COVID-19 mental health consequences on medical students worldwide

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ABSTRACT
Background: The COVID-19 epidemic has impacted medical education for medical students worldwide. As medical students are already vulnerable to poor psychological well-being, the mental health of medical students may be significantly affected by the changes caused by COVID-19.

Objective: In this article, we discuss the curriculum and mental health ramifications of the COVID-19 epidemic on the international medical school population

Methods: In this review, we analyzed 13 studies evaluating the impact of COVID-19 on medical school curriculum, medical student mental health, and subsequent medical student coping strategies.

Results: Early in the COVID-19 outbreak, the Association of American Medical Colleges recommended to pause all student clinical rotations, while in-person curriculum moved to virtual modalities. Students expressed concern over their abilities to explore specialties of interest and their confidence in becoming a competent doctor. Medical students also reported higher levels of anxiety, stress, and exhaustion, with female students reporting this more than male students. Students have been coping with these challenges in quarantine through engaging in physical activity, spending time outdoors, and video chats.

Conclusion: Medical education institutions must address the effects of COVID-19 on the mental health of their students in order to mitigate related consequences.

1. Introduction

Health authorities in China on 31 December 2019 confirmed that dozens of people in Wuhan, China had been affected by a ‘mysterious pneumonia’. Shortly after China’s first death from the novel coronavirus on 11 January 2020, the USA saw its first confirmed case on 21 January, 2020 and the WHO officially declared this a pandemic in early March [1]. Since then, the COVID-19 virus has sickened over 80 million people and at least 1.7 million have lost their lives to it [2]. The virus impacted the worldwide community with effects including loss of life, shift to quarantine, unemployment, and disrupted education.

Even before the pandemic has hit, research has shown that medical students report higher levels of psychological distress than their same-aged peers[3]. Because of this, we are interested in seeing how COVID-19 has impacted the wellbeing of medical students around the world. In this paper, we will review 13 studies from Pubmed and Medline found using keywords such as ‘medical student’, ‘COVID-19’, ‘mental health’, and ‘curriculum’. This review will evaluate how COVID-19 has changed medical schools’ curriculum, impacted medical students’ mental health, and what students have done to cope with stressors stemming from COVID-19.

2. Impact of COVID-19 Curriculum Changes

Seven articles were evaluated to gauge the impact of COVID-19 curriculum changes. Medical schools slowly moved to online learning to prevent further transmission and potential exposure of the virus beginning in March 2020. Students had to quickly adapt from in-person classes and activities to long hours on zoom.

In order to better understand what aspects of online learning had the most impact on a smooth and successful educational process, an Israeli study surveyed first-year students at the Adelson School of Medicine. They found that the high overall satisfaction rate with online learning along with low technical difficulties was closely correlated to the desire to continue online learning (p < 0.01) [4]. However, a survey of 3,348 medical students from 13 medical schools found that most respondents (64.7%) disagreed that online learning could be easily implemented. A majority of students
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have faced additional stress regarding disruptions in their medical education leading to symptoms of anxiety and depression.

Medical student anxiety has increased after the onset of the COVID-19 epidemic. A survey of 741 medical students across the USA evaluated students' anxiety with a 7-point Likert scale. There was a statistically significant increase in self-reported emotional exhaustion and burnout from before the pandemic and since the pandemic started (p < 0.001) [7]. Additionally, medical students from Idaho expressed 'a lot' or 'extreme' concern regarding the toll COVID-19 will take on public health (64%), the economy (61%), the health of loved ones (61%), and not knowing when the pandemic would end (59%) [11]. Medical students who completed the Depression Anxiety Stress Scale 21 Items (DASS21) before and during COVID-19 revealed a significant increase in both prevalence and levels of anxiety and stress during this period (P < 0.001); however, levels of depression did not change [12].

Other studies have demonstrated evidence of depressive symptoms in medical students during the pandemic. In a study of 530 medical students, 234 (44.1%) students had a sense of being emotionally detached from family and friends and 202 (38.1%) students reported feeling hopeless, exhausted, or emotionally unresponsive during the quarantine period [6]. Another study of 549 students found that 341 (62.3%), 410 (74.6%), 344 (62.6%), and 379 (69%) students, respectively, self-reported anxiety, depression, insomnia, and distress [13].

Females report more mental health consequences than their male counterparts. When a Kessler-10 (K10) model was used to measure psychological distress in Australian medical students, there was a significantly higher K10 score in females than males (p = 0.014) [14]. Additionally, a Moroccan study assessing 549 medical students found that Females were more likely to report severe symptoms of anxiety (P = 0.042), depression (P < 0.001), insomnia (P = 0.007), and distress (P = 0.007) [13].

4. COVID-19 Coping Strategies

Four articles were evaluated to understand the different strategies medical students employ to manage COVID-19-related stress. Medical students have been coping with their COVID-19 provoked mental health challenges through various methods. Different strategies employed to improve mental well-being include spending time outdoors, physical activity and exercise, video chats, social media apps, and mindfulness and meditation [11,14,15].

Physical activity and exercise have proved to be particularly effective in helping mental well-being of 1,598 (83.7%) English medical students after the COVID-19 outbreak [15]. Participants who reported that exercise helped their well-being had
a significantly higher self-reported mood than those who did not exercise (P = 0.048) [15].

Interestingly enough, being involved in COVID-19 response units has been shown to help reduce levels of anxiety and burnout. Students involved in voluntary COVID-19 response units reported lower levels of anxiety (p < 0.001) and burnout (P < 0.001) than their noninvolved peers [16].

5. Conclusion

Medical students are a vulnerable population susceptible to high levels of stress due to the COVID-19 pandemic disrupting their education and subsequent confidence in becoming a competent physician. To keep faculty and students safe, medical schools have moved curriculum online which is a cause of concern for many medical students. Addressing the effects of COVID-19 on the mental health of medical students is vital and encouraging students to pursue healthy coping activities can help improve their psychological state.

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