

The Impact of Covid-19 on University Students' Mental Health in Morocco

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ARTICLE INFORMATION

Received: August 08, 2021

Accepted: September 25, 2021

Volume: 1

Issue: 1

DOI: 10.32996/jpbs.2021.1.1.1

KEYWORDS

Students; pandemic; psychological status; depression; anxiety; stress

ABSTRACT

University students are particularly vulnerable to numerous mental health issues suffering from elevated levels of depression, anxiety, fear, and stress compared to the general population. The Covid-19 pandemic has negatively affected Moroccan university students' psychological status. This study aims at investigating the impact that Covid-19 has on Moroccan university students' mental health during the lockdown period. A cross-sectional study was conducted during the three-month quarantine period (April, May, and June 2020). An online survey was used to collect data from 560 students (n= 560) from five universities in Morocco. The results show that students experienced moderate to high levels of depression and anxiety and severe levels of stress during the lockdown period. Indeed, the findings also revealed that having a relative or acquaintance infected or died and/or being afraid to be infected by Covid-19 is the main predictor in increasing the levels of depression, anxiety, and stress. As university students face the risk of high levels of psychological distress particularly during these circumstances, it is of utmost importance to create monitoring services within universities to reduce the potential amplified burden that these traumatic events can have on the students.

1. Introduction

As the globe has become swiftly and increasingly interconnected, so do the risks we face. Overnight, the Coronavirus pandemic has hit the standby button to the whole world. The World Health Organization (WHO) declared Covid-19 as a worldwide pandemic in March 2020 after its swift spread in most of the countries around the globe by reaching territories that are far away from its starting origin in Wuhan (Hubei Province, China) in December 2019. The virus was confirmed to have spread to Morocco on March 2nd, 2020 through a Moroccan expatriate residing in Italy. From then on, the number of confirmed cases has been astonishingly increasing and so does the mortality rate among infected individuals. As the outbreak stretched across the country, the Moroccan government closed schools, suspended international passenger flights, and shortly after disabled all kinds of activities and declared a nationwide state of alert by imposing strict population confinement for more than three months, which has pernicious ramifications on the political, economic, socio-cultural life and public health worldwide.

Given the swift spread of the virus and its danger to individuals, its impact on different domains still remains unexplored. Education is no exception. The COVID-19 pandemic has had a serious impact on higher education as universities closed their premises in response to lockdown measures. These institutions quickly attempted to replace face-to-face lectures with online teaching, which has remarkably affected learning and examinations. This situation has spawned unbearable psychological repercussions on people with noticeable symptoms of depression, anxiety, and stress among the whole population including university students (Kang et al., 2020; Wang et al., 2020). Being a vulnerable special and hectic social group that is under pressure from various aspects of their daily life and due to their psychological immaturity and emotional instability, university students are at elevated risk for mental health problems that have significant psychological impacts on them, leading to great uncertainty and significant adverse

consequences for mental health (Hawryluck et al., 2004; Shigemura et al., 2020). Indeed, because of the severe Covid-19 current situation, several psychological conflicts like fear, isolation, worry, anxiety, depression, and other emotions appear in this unexpected, threatening, and catastrophic event, which certainly has imperiled people's lives and health on a global scale.

Numerous factors, many studies reported, have a great impact on the increasing levels of depression anxiety, and stress caused by the Covid-19 pandemic, which has dramatically impacted people's mental health and behavior. Students with chronic diseases are more likely to experience higher levels of stress, anxiety, and depression (Ghazawy et al., 2020). Wang et al. (2020) and Mazza et al. (2020) reported that chronic illness is associated with increasing levels of psychological distress among the Chinese population. Also, Hatch et al. (2018) examined the psychological distress among Italian people during COVID-19 and found that people who have health problems or perceive their health as weak are supposed to contract a new disease. Moreover, having a relative or acquaintance infected or died of Covid-19 has a direct impact on a student's mental health. Ghazawy et al. (2020) and Cao et al. (2020) confirmed that students who reported that their relatives or acquaintances were infected by COVID-19 experience higher levels of anxiety, stress, and depression more than those who did not know any infected person. Furthermore, spending too much time on social media to follow updates about the novel Coronavirus pandemic has a significant impact on the increasing levels of anxiety, stress, and depression among university students. Importantly, in their study, Guo et al. (2020) and Wang et al. (2020) found that frequent social media exposure and consuming too much information about COVID-19 is associated with increasing levels of depression and anxiety among the Chinese population and that lack of social support from the family, community, and university is also one of the most important factors that cause depression anxiety and stress among university students (Chen et al., 2020; Cao et al., 2020).

Similarly, earlier research suggests that epidemics cause profound behavioral and mental health problems. The Covid-19 pandemic has negatively impacted people's mental health as it increased the risk of some psychological disorders like anxiety, depression, and stress, among other negative emotions, due to sudden and unexpected changes in people's daily routines including work, sleep, exercising, etc. Thus, in their undertakings, Chen et al. (2020); Yang et al. (2020); Li et al. (2020) report that the epidemics have noticeable psychological impacts on the general public, patients, medical staff, children, and older adults. Moreover, previous studies suggest that catastrophic events lead to various psychological problems some of which are panic, anxiety, stress, and depression. Thus, the effects that these problems have to differ considerably among students in such a way that the anxiety and depression levels on students whose family members or acquaintances are infected by the pandemic are higher than those of other students (Liu et al., 2020). Indeed, some other studies found that people in quarantine suffer from higher rates of psychological symptoms, such as stress, depression, and anxiety compared to others, not in quarantine. These negative psychological effects were due to fears of infection, boredom, inadequate information (Brooks et al., 2020), the effect of the virus on their studies (Cornine et al., 2020), the future of employment (Wang et al., 2020) or due to the COVID-19's quick widespread and high mortality (Kang et al., 2020; Xiang et al., 2020b). Other studies reported that anxiety, depression, and stress may be related to the increasing distancing between people and the absence of interpersonal communication (Xiao, 2020). Furthermore, the negative psychological impacts that the COVID-19 pandemic has on university students are related to some influencing determinants, some of which are demographic factors like, gender (Chang et al., 2020; Wang et al., 2020b), age (Chang et al., 2020), place of settlement (Liu et al., 2020; Qiu et al., 2020), having contacted someone with suspected COVID-19 (Wang et al., 2020b) as well as exposure to much information about COVID-19 on various media outlets (Wang et al., 2020).

2. Methods

Understanding the psychological impacts of Covid 19 on students' mental health in Morocco is of utmost importance for university administrators and policymakers to serve students and suggest coping strategies to help students at greatest risk and ensure readiness to endure the effects of the expected future pandemics. The purpose of this study was to empirically investigate the psychological impact of the COVID-19 pandemic on Moroccan university students during the three months of the lockdown period (April, May, and June 2020). A cross-sectional and web-based survey was used to collect data for the current study. The target population comprised Moroccan university students from five universities (Table 1). The students were voluntarily invited to take part in this undertaking. Because of the lockdown measures, convenience and snowball sampling techniques were opted for to collect data using an online survey that assesses the mental health of the Moroccan university students during the novel coronavirus pandemic outbreak. The online survey was the only technique that could be used to collect data considering the pandemic inconveniences and restrictions. The respondents were assured complete anonymity to guarantee the confidentiality and reliability of the data. As for the response rate, 585 responses of the survey were received, but 25 of them were deleted because of incomplete responses. Thus, 560 surveys were considered for the analysis.

The survey includes the respondents' demographic information, like age, gender, region, place of settlement as well as additional information such as health status (healthy/suffer from chronic disease) sleeping hours, relative or acquaintance infected with or died of Covid-19 in addition to receiving psychological support from family, community and/or university. Moreover, the participants responded to the 7-Item Depression Anxiety Stress Scale-21 (DASS-21) which is a quantitative measure that includes

seven statements on each of the three measured factors: depression, anxiety, and stress. The respondents are required to decide how much the statements apply for them using a four-item Likert scale from 0 to 3 where 0 refers to 'did not apply to me at all', 2 refers to 'applied to me to a considerable degree or a good part of the time' and 3 refers to 3 'applied to me very much or most of the time'. Concerning the scoring of the depression, Anxiety, and Stress scales, the depression scale ranges from, normal (0-9), mild (10-13), moderate (14-20) to severe to extremely severe (more than 21). The anxiety scale ranges from normal (0-7), mild (8-9), moderate (10-14) to severe to extremely severe (more than 15). The stress scale ranges from normal (0-14), mild (15-18), moderate (19-25) to severe to extremely severe (more than 26) (Lovibond and Lovibond, 1995). The instrument has demonstrated a good internal consistency (Cronbach's $\alpha = 0.871$).

3. Results

3.1 Precautions and perception measures

Table1: Demographic information of the studied Moroccan university students

Demographic characteristics		N (%)
Age	17-19	210 (37.5%)
	20-22	222 (39.64%)
	>22	128 (22.85%)
Gender	Male	289 (51.60%)
	Female	271 (48.39%)
University	Abdelmalek Essaadi	121(21.60%)
	Sidi Mohamed ben Abdellah	74(13.21%)
	Moulay Ismail	125(22.32%)
	Sultane Moulay Slimane	138 (24.64%)
	Al Kadi Ayyad	102 (18.21%)
Place of settlement	Urban	336 (60%)
	Sub urban	104 (18.57%)
	Rural	120 (21.42%)
Sleeping hours a day	Less than 6 h	52 (9.28%)
	6-9 h	370 (66.07%)
	More than 9 h	138 (24.64%)
Health status	Healthy	389 (69.46%)
	Suffer from chronic disease	171 (30.53%)
Relative acquaintance infected by COVID19	Yes	103 (18.39%)
	No	457 (81.60%)
Relative acquaintance died of COVID19	Yes	42 (7.5%)
	No	518 (92.5%)
Receiving psychological support	From family	390 (69.64%)
	From community	80 (14.28%)
	From university	90 (16.07%)

Note: N = Number of respondents

A total of 560 students from 5 universities responded to the questionnaire (table 1). The 20-22 age group constituted 39.64% of the respondents. 37.5% of them are aged between 17 and 19 and 22.85% are more than 22 of age. Females constituted 51.60% of the sample and 48.39% are males. 60% of the respondents live in the urban area and more than two-thirds of the respondents (66.07%) reported that that they sleep between 6 and 9 hours. Moreover, 18.39% of the students have a relative or acquaintance infected by COVID-19 and only 7.5% have a relative or acquaintance who died of COVID-19 after three months of the pandemic breakout and more than half of the respondents (69.64%) received their psychological support from their families.

Additionally, the results of the current study show that 66.06% of the respondents are annoyed and 25% of them are terrified about the novel Coronavirus pandemic whereas only 8% do not care about the emerging virus. Additionally, more than two-thirds of the Moroccan university students (67.85%) reported that the Coronavirus pandemic deserves too much concern and more than half of them (51.6%) spend 2 to 5 hours daily to follow the regular updates about the Coronavirus pandemic. 43.21% are not committed to staying at home during the lockdown period and 78.03% did not have enough information about the COVID-19 pandemic. Approximately 82% of the respondents are committed to social distancing and more than half of them use antiseptics and masks when they go out (table 2).

Table 2: Perception and precaution measures of the studied Moroccan university students regarding Covid-19

Items		N (%)
How do you feel about the Covid-19 pandemic?	I am not caring	50 (8.92%)
	Somewhat annoyed	120 (21.42%)
	Severely annoyed	250 (44.64%)
	Terrified	140 (25%)
Do you think that the Pandemic deserves all this concern?	It deserves attention and concern	380 (67.85%)
	It's very dangerous and terrifying	142 (25.35%)
	Media coverage about this pandemic is exaggerated	38 (6.78%)
Time spent daily to follow regular updates on COVID-19 pandemic	< 1h	55 (9.82)
	2-5h	289 (51.6%)
	> 5 h	216 (38.57%)
Are you committed to staying at home?	Yes	83 (14.82%)
	To some extent	235 (41.96%)
	No	242 (43.21%)
Do you have enough information about COVID-19 and its prevention?	Yes	20 (3.57%)
	To some extent	103 (18.39%)
	No	437 (78.03%)
Are you committed to social distancing?	Yes	180 (32.14%)
	To some extent	279 (49.82%)
	No	101 (18.03%)
Do you regularly use masks and antiseptics when you go out of your house?	Yes	189 (33.75%)
	Sometimes	309 (55.17%)
	No	62 (11.07%)

3.2 Depression, anxiety, and stress among Moroccan university students

Moroccan university students experienced depression, anxiety, and stress in different degrees. More than half of the respondents experienced mild to severe levels of depression (58%) while only 18% and 10% experienced normal to extremely severe degrees of it respectively. Moreover, 60% of the studied population experienced mild to moderate levels of anxiety, 19% normal whereas only 6% were extremely anxious. In comparison to depression and anxiety levels that mainly range from mild to severe, Moroccan university students experienced higher levels of stress during the quarantine period as more than one-third of the respondents (32%) had extremely severe levels of stress whereas only 8% and 14% experienced normal and mild degrees of stress respectively. Importantly, the mean and standard deviation outputs of the depression, anxiety, and stress score levels, according to the Depression Anxiety and Stress Scale manual, reveal that university students in Morocco experience moderate levels of depression and anxiety (13.89 ± 7.2; 10.01 ± 6.73) and severe levels of stress (17.24 ± 9.98) (table 3).

Table 3: Prevalence of depression, anxiety, and stress among students during COVID19

Items		Percentage (%)	Mean	Std. Deviation
Depression	Normal	18%	13.89	7.2
	Mild	14%		
	Moderate	28%		
	Severe	30%		
	Extremely severe	10%		
Anxiety	Normal	19%	10.01	6.73
	Mild	32%		
	Moderate	28%		
	Severe	15%		
	Extremely severe	6%		
Stress	Normal	8%	17.24	9.98
	Mild	14%		
	Moderate	22%		
	Severe	24%		
	Extremely severe	32%		

3.3 The Impact of Covid-19 on Moroccan university students

The Coronavirus pandemic has dramatically impacted university students in various degrees. Many variables interfere directly or indirectly to affect students' mental health and behavior. A regression analysis test was run to determine which independent variable best predicts the level of depression, anxiety, and stress that students experienced during the lockdown period. Before running the analysis, preliminary analyses were conducted to ensure that the assumptions of normality, linearity, multicollinearity, and homoscedasticity are not violated. The R square value explains how much of the variance in the level of depression anxiety and stress is explained by the independent variables. In this case, the R square value is estimated at .638 ($R^2 = .638$). This means that the independent variables explain 63.8% of the variance in the dependent variable. Moreover, as the p-value, is statistically estimated at .000 ($p < .05$), the model predicts the outcome better than just chance (Table 4).

Table 4: Variance in the impact of Covid-19 on Moroccan university students.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	.802	.638	.618	4.175

a. Predictors: (constant), gender, age, sleeping hours, a relative died of Covid-19, Relative infected/being afraid to be infected by COVID-19

The regression analysis output shows that the students who have a relative or acquaintance infected and/or are afraid to be infected by COVID-19 make the strongest unique contribution to explaining the degree of depression, anxiety, and stress among Moroccan university students with the largest beta weight of $\beta = .820$ ($p = .002 < .05$), followed by gender as the second independent variable that best predicts the dependent variable with a beta value of $\beta = -.305$ ($p = .004 < .05$), then the number of sleeping hours with a value of $\beta = .052$, whereas the respondents' age the lowest impact on determining the level of depression, anxiety and stress Moroccan university students suffer from during the lockdown period with a value of $\beta = .001$ (table 5).

Table 5: Summary of regression analysis for variables predicting depression, anxiety, and stress among Moroccan university students

	Standardized coefficient		
	Beta	T	Sig.
Gender	-.305	-2.995	.004
Age	.001	.008	.994
Sleeping hours	.052	.420	.676
Relative died of COVID-19	-.041	-.259	.796
Relative infected/being afraid to be infected by COVID-19	.820	.	.002

Note. a. Predictors: (Constant), gender, age, sleeping hours, relative died of COVID-19, relative infected by COVID-19

b. Dependent Variable: Depression, anxiety, and stress.

4. Discussion

The intent of the current study was to investigate the psychological impacts of COVID-19 on Moroccan university students during the lockdown period. The findings provide supporting evidence that the novel Coronavirus pandemic has fomented largely negative psychological impacts which affected students' mental health and behaviors. Among the most important findings of this undertaking is the radical change of the students' 'way of life' that dogmatically spawned feelings of depression, anxiety, and stress among them. The pandemic forced university students to stay at home; something they are not familiar with, which resulted in psychological unrest and annoyance on them. This finding goes in line with previous studies' results reporting that the novel Coronavirus pandemic has negatively impacted people's mental health (Kang et al., 2020; Wang et al., 2020; Chen et al., 2020; Yang et al., 2020; Li et al., 2020). Importantly, Moroccan university students suffer from mild to severe levels of depression and anxiety and severe levels of stress during the quarantine. Similar findings were reported by Cao et al. (2020) confirming that students experienced increased anger, sadness, anxiety, and fear in China. In the same vein, Elmer et al. (2020) found that the sudden and dramatic decrease in social interaction has resulted in higher levels of stress, anxiety, and loneliness. Moreover, although these impacts are felt among students, they experienced feelings of depression, anxiety, and stress at different levels due to various interrelated factors that contribute to the increase in students' mental health problems. Students who are infected or afraid to be infected and/or those whose relatives or acquaintances are infected by Covid-19 experience higher levels of depression, anxiety, and stress compared to others. This finding corroborates Liu et al.'s (2020) and Brooks et al.'s (2020) finding asserting that students suffer from higher rates of psychological symptoms due to fear of infection or quick and high Covid-19 mortality rate (Kang et al., 2020; Xiang et al., 2020b). Also, the fear/threat of death from COVID-19 has negatively impacted the students' mental health. This

finding is consistent with Cao et al.'s (2020) asserting that having a relative died or infected by Covid-19 is the main factor that increases the levels of depression, anxiety, and stress among Chinese university students. Additionally, poor sleep quality has been associated with high levels of psychological distress among Chinese university students, which is consistent with many previous research results reporting that sleeping adequate hours (6-9) per day is associated with lower levels of depression, anxiety, and stress and vice versa (Lemma et al., 2012; Seun-Fadipe and Mosaku, 2017). This finding is also in line with what has been observed in other studies such as Acharya et al. (2018) reporting that there is a correlation between sleeping and eating habits on students' mental health. Furthermore, the high levels of screen time spent by Moroccan university students to follow updates about the novel Coronavirus pandemic is another risk factor that increases depression, anxiety, and stress levels. This finding generally matches those found in other studies asserting that excessive media exposure to get information about Covid 19 has a negative impact on the students' mental health (Wang et al., 2020; Guo et al., 2020; Ayitney et al., 2020).

Indeed, approximately all the respondents who suffer from chronic disease were vulnerable and more likely to have depression, anxiety, and stress in comparison to healthy individuals. Similarly, Wang et al. (2020) found that chronic disease has been associated with high levels of psychological unrest among Chinese students and the same results were reported by Mazza et al. (2020) in Italy during the Coronavirus pandemic. This can be explained by the fact that these people perceive their health to be psychologically poor and, therefore, prone to contract a new disease.

5. Conclusion

The abrupt outbreak of the pandemic and its uncertain evolution has caused dramatic effects on the population, mainly college students who are considered particularly vulnerable to mental health problems during traumatic events. The Moroccan university students experience notable psychological disturbances of depression, anxiety, and stress in varying degrees depending on different interconnected factors, like having a relative or acquaintance infected or died of Covid-19, suffering from a chronic disease, having or lacking psychological support from family, university and/or community in addition to the number and quality of sleeping hours and the amount of time spent to follow updates about the pandemic. Among these factors, having a relative or acquaintance infected or died of Covid-19 is the main predictor that affects the Moroccan university students' psychological status. Thus, university students' mental health should be taken into consideration during times of crisis by creating monitoring services within universities to alleviate the effects that these traumatic events can have on students and orienting future research to explore and understand the potential changes in the mental health of this particular sect of the population.

Authors' statement: I hereby declare that I and my team abide by academic ethics and that this paper is the result of our efforts. This paper does not contain any published or written content by other authors apart from what is indicated and quoted in the paper.

Declaration of competing interest: The authors declare that no competing interests exist.

Funding: This study did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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