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Understanding Mental Health of College Students During the Initial COVID-19 Lockdown in Iran

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A B S T R A C T

Introduction: Pandemics and subsequent lockdowns can profoundly impact the mental well-being of college students. This study aimed to assess the extent of mental health challenges among college students during the initial COVID-19 lockdown in Iran, while also identifying associated factors.

Material & Methods: Conducted as an online cross-sectional study, data were gathered during the first COVID-19 lockdown in Iran (between March 21, 2020, and April 21, 2020). A total of 330 college students participated in an online survey, addressing questions across two parts. The first part encompassed demographic information such as age, gender, marital status, residency status, field of study, academic year, history of COVID-19 infection, presence of COVID-19-infected relatives, and adherence to a regular study schedule. In the second part, students completed the General Health Questionnaire-28 (GHQ-28). Descriptive and linear regression analyses were employed for data analysis.

Results: Among participants, 38.6% reported probable somatic symptoms, 41.8% reported probable anxiety symptoms and sleep disturbances, 91% indicated potential issues with social functioning, and 23.9% reported probable depressive symptoms. Overall, 57.9% experienced potential psychological distress. Notably, adherence to a regular study routine ($\beta = -0.396$) emerged as a negative predictor for potential psychological distress, whereas having COVID-19-infected loved ones ($\beta = 0.159$) was identified as a positive predictor.

Conclusion: The prevalence of probable somatic symptoms, anxiety, sleep problems, social functioning issues, depressive symptoms, and overall psychological distress was notably high among college students during the initial COVID-19 lockdown. However, maintaining a consistent study schedule, being married, and older age were associated with lower levels of potential psychological distress. Additionally, having loved ones infected with COVID-19 emerged as a risk factor for probable mental health challenges.

Keywords: Students, Mental Health, COVID-19, Lockdown, Study Schedule

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Introduction

COVID-19 began its spread from Wuhan, China, in December 2019, rapidly proliferating worldwide. The World Health Organization (WHO) declared a pandemic in 2020. The first case of infection in Iran was identified on February 19, 2020, in the city of Qom, central Iran, swiftly spreading across the nation within two weeks. Since then, Iran has encountered 7 waves of the COVID-19 pandemic (1). As of February 2023, the Ministry of Health of Iran has reported over 7.5 million Iranians infected with the virus, resulting in a death toll exceeding 144,000 individuals (2). Educational and nonessential business centers were promptly shuttered during the initial outbreak in Iran, marking the commencement of the first lockdown on March 21, 2020, which lasted until April 21, 2020 (3, 4). Despite the closure of schools and universities, virtual educational activities persevered.

The pandemic precipitated significant changes in people's everyday lives, profoundly impacting their lifestyles in numerous ways (5). Reports have indicated that the pandemic and ensuing lockdowns have adversely affected mental health (6, 7). Various studies have documented a surge in mental health issues, such as anxiety and depression, among the general populace compared to pre-pandemic times (8, 9). In Italy and Spain, 85.7% of parents observed alterations in their children's emotional and behavioral patterns during the COVID-19 lockdown (9). Anxiety symptoms during this period ranged from 6.33% to 18.7%, depressive symptoms from 14.6% to 32.8%, stress symptoms at 27.2%, and posttraumatic stress disorder (PTSD) symptoms close to 7% (7).

Numerous stressors, including the disruption of educational and social activities, contribute to mental health challenges during lockdowns, particularly among college students (7, 10, 11). The closure of universities, reduced efficacy in virtual education, and deferred exams pose significant mental health risks to college students (12). Concentration issues, academic performance concerns, and adaptation to remote learning emerge as prominent academic stressors among students (8, 12, 13). Furthermore, concerns regarding sleep disturbances among college students and their loved ones have been reported (13).

Elevated levels of anxiety and depression have been documented among college students from various countries, including China and the United States (11, 14). A systematic review and meta-analysis revealed that during the COVID-19 pandemic, depression, anxiety, and sleep disturbance symptoms among higher education students were reported at frequencies of 34%, 32%, and 33%, respectively (17). The predominant psychological symptoms investigated thus far include anxiety, depression, sleep disorders, and suicidal ideation (8, 13, 15, 18). However, somatic symptoms and social functioning among college students during the COVID-19 lockdown remain less explored.

Numerous studies have addressed risk factors associated with mental health problems during lockdowns (14, 19). For instance, residing in urban areas, stable family income, and living with parents have been identified as protective factors against anxiety, while having COVID-19-infected relatives predisposes college students to anxiety (11). Additionally, gender, general health status, age, screen time, and acquaintance with infected individuals have been implicated as risk factors for psychological issues (14). Cross-national studies have further underscored the role of gender, urban residency, and educational level as risk factors for depression (19).

This study pursued two objectives. Firstly, to ascertain the prevalence of somatic problems, anxiety, sleep disturbance, social dysfunction, depression, and overall psychological distress among college students during the initial COVID-19 lockdown in Iran. Secondly, to explore correlations between these psychological symptoms within the study population.

Materials and methods

This online cross-sectional study was conducted on 330 Iranian college students during the initial COVID-

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19 lockdown period in Iran, spanning from March 21, 2020, to April 21, 2020. Given the imperative of adhering to social distancing measures, participants were provided with a link to an online survey along with instructions for completion. All participants provided their informed consent by signing a form prior to the commencement of the research.

The sample size was determined using G*Power (n=531). Participants were selected through cluster sampling and were required to meet inclusion criteria of being current students and completing a consent form. Exclusion criteria included failure to answer ≤ 10% of the questions (n=15). The study achieved a response rate of 65%.

The online survey comprised two sections. The first section collected demographic information including age (years), gender (male = 0; female = 1), marital status (single = 0; married = 1), residency status (native = 0; non-native = 1), field of study (non-medical sciences = 0; medical sciences = 1), academic year (first-year student = 0; other = 1), history of COVID-19 contraction (yes = 1; no = 0), COVID-19-infected loved one (yes = 1; no = 0), and adherence to a regular study plan (yes = 1; no = 0). The second section comprised the Persian version of the General Health Questionnaire-28 (GHQ-28) (21, 22).

The GHQ-28, developed by Goldberg and Hiller (1979), consists of 28 questions across four subscales: somatic symptoms (items 1-7), anxiety and sleep disorders (items 8-14), social dysfunction (items 15-21), and depressive symptoms (items 22-28). Responses were scored from 0 to 3, with higher scores indicating greater symptom severity. Categories for probable psychological distress were defined based on total scores. The validity and reliability of GHQ-28 have been established for Iranian college students.

Data analysis was performed using SPSS version 24. Descriptive statistics were used to summarize demographic characteristics, while multiple linear regression was employed to analyze the GHQ-28 subscales as independent variables and total score as the psychological distress index. Significance was set at $P < 0.05$.

Ethical approval was obtained from the Ethics Committee of Zabol University of Medical Sciences (code: IR.ZBMU.REC.1399.067). Participants were provided with information about the study's objectives, procedures, and potential benefits. Confidentiality and anonymity were assured, and participation was voluntary with the option to withdraw at any time without consequence.

Results

The mean (SD) age of the participants was 21.6 (3.9) years, ranging from 17 to 43 years. Additionally, 93% (307) of participants were single, 66.1% (218) were female, 50.9% (168) were native residents of the city where they studied, 61.2% (202) were enrolled in medical sciences programs, and 47.3% (156) were first-year students. Among the participants, 61.8% (126) reported adhering to a regular study plan during the lockdown. Only 0.9% (3) of students reported contracting COVID-19, while 20.3% (67) reported that at least one of their loved ones had contracted the disease (Table 1).

Table 1. Demographic Characteristics of College Students Participating in This Study.

Variable		Frequency (No.)	Percent
Gender	Male	112	33.9
	Female	218	66.1
Marital status	Single	307	93
	Married	23	7
Education field	Medical sciences	202	61.2

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	Non-medical sciences	128	38.8
Education years	First-year students	156	47.3
	Other-year students	174	52.7
Being a native resident or not	Native	162	49.1
	Non-native	168	50.9
Regular study plan	Yes	126	61.8
	No	204	38.2
Being infection with COVID-19	Yes	3	0.9
	No	327	99.1
COVID-19-infected loved one	Yes	67	20.3
	No	263	79.7

The mean (SD) scores on the subscales of probable somatic symptoms, probable anxiety symptoms and probable sleep disorders, probable social dysfunction, probable depression, and possible psychological distress were 5.718 (3.810), 6.24 (4.482), 11.891 (4.308), 4.31 (4.365), and 28.151 (13.823), respectively (Table 2).

Of the participants, 38.6% reported probable somatic symptoms, 41.8% complained of probable anxiety and sleep problems, 91% declared probable social dysfunction, and 23.9% reported probable depressive symptoms. Additionally, 57.9% of the participants possibly suffered from psychological distress (Table 2).

Table 2. Number (Percentage) of Severity of Psychological Symptoms.

Variable	Severity	Frequency	Percentage	Minimum	Maximum	Mean	SD
Somatic symptoms				3.810	5.718	19.00	.00
	None	203	61.5				
	Mild	103	31.2				
	Moderate	21	6.4				
	Sever	3	.9				
Anxiety symptoms and sleep disorders				4.482	6.236	20.00	.00
	None	192	58.2				
	Mild	90	27.3				
	Moderate	41	12.4				
	Sever	7	2.1				
Social dysfunction				4.308	11.891	21.00	.00
	None	30	9.1				
	Mild	123	37.3				
	Moderate	121	36.7				

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	Sever	56	17.0				
Depression				4.365	4.306	21.00	.00
	None	251	76.1				
	Mild	53	16.1				
	Moderate	19	5.8				
	Sever	7	2.1				
Total				13.823	28.151	73.00	3.00
	None	139	42.1				
	Mild	127	38.5				
	Moderate	56	17.0				
	Sever	8	2.4				

SD: Standard deviation

The linear regression analysis revealed the relationship between probable psychological distress and potential predictors, with Table 4 illustrating that predictor variables accounted for 17% of the variance in probable psychological distress. COVID-19-infected loved ones (β = 0.159) emerged as a positive predictor of probable psychological distress, increasing its odds by 5.5 times. Conversely, following a regular study plan (β = -0.396) was identified as a negative predictor of psychological distress, with adherence to such a plan reducing the odds of probable psychological distress by 1.249 times. Notably, other variables, namely being a native (P = 231), being a first-year student (P = 0.435), and field of study (P = 0.532), did not exhibit significant associations with possible psychological distress.

Marital status (β = 0.105), history of contracting COVID-19 (β = 0.152), and COVID-19 infection of a loved one (β = 0.139) were identified as positive predictors of probable somatic symptoms. Married college students, those with a positive history of COVID-19, and college students with COVID-19-infected loved ones had 1.567, 6, and 1.310 times higher probable somatic symptoms, respectively. Conversely, following a regular study plan (β = 0.224) emerged as a negative predictor of probable somatic symptoms, with adherence to such a plan reducing probable somatic symptoms by 1.750 times.

Table 3. Results of Linear Regression Analysis

Dependent Variable	Predictor	B	S.E.	Beta	t	P	R^2
Overall psychological distress	Constant value	31.338	.937		33.457	.000	.173
	Infection of a loved one	5.460	1.729	.159	3.158	.002	
	Regular study plan	-1.249	1.432	-.396	-7.857	.000	
Somatic symptoms	Constant value	5.956	.273		21.835	.000	.105
	Marital status	1.567	.788	.105	1.988	.048	
	Being infection with COVID-19	6.088	2.117	.152	2.876	.004	

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	Infection of a loved one	1.310	.503	.139	2.604	.010	
	Regular study plan	-1.750	.412	-.224	-4.249	.000	
Anxiety symptoms and sleep disorders	Constant value	6.777	.315		21.510	.000	110
	Infection of a loved one	2.202	.582	.198	3.786	.000	
	Regular study plan	-.587	.482	-.281	-.372	.000	
Social dysfunction	Constant value	13.328	.273		48.748	.000	181
	Regular study plan	-3.765	.442	-.425	-8.509	.000	
Depression	Constant value	7.877	1.254		6.282	.000	145
	Age	-.127	.058	-.114	-2.190	.029	
	Infection of a loved one	1.550	.559	.143	2.774	.006	
	Regular study plan	-2.976	.466	-.332	-6.391	.000	

Only significant coefficients are reported. **B**: Unstandardized regression coefficient, **S.E.**: Standard error, **Beta**: Standardized regression coefficient, **t**: The t-statistic, which assesses the significance of the predictor variable, **R2**: The coefficient of determination, which indicates the proportion of variance in the dependent variable explained by the independent variables in the regression model.

COVID-19-infected loved one (β = 0.198) emerged as a positive predictor of probable anxiety and sleep disorders, elevating the risk by 2.202 times. Conversely, following a regular study plan (β = 0.281) was identified as a negative predictor of probable anxiety and sleep disorders, with adherence to such a plan decreasing the likelihood of experiencing anxiety and sleep disturbance by 0.587 times.

Pursuing a regular study plan (β = 0.425) was found to be a negative predictor of probable social dysfunction, reducing the risk by 3.765 times. Additionally, age (β = 0.114) and following a regular study plan (β = 0.349) were identified as negative predictors of probable depression, with each year's increase in age associated with a decrease in probable depression symptoms by 0.127 units. Following a regular study plan decreased the likelihood of probable depression by 3.131 times. COVID-19-infected loved one (β = 0.143) also emerged as a positive predictor of probable depression, increasing probable depression symptoms by 1.55 times.

Discussion

This study was conducted among Iranian college students during the first COVID-19 lockdown to assess the severity of psychological symptoms and distress and identify associated factors. Our findings revealed that 38.6% of participants presented probable somatic symptoms, 41.8% experienced probable anxiety and sleep disorders, 91% reported probable social dysfunction, and 23.9% exhibited probable depressive symptoms. Overall, 57.9% of participants suffered from probable psychological distress.

The prevalence of probable anxiety and sleep disturbance observed in our research surpassed that reported in previous studies (8). The COVID-19 pandemic and subsequent lockdown profoundly impacted the lifestyle of college students, affecting how they carried out daily activities. Many attributed these changes to participation in virtual classes, alterations in sleep patterns, dietary modifications, and reduced physical activity (25). Additionally, we employed the GHQ-28 tool in this study, differing from similar studies, to evaluate probable psychological symptoms (8). Notably, our study took place during the initial COVID-19 lockdown in Iran when the first cases were identified, setting it apart in terms of time and location. It's important to acknowledge that the prevalence of mental health

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problems can vary across different geographical regions (8, 12).

In our study, following a regular study plan and having COVID-19-infected loved ones emerged as the main predictors of probable mental health problems. Adhering to a regular study plan predicted better probable social functioning and lower probable somatic symptoms, anxiety, sleep disorders, and depression among college students. Those who adhered to a regular study plan exhibited lower rates of probable psychological distress during the lockdown. Previous research has suggested that managing stressful situations can lead to disruptions in various forms of self-regulation (25). Not adhering to a regular study plan is a common issue encountered during self-regulation (25, 26). Therefore, college students who follow a regular study plan may develop adequate self-regulation capabilities when faced with distress. This allows them to override instinctual responses and employ alternative strategies, such as dedicating more time to studying (25, 27).

Moreover, individuals with strong self-regulation may better ignore sensory stimuli, suppress negative thoughts and emotions (28), and regulate their focus (29). Alternatively, the lower levels of psychological distress observed in students with a regular study plan may stem from increased motivation resulting from having clear academic goals. These students may view the lockdown as an opportunity to utilize newfound time and educational resources (30).

The presence of COVID-19-infected loved ones predicted higher overall probable psychological distress, somatic symptoms, anxiety, sleep disorders, and depression. This finding aligns with previous studies by Wang et al. (10), Khubchandani et al. (31), and Cao et al. (11), which reported an association between having family members, relatives, or friends infected with COVID-19 and increased rates of depression and anxiety (31). Given the early stages of the pandemic, there was insufficient information about the disease and how to provide care to patients. Moreover, overwhelmed healthcare systems in various countries, including Iran, limited access to care facilities, potentially intensifying feelings of guilt among participants for their loved ones' contraction of COVID-19 and their inability to provide adequate care. Additionally, the risk of losing an infected loved one could contribute to heightened distress among participants.

Our findings indicated that younger college students were more likely to exhibit probable depression, consistent with prior research noting increased psychological distress among younger individuals during the COVID-19 pandemic (32, 33). This may be attributed to challenges younger students face in adapting to class cancellations and postponed exams (19), as well as potentially stricter lockdown restrictions impacting communication compared to older individuals (33).

Marital status and a positive history of COVID-19 contraction predicted more probable somatic symptoms among college students. However, these factors did not show significant associations with other probable psychological symptoms or overall psychological distress. Similarly, previous studies have not found a significant relationship between marital status and COVID-19-related psychological outcomes (11). This finding may reflect individuals' concerns about their partners or children being exposed to the infection. The somatic symptoms subscale of the GHQ-28 tool encompasses items such as sickness, fatigue, and headaches, which may be relevant to individuals infected with COVID-19.

This study has several limitations. Firstly, the study population consisted of Iranian college students aged 17 to 43, limiting our ability to understand how the pandemic affected children. Secondly, self-report tools are susceptible to biases that may influence results. Thirdly, information regarding participants' previous psychopathology was not collected. Lastly, the assessment was confined to the first lockdown period, precluding an examination of the psychological distress caused by subsequent lockdowns. Thus, future research should investigate

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the long-term psychological consequences of COVID-19 lockdowns.

Conclusion

Probable somatic symptoms, anxiety symptoms, sleep problems, social dysfunction, depressive symptoms, and overall probable psychological distress exhibited a relatively high prevalence among college students during the first COVID-19 lockdown. However, certain factors such as having a regular study plan, being married, and being older were identified as protective factors against these mental health challenges. Conversely, the presence of COVID-19-infected loved ones emerged as a risk factor for probable mental health problems among college students.

Encouraging college students to adhere to a regular study plan during crises could significantly improve their mental health outcomes. This suggests that establishing and maintaining structured study routines may serve as a protective mechanism against the adverse effects of pandemic-related stressors on mental well-being. Therefore, promoting and supporting students in maintaining consistent study habits, even amidst challenging circumstances, can play a vital role in mitigating the impact of crises on their mental health.

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Conflict of interest

The authors declare no conflicts of interest regarding the present research.

Authors' contributions

M. H. and E. AA: Data collection, interpretation, and statistical analysis; EH. M and N. DM: Conceptualization and study design. All authors contributed to the initial drafting and revision, approved the final draft, and accepted responsibility for the accuracy and integrity of the content.

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