

The Academic and Psychological Impact of COVID-19 Outbreak on Medical Students in Sudan

Mohamed Magzob Gorashi

Correspondence: Mohamed Magzob Gorashi, University of Gezira - Faculty of medicine, (E-mail: Mohamed.magzob97@gmail.com). Tel: +249907987804

Abstract:

Background: The COVID-19 outbreak gave rise to new and unfamiliar challenges upon medical students in Sudan which may have a significant potential to affect their mental and physical well-being. Medical students in Sudan Also encountered an abrupt cutoff from both medical and clinical training since the beginning of the outbreak without implementing a compensatory learning method, which may affect the academic status of medical students in Sudan.

Objectives: This study aimed to identify the effect of the COVID-19 outbreak on the psychological and academic status of medical students in Sudan.

Methods: This is a prospective descriptive study conducted on undergraduate medical students from three of the top medical schools in the Republic of Sudan, all of which are recognized by the WHO. Data were collected between June and July 2020 using multiple conventional methods on an online-based pre-tested & validated 45 items questionnaire. Data were collected using Microsoft Excel software and all statistical analyses were performed using IBM SPSS statistics software.

Results: A total of 357 medical students participated in the study from 3 medical schools in the Republic of Sudan. The participants reported a remarkable negative drop in their mood following the pandemic compared to their mood before it. Social isolation, relatives, or friends getting infected and career uncertainty were the most prominent negative influencers. 85.4% of the participants experienced at least one symptom of anxiety during the outbreak. 56% of the participants experienced panic attacks during the pandemic. 82.6% of the participants experienced at least one symptom of depression. 11.2% of the participants scored a high-risk factor for suicide, 25.5% scored a medium risk while 39.5% scored a low risk. All of the participants reported that they are not getting any form of education from their medical schools during the pandemic. Only 2.5% of the participants are engaged in health care roles. 76.2% reported that they are not studying medicine at the same rate before the shutdown of universities. 59.9% of the participants did not get involved in any medical academic activity during the pandemic. 62.7% did not study any new medical material during the pandemic. 90.6% reported that they did not assess their medical knowledge and clinical skills during the pandemic and 76.8% did not recite medical topics they had in the past.

Conclusion: The COVID-19 outbreak in Sudan harms both the psychological well-being and the academic status of medical students. This study reflects the psychological and academic impact of a pandemic on a developing country and its side effects on medical students therefore it's necessary to conduct further research on the matter to find solutions and prevent future reoccurrence.

Introduction:

The global outbreak of COVID-19 has created divergent and substantial consequences that globally altered the natural course of human lives. The World Health Organization (WHO) declared the COVID-19 outbreak a Public Health Emergency of International Concern on 30 January 2020 and a pandemic on 11 March 2020. On 16 March 2020, the federal ministry of health in Sudan declared health emergency over COVID-19. Social isolation, impairment of daily routine, functional limitations, financial hardships and grief over the death of loved ones has a significant potential to affect self-wellbeing ⁽¹⁾. For medical students it is a time of great uncertainty about their appropriate roles in clinical care during the pandemic as well as it is a window of vulnerability to psychological and physical infirmity. The psychological status of medical students plays a major role in their academic progression because mental health disturbances may have a negative effect on cognitive functioning and learning of students in medical schools ⁽²⁾. In the field of education, many countries including Sudan have decided to close schools, colleges and universities to reduce contact. Online teaching has been abundantly adapted worldwide regardless of its technical and functional difficulties ⁽³⁾. However some developing countries like Sudan lack the basic requirements to provide an efficient online teaching thus the educational process is completely obstructed throughout all of its levels since the beginning of the outbreak. Medical students in Sudan encountered an abrupt cutoff from both medical education and clinical training since the Sudanese government announced the initial suspension of all the activities of the institutions of higher education on March 14, 2020 ⁽⁴⁾. Due to a lack of researches in Sudan on this subject, and considering the magnitude of the issue, I have instigated this research to identify the effect of COVID-19 outbreak on the psychological and academic state of medical students in Sudan.

Methods and Materials:

Instruments:

Multiple methods were utilized to assess the psychological and academic status of medical students. The psychological assessments included Behavioral Activation for Depression Scale (BADSD), Eating Disorder Examination (EDE), Panic Disorder Severity Scale (PDSS), Mood Disorder Questionnaire (MDQ), Columbia Suicide Severity Rating Scale (C-SSRS) and Hamilton Anxiety Scale, which were abbreviated and utilized to form the questionnaire. The questionnaire contained 45 items distributed in 3 segments (demographic data segment, mental well-being segment, and academic status segment). The demographic data segment contained age, gender, medical school, academic year and ethnicity/nationality. The mental well-being segment measured how the medical students feel about the pandemic and how are they adapting to it and the support offered to the medical students as well as it covered most of the prevalent acquired mental disturbances including anxiety, panic disorders, depression, personality disorders, eating disorders, psychotic disorders, substance abuse disorders and mood disorders, where each question had selectable multiple choices which were set to detect the presence of the mentioned mental disturbances their severity. The questions of the mental well-being segment were built on the condition that each one investigates a psychological area without the participant knowing the purpose of the question to avoid confabulation. The academic segment covered the learning and educational changes observed by the students

with regard to development, regression and the current academic status.

Study subjects:

All the male and female undergraduate medical students from three of the top medical schools in the republic of Sudan were invited to complete the questionnaire, namely the medical faculties of university of Khartoum, university of Gezira and Omdurman Islamic university. Anyone below the age of 18 years, or unwilling to give informed consent was excluded.

Sampling criteria and collection of data:

This prospective study was conducted using online based simple random sampling and the sample size was determined by Cochran’s criteria for 95% confidence level. The prospective data were collected between June and July, 2020 by publishing the questionnaire through an invitational message distributed by email and social media to the designated sample. Access to the questionnaire was closed when intended sample size was reached. The students were allowed to respond in their own time and privacy as the questionnaire was online-based and participation was entirely voluntary. All students who participated in the study were informed about the objectives of the study and its coordinator.

Analysis of data:

Data were collected using Microsoft Excel software and all statistical analyses were performed using IBM SPSS statistics software, version 25. Each question was categorized according to its significance. The questions concerning the mental state were interpreted using descriptive analysis and those investigating mental disturbances were categorized into four levels (nil, mild, moderate, and severe) according to how the feedback is interpreted in the previously mentioned assessment tools from each pathopsychological aspect of interest. After summarization, each was put into one titled category as present where the outcome is not nil. Descriptive statistics were used to summarize and illustrate the academic section outcome variables after categorization. Bivariate Pearson correlation was used to identify and illustrate the association between the significant categorical outcomes and different study variables (age, gender, medical school, academic year and ethnicity) of each section. Tables and charts were used to illustrate the most significant outcomes.

Results:

Data were collected from 357 participants from 3 medical schools in the republic of Sudan, all of which are recognized by the WHO. The characteristics of the study subjects are shown in Table (1). The majority of the participants were Sudanese (95.2%) and male (54.9%).

Table (1): The characteristics of the study subjects

Study variable (n=357)	No.	Percentage
Medical school		
University of Gezira	195	16.5
University of Khartoum	103	54.6
Omdurman Islamic University	59	28.9
Year of study		
1 st	29	8.1
2 nd	46	12.9
3 rd	163	45.7
4 th	79	22.1
5 th	40	11.2
Gender		

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Male	196	54.9
Female	161	45.1
Nationality		
Sudanese	340	95.2
Non-Sudanese	17	4.8
Age	Mean	Median
	21.37 (S.D: 1.425)	21.00 (Range: 18-24)

The Mental well-being of the participants:

84.9% of the participant agreed that COVID-19 outbreak in Sudan is a serious issue while 10.1% were neutral. 63.8% are worried about getting infected and 83.1% were worried about transmitting the disease to someone else. 47.6% were worried about their financial status and 61.9% are worried about the long-term negative impacts of the pandemic. No demographic was associated with a certain feedback. The participants reported a remarkable negative drop on their mood following the pandemic when asked to rate their mood from 1 to 10 before and after the pandemic where 0 being the worst mood imaginable and 10 being the best mood imaginable, illustrated in Table (2). Social isolation, relatives or friends getting infected and career uncertainty were the most prominent negative influencers. It was majorly students of advanced years who reported a remarkable mood drop.

35.3% of students reported that they constantly felt self-doubt after the outbreak. 16% of students reported that they faced social stigma or discrimination associated with COVID-19. 85.4% of the participants experienced symptoms anxiety during the outbreak ranging from severe 26.9%, moderate 15.1% and mild 43.4%. 56% of the participants experienced panic attacks during the pandemic. 82.6% of the participants experienced symptoms of depression, ranging from severe 12.6%, moderate 44.8% and mild 25.2%. 11.2% of the participants scored a high risk factor suicide, 25.5% scored a medium risk for suicide while 39.5% scored a low suicide risk and the rest were risk free.

Watching movies or TV series, staying connected with friends/relatives using online tools, gaming and reading were the most reported tools that helped the participants with their mental wellbeing during the pandemic.

Table (2):Mood Status

	Mood before the outbreak	Mood after the outbreak
Mean	5.30	3.99
N	357	357
Std. Deviation	2.745	2.931

The Academic status of the participants:

All of the participants reported that they were not getting any form of education from their medical schools during the pandemic. 74.2% of the participants reported that the shutdown of universities affected them negatively. 86.3% of the students did not get any form of support from their universities. 11.2% reported that they received a useful support from their universities, all of which were from university of Khartoum. Students from Islamic university of Omdurman 2.5% reported that they received a form of support that was not useful. 78.2%

of the participants wanted their universities to provide them with more support. The most demanded forms of support were support on course material and examination preparation, online material/videos for self-support and information on COVID-19 symptoms and management. 49.6% of the students felt like they did not get sufficient information concerning Personal Protective Equipment. 59.7% of the students thought that they did not get sufficient training on infection prevention and control. Only 2.5% of the participants were engaged in health care roles. 76.2% reported that they were not studying medicine at the same rate before the shutdown of universities. 90.8% reported that they were worried about forgetting their academic knowledge and clinical skills and 69.5% felt like their academic knowledge was deteriorating. 76.5% thought that quarantine is affecting my learning process. Table (3) demonstrates the participants' evaluation of their academic progression after COVID-19 affected Sudan. 59.9% of the participants did not get involved in any medical academic activity during the pandemic while the rest were involved in medical education, medical research and medical conferences. 62.7% did not study any new medical material during the pandemic. 90.6% reported that they did not assess their medical knowledge and clinical skills during the pandemic and 76.8% reported that they did not recite medical topics they had in the past.

Table (3): Academic progression

	Frequency	Percent
1	155	43.4
2	67	18.8
3	17	4.8
4	16	4.5
5	34	9.5
6	17	4.8
7	34	9.5
8	9	2.5
9	8	2.2
Total	357	100.0

Discussion:

The results of the study showed that the COVID-19 pandemic has a significant negative impact on both the psychological state and the academic status of medical students in Sudan. Medical students are among the groups most vulnerable to anxiety and depression ^(4,5) and the emergence of the pandemic and the suspension of academic studies in Sudan made them more susceptible to mental disturbances. This was evident in the data of mood difference before and during the pandemic and the novel appearance of mental deterioration symptoms on the students during the pandemic. Isolation, career uncertainty, reports on social media, academic worries, and boredom are among the main factors that negatively affect students' mental health.

The results showed that the studied universities did not provide any alternative solutions concerning continuing education and that students did not receive any kind of feedback from their universities regarding the current educational situation and the future plans of the universities since the initial suspension of higher education institutions activities in Sudan on April 5th 2020, while the majority of students reported their desire to receive various support from their universities. The coordination of universities and medical schools in particular for integrated programs to support students will motivate the students to maintain the engagement with the academic lifestyle.

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The prolonged suspension of the educational and training process in medical colleges and the inability of universities to provide means of remote education had a negative impact on the academic status of medical students in various aspects, as shown in the results. The results showed that students spent most of their time during the pandemic in activities not related to studying medicine, which may negatively affect the academic level of students.

This severe and prolonged academic interruption may pose an academic dilemma for students when studying is resumed, especially since a remarkable number of students admitted that they had forgotten the basic knowledge of medicine and some admitted that they had not studied any medical information during the pandemic and the suspension.

Higher education institutions must take into account and study these academic and psychological changes that occurred to medical students during the pandemic before studies are resumed in universities, in addition to that an academic and psychological rehabilitation program must be built based on these studies, as this is important for the quality of education and the mental health of students.

This study reflects the psychological and academic impact of a pandemic on a developing country and its side effects on medical students. The suspension of the academic activities and medical training and the implementation of global health protocols in quarantine led to a deterioration in the mental health and the academic status of medical students in Sudan. Therefore this study seeks to promote further investigation on the matter and attracts attention regarding problem solving the prevention of from future reoccurrence.

Conclusion:

The COVID-19 outbreak in Sudan has a negative impact on both the psychological well-being and the academic status of medical students. Therefore it is necessary to conduct extensive descriptive researches on a comprehensive scale regarding the changes that has occurred to medical students during the pandemic, take them into account, finding proper solutions to deal with them and most importantly to prevent their occurrence in the future.

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