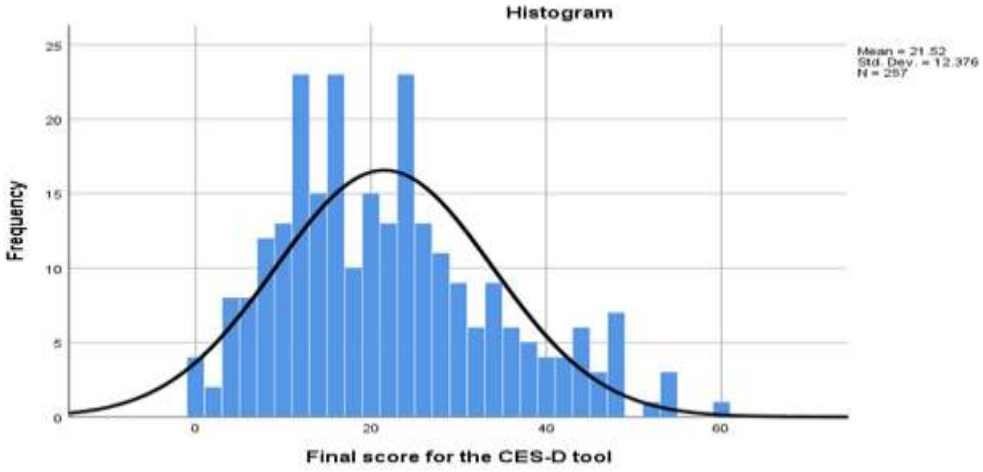

Figure 2: Histogram of the Final Scores of the CES-D Tool for All Our Participants

Figure 2 displays a boxplot with a wide range of scores, indicating significant variability. The data appear to be positively skewed, despite having an interquartile range equal to the difference between the first and second quartiles. Four outliers were identified by SPSS based on the upper fence value of 53. No outliers were observed on the negative side due to the nature of the CES-D scores, which cannot be below 0. The five-point summary is as follows: Q0 = 0, Q1 = 12, Q2 = 20, Q3 = 28.5, and Q4 = 51.

The Prevalence of Depression among Adults in the UAE

Our study revealed a 63% prevalence of depression among the participants. Specifically, individuals within the age range of 18 to 25 years exhibited a notably greater prevalence of depression, at 69.2% (n=108), than did older individuals (p= 0.003, **Table 1**). Moreover, 74.6% of participants with low household incomes (<20,000 Dhs) experienced depression, whereas 53.9% and 53.7% of participants with higher incomes experienced depression for the 21-50 k Dhs and >50 k Dhs, respectively (p=0.003, **Table 1**). We next investigated the awareness and openness of mental health in our studied population by asking related questions. A total of 78.21% of our study participants were unaware of any hotlines in the UAE that they could contact if they were feeling down. More than half (63.19%) of our participants felt uncomfortable talking about their mental illness/es, while 36.81% felt comfortable talking about this subject to their loved ones. According to the bivariate analysis, students (69.5%) and those who were unemployed before COVID-19 (62.5%) had a high prevalence of depression (p= 0.140, **Table 1**).

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The most reported symptoms among depressed adults were feeling not good enough (96 out of 162), being sad (95), having trouble keeping their mind on what they were doing (91), feeling lonely (91), and feeling hopelessness (85) and restless sleep (75), as shown in **Figure 3**.

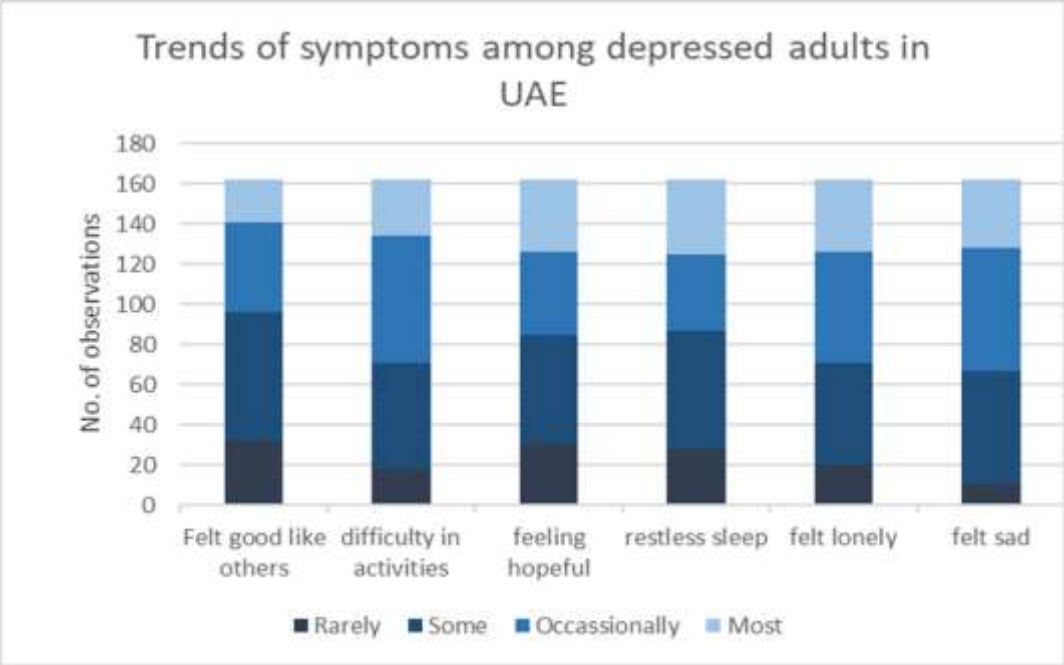

Figure 3: Graph of the Trends of Symptoms among Adults with Depression in the UAE

Discussion

In this study, we aimed to identify the prevalence of depression among adults in the UAE during the quarantine period of the COVID-19 pandemic. The overall prevalence of depression was 63%. The rate of depression was greater among females than among males, although this difference was not significant; perhaps females scored higher because our participants were mostly females. The prevalence of depression was also greater among younger adults aged 18-25 years than among older adults aged 36 years and older. This finding was expected, as adolescents are more prone to stress and are not accustomed to staying indoors during lockdown, which might have been affected by difficulties in remote learning due to COVID-19 pandemic regulations (AlAzzam et al., 2021). The prevalence of depression was greater among people in the low-income category than among those in the other income categories, possibly because of psychological pressure due to the strain that the COVID-19 pandemic inflicted on work stability, and the fear of losing their jobs during these times might have added to their stress (Santomauro et al., 2021). Our results were consistent with those of other published papers that revealed a sharp increase in the prevalence of not only depressive symptoms but also other mood disorders during this pandemic period (Lakhan et al., 2020). The analysis focused on the most common depressive symptoms, emphasizing the necessity of enhanced physician awareness of individuals exhibiting indications such as feelings of inadequacy, sadness, cognitive distraction, and loneliness. Most participants did not know any hotlines to call when depressed, which could suggest the lack of awareness of the community about this matter and the need to further advertise hotlines in social media, public places, and schools.

In UAE society, mental health is often a topic that is mostly avoided and difficult to discuss, making it easier to ignore the psychological health of individuals, which affects their well-being and daily life (Al-Darmaki et al., 2009; Al-Darmaki, 2003). According to a previous study, 38% of Sharjah's undergraduate students suffer from clinical depression (Al Marzouqi et al., 2021). A different study within the MENA region explored the mental health impact of the COVID-19 pandemic on the prevalence of depression among university students in Saudi Arabia and revealed that 48.8% of the participants were diagnosed with depression. Therefore, a fair number of people living in the UAE are suffering from depression, but this number might be higher; however, due to the limited epidemiological data available concerning depression in the UAE, it is much harder to grasp the real prevalence of depression in the population. There is a paucity of literature concerning the prevalence of depressive symptoms in the context of the COVID-19 pandemic in the UAE as measured with the CES-D; however, similar studies have explored the prevalence of depressive symptoms among UAE residents using the PHQ-8, with a prevalence of 58.4%, compared to 63% in our study (Thomas et al., 2020). The CES-D tool was chosen as a tool for measuring depression in this study due to its successful use among people of a wide range of ages, as well as its use of a cutoff score that helps to identify individuals at risk for clinical depression, with good sensitivity, specificity, and high internal consistency (Lewinsohn et al., 1997).

When the COVID-19 pandemic occurred, the quarantine period significantly increased distress among individuals. A lack of human interaction, loneliness, and physical inactivity due to quarantine can be influencing factors (Barbisch et al., 2015). A study conducted in 2011 revealed that the prevalence of depression among male immigrants who resided in labor camps was greater than that in the general UAE population. According to this study, most of these laborers live alone and are separated from their hometowns and families. Coupled with the stress and sense of social deprivation that they are already suffering from, it increases their chances of being depressed (Al-Maskari et al., 2011). This study revealed a striking similarity in the prevalence of depression among male immigrants residing in labor camps secondary to the social isolation experienced due to separation from their hometowns and families, with the prevalence of depression among individuals subjected to quarantine measures and curfews during the COVID-19 pandemic. Thus, both studies revealed that precipitating social isolation is a risk factor for depression.

We conducted this study in the UAE due to the limited epidemiological data about the prevalence of depressive symptoms during the COVID-19 pandemic. As this research adds to our knowledge, it will also help to establish a better understanding of the prevalence of depression among residents of the UAE and improve protocols for mental health during pandemics, which do not produce the desired effect (Jung & Jun, 2020).

CONCLUSION AND RECOMMENDATIONS

Conclusion

To conclude, our study reported the prevalence of depressive symptoms during the COVID-19 pandemic among UAE adults. A substantial finding was that depression was markedly prevalent in our participants. A lower household income and younger age were significantly associated with a greater risk of depression. We believe that our findings will encourage UAE institutions and government authorities to implement awareness programs regarding

depression and regular screening for depression in academic facilities and workplaces where the majority of younger people are prevalent.

Recommendations

We recommend that families encourage and support the depressed household member in seeking professional help if needed, such as counseling or therapy, especially if the depressive symptoms are severe or persistent. Families should try to minimize stressors and provide a stable, supportive environment. During a crisis, such as the pandemic, reducing additional pressures can help in managing depressive symptoms. It is also beneficial in such situations to stay connected with social support networks, even if it's through virtual means. Social isolation can exacerbate depressive symptoms, so maintaining connections is crucial.

We strongly encourage other researchers to delve further into this subject for the purpose of supplementing the literature with needed data, as well as to undertake various campaigns to raise awareness, as our community lacks understanding about coping with mental health and seeking help.

Limitations

A major limitation is the utilization of web-based methods for data collection, thus resorting to nonprobability volunteer sampling, which is subject to selection bias. Furthermore, one crucial limitation was that we could not reach out to all the Emirates due to our restricted pool of connections on social media. Hence, most of our participants were from the Emirate of Sharjah, which compromises our ability to generalize our results. Moreover, most participants were females; accordingly, a fair comparison between the two genders was not possible. Another limiting factor was that the overall sample size was smaller than our anticipated sample size.

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Ethical approval

We obtained ethics approval from the University of Sharjah to conduct this study. This research was ethically approved by the Research Ethics Committee in our region.

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