

Original Article



Lived experiences of medical students during COVID-19 pandemic: A qualitative research

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Abstract

Background: The COVID-19 outbreak has significantly impacted medical students worldwide. Considering the uniqueness of the situation, capturing the real-life experiences of individuals could enhance our understanding of the situation. The present study aimed to get an in-depth analysis of the lived experiences of medical students amid the COVID-19 crisis.

Methods: This qualitative study employed an interpretative phenomenological methodology. Participants were chosen using purposive sampling, which was continued until data saturation was achieved. In-depth semi-structured interviews were conducted with thirteen medical students of Tabriz Islamic Azad University to gather data. The collected data were then analyzed utilizing Graneheim and Lundman's qualitative content analysis approach.

Results: The data analysis revealed two overarching themes and ten associated subthemes. The first main theme, "opportunity for growth," was broken down into four subthemes: communication, adaptation, reflection, and pride. The second primary theme, "suffering and fear," was characterized by five subthemes: aggression, anxiety, grief, uncertainty, and isolation. These subthemes reflect the positive and negative impacts of the COVID-19 pandemic on the participants.

Conclusion: The pandemic has brought about numerous challenges for medical students, necessitating the active intervention of universities to mitigate potential long-term repercussions. Addressing these dual aspects requires a multifaceted approach.

Introduction

The COVID-19 pandemic has significantly affected the world, causing widespread disruptions across various aspects of life; including health, economy, education, and social structures.¹ One of the most important impacts of the pandemic has been on healthcare systems.^{2,3} Medical staff, including medical students, have been on the frontlines of this battle, working tirelessly to treat patients and contain the spread of the virus.⁴ Their dedication and commitment to saving lives are truly commendable.⁵

However, the disruptions in education, clinical rotations, and personal lives have resulted in a unique set of experiences for these future healthcare professionals.⁶ The pandemic disrupted medical education in various ways.⁷ Initially, traditional in-person teaching was replaced by online or virtual platforms. This forced medical students to adapt to unfamiliar learning methods, such as using video conferencing tools and online resources. Additionally, clinical rotations were either postponed or reduced in duration, limiting students' hands-on

experience in healthcare settings.⁸ Examinations were affected as well, with many faculties shifting to online or remote assessments.⁹

In addition to academic challenges, medical students also faced mental health issues during the pandemic. The stress of dealing with a global health crisis, combined with the fear of contracting the virus themselves or spreading it to their families, took a toll on their mental well-being.^{5,6} Many students reported feelings of anxiety, depression, and burnout, as they juggled their studies with the demands of working in hospitals or clinics.^{9,10} Considering the uniqueness of the situation, capturing the real-life experiences of individuals impacted by COVID-19 could enhance our understanding of the situation. The present study aimed to get an in-depth analysis of the lived experiences of medical students amid the COVID-19 crisis.

Methods

The primary objective of the study is to elucidate the

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distinctive challenges, emotions, and adaptations experienced by medical students in the context of COVID-19 global health crisis. The study used a phenomenological approach, which is concerned with individuals' subjective experiences. This method enables a comprehensive understanding of the participants' viewpoints and facilitates a thorough data collection. Inclusion criteria for students were consent to participate in the study, and experience of working with COVID-19 patients.

In conducting this qualitative study on the lived experiences of medical students during the COVID-19 pandemic, we adhered closely to the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines to ensure rigor and transparency throughout the research process. As two female researchers with backgrounds in qualitative research and medical education, we approached the study with reflexivity, considering how our own professional and personal perspectives might influence the data collection and analysis. To mitigate bias, we engaged in regular discussions and reflexive practices throughout the study. We provided participants with clear information about our roles as researchers, ensuring transparency and building rapport prior to the interviews.

For participant selection, we employed purposive sampling to recruit thirteen medical students from Tabriz Islamic Azad University, continuing until data saturation was reached. In-depth semi-structured interviews were conducted, with care taken to document the settings, durations, and participant characteristics. Interviews were audio-recorded and supplemented by field notes to capture non-verbal cues and contextual details. After obtaining written informed consent, students were interviewed in person in a time period of 45-60 minutes. In cases where the interviewee was not available or unwilling to participate in person, the interview was conducted by telephone. The interviews were initiated by open questions, and continued by leading questions which were previously determined by an expert panel.

After asking questions on demographic data, open-ended questions guided the interviews:

1. Can you describe your daily routine during the COVID-19 pandemic?
2. How has the pandemic affected your life in different aspects?
3. How do you feel about being a medical student during the pandemic?
4. Describe your experiences as a medical student during the pandemic.

Regarding the trustworthiness of the study, the criteria presented by Lincoln and Guba were considered.¹¹ To maintain data credibility, the researchers engaged extensively with the data through prolonged observation, peer collaboration, and consistent interaction among

the research team. We ensured credibility by employing member-checking, allowing participants to review and validate the findings. Detailed descriptions of participants' characteristics and experiences were provided to enhance transferability. Reliability was upheld by ensuring accountability; the research methods, data collection, analysis, coding, and category development were all reviewed by an external expert knowledgeable in qualitative research. Lastly, all research procedures were meticulously documented and thoroughly presented to ensure confirmability.

In qualitative research, the perspectives and backgrounds of researchers can significantly influence the study design, data collection, and interpretation of findings. For this study, it is essential to acknowledge the researchers' perspectives and potential biases. The first author is a medical student and the second author is an associate professor; to address potential biases, we engaged in reflexivity, regularly reflecting on our assumptions and preconceived notions throughout the research process. Additionally, involving a diverse team of researchers with varying experiences and viewpoints allowed for a more nuanced analysis of the data, helping to counterbalance individual biases and ensuring a more accurate portrayal of the participants' experiences. By being mindful of these dynamics, we aimed to produce findings that genuinely reflect the complexities of medical students' lives during this unprecedented time.

Results

The study included 13 participants aged 22 to 27 years, with a mean age of approximately 23.23 ± 2.1 years; the majority (53.8%) were 23 years old, indicating a relatively homogeneous age distribution. Of these students, all were single but one. In terms of gender distribution, 8 (61.53%) were females, and 5 (38.46%) were males. Data analysis led to the identification of two main themes and ten subthemes. The main themes included "Opportunity for Growth", and "Suffering and Fear".

Theme 1: Opportunity for growth

The COVID-19 pandemic presented unprecedented challenges for medical students, yet within these trials lay significant opportunities for growth.¹² The study highlighted several key areas where students reported personal and professional development. Upon analysis, we identified four distinct sub-themes that encapsulated these opportunities: Communication, Adaptation, Reflection, and Pride. These sub-themes shed light on the multifaceted nature of the growth opportunities that emerged amidst the challenges posed by the pandemic.

Communication

Most students mentioned strengthening of meaningful connections and minimizing shallow interactions,

resulting in an overall improvement in their social connections. One individual noted, “I have chosen to stop dedicating my time and effort to superficial relationships as I used to do in the past.” During the pandemic, many people had a sudden realization about the importance of their social circle. According to one interviewee, “*The pandemic helped me recognize the value of my family and buddies in my life.*”

Social media and digital platforms have played a significant role during the COVID-19 pandemic.¹³ Rapid information dissemination, maintaining social connections, coordinating medical resources, promoting public health campaign, and enabling remote work and learning are some examples. All students confirmed that they found social media to be an effective way of getting news and communicating with others.

Adaptation

Adaptation is a crucial aspect of human survival, personal growth and development, especially during crisis and challenging situations, as it allows individuals and communities to navigate through uncertainty and overcome obstacles. It allows individuals to learn from experiences, improve their skills, and become more resilient in the face of adversity. A student whose family member experiences depression during this period said, “Ultimately, we decided not to let the pandemic devastate our family. We made a conscious effort to support each other and stay strong.”

Time was also an important factor in the normalization of the situation. One student shared his journey of overcoming fear and worry about contracting the disease: “*I used to attend my classes with a sense of fear. After two or three months, the situation gradually became normal to me. I realized that by being cautious, I could carry out my tasks without the fear of getting infected.*”

The rapidly changing landscape of medical education and healthcare delivery during the pandemic forced students to become more flexible and resourceful. They had to quickly learn to navigate online learning platforms, engage in self-directed study, and adapt to new clinical protocols. This experience of adapting to continuous change has likely fostered a resilience and adaptability that will serve them well in the dynamic field of medicine. All the students in our study accessed educational content via a learning management system and participated in online classes. Moreover, like some students in our study, medical students have been given opportunities to participate in research projects related to COVID-19.

While the COVID-19 pandemic posed considerable difficulties for many businesses, it also spurred a wave of entrepreneurship and innovation, offering remote work opportunities. Several students mentioned that they started their businesses during the pandemic using

online platforms. They were also being paid to work in COVID-19 wards. These opportunities decreased the financial burden on medical students.

Reflection

Reflection is a powerful tool for personal growth and development, offering numerous benefits such as increased self-awareness, improved understanding of others, and the ability to learn from past experiences. By taking the time to reflect, individuals can better navigate life’s challenges and crises, leading to a more fulfilling and meaningful existence. This period made students to reflect on their education, social life, personal desires, and even the meaning of life.

The pandemic has considerable impacts on the way students learn and interact, leading to an increase in reflection skills. With many students learning remotely, they have had more opportunities to engage in self-reflection and assess their progress. In response to the adoption of new learning environments, students are required to exhibit heightened levels of autonomy and self-motivation in their academic pursuits. This requires them to regularly reflect on their understanding, set goals, and evaluate their performance.

Additionally, the lack of in-person interaction with teachers and peers has encouraged students to engage in more introspective thinking, as they work through challenging concepts and assignments on their own. Several students mentioned that during the lockdown, they had the chance to learn some of the material they hadn’t learned before. They emphasized the importance of dedicating time to find their weaknesses and trying to improve them.

Reflection provided students with an opportunity for introspection about their motivations and aspirations in medicine. The pandemic’s profound impact on healthcare systems and the role of medical professionals prompted many students to re-evaluate their commitment to the field. This period of reflection helped them reaffirm their dedication to patient care and solidified their professional identities. The students in our study, except for one, were satisfied with their career choices. As one student reflected on her experience: “*As a student, I perceive this period as a personal trial. Am I well-suited for the career I’ve chosen? Am I willing to jeopardize my well-being for the sake of others? It’s now clear to me that I’ve made the right career choice, and that I have the ability to help others.*”

Pride

Most of the medical students expressed a strong sense of pride in their work, particularly in light of their direct involvement in the epidemic. Out of the thirteen participants surveyed, ten indicated their willingness to volunteer in COVID-19 wards to assist patients.

The pandemic highlighted the crucial role of medical professionals, especially during times of crisis. The study also indicates a shift in the perception of the medical profession, as the need for doctors and medical staff has become more pronounced in the wake of the pandemic.

Whether through volunteering in overwhelmed healthcare settings, participating in research efforts, or supporting their communities, students felt a deep sense of accomplishment and purpose. This pride is likely to translate into a stronger sense of professional confidence as they progress in their careers. One of the students expressing his deep sense of honor, highlighted the sacred nature of medicine and its importance, and shared his pride in being able to contribute to patient care during this challenging time. The pandemic has highlighted the selflessness and dedication of medical staff around the world. During this crisis, healthcare professionals have demonstrated extraordinary levels of altruism, putting their own health at risk to care for those affected by the virus.

Theme 2: Suffering and fear

The pandemic also brought significant emotional and psychological challenges for medical students. The negative effects of COVID-19 were categorized in five sub-themes: Aggression, Anxiety, Grief, Uncertainty, and Isolation.

Aggression

Many students have exhibited anger and aggression for various reasons, such as insufficient resources, discrimination, and mismanagement of the epidemic by authorities. The pandemic has highlighted numerous instances of mismanagement across various countries.^{14,15} A key example is the insufficient preparedness and ineffective response from many governments. Delays in taking action allowed the virus to spread quickly, resulting in a surge of infections and overwhelming healthcare systems. Mismanagement was also evident in the distribution of medical supplies, especially personal protective equipment (PPE) for healthcare workers. Additionally, inconsistent and sometimes inaccurate information from government officials led to public confusion and mistrust, worsening the situation. Several students reported that during the initial outbreak in Iran, university authorities prohibited them from wearing masks to avoid causing public panic. Many students also mentioned that during the pandemic, they only attended to COVID-19 patients and were frequently assigned shifts in COVID-related departments. Unfortunately, they felt their efforts were underappreciated, they were exploited in various ways, and they received no compensation for their work.

Anxiety

Using medical students as healthcare workers during the pandemic presents both advantages and disadvantages. On the positive side, medical students are often more flexible than their fully qualified counterparts, making them ideal for filling gaps in the healthcare system. However, one major concern is their lack of experience in real-world situations. While they may have excellent theoretical knowledge, they may struggle with practical aspects of patient care. Also, novelty of the situation and lack of theoretical knowledge about the new virus should be considered as negative aspects.

The high-stress environment, coupled with the constant fear of contracting the virus or spreading it to loved ones, heightened anxiety levels among students. In some cases, this anxiety manifested as aggression or irritability, particularly when students felt overwhelmed by the demands of their education and the pandemic. One student shared, *“The first thing that comes to mind is the overwhelming feeling of stress. It’s a tremendous responsibility because the death rate of this disease is high, and there is currently no known treatment. The uncertainty surrounding the coronavirus adds to my anxiety level. My mother has diabetes and uses Insulin, and my father undergoes regular dialysis. I am constantly worried about the well-being of my parents.”*

Stress and anxiety caused by the pandemic, combined with the constant fear of infection, can lead to obsessive thoughts and behaviors. For medical staff, the constant exposure to patients with COVID-19 and the high risk of infection can exacerbate existing mental health issues or trigger new ones. They may experience intrusive thoughts about their own health, their family’s health, or the well-being of their patients. Medical staff may find themselves constantly checking their symptoms, washing their hands, or disinfecting surfaces, even when not required. Several students in our study reported sleep disorders, depression, and obsessive-compulsive disorder symptoms.

Another concern is the potential impact on their education. Working on the frontlines of a pandemic can be emotionally and physically draining, which could affect their abilities to focus on their studies. Additionally, the added stress of working in a high-risk environment may lead to burnout, which could negatively impact their future career in medicine. Many students expressed concerns about their academic and career prospects. One student mentioned, *“Being a medical student means nothing to me in this era. I haven’t received proper training or gained necessary knowledge.”* Another student was so unhappy with her experience that she expressed a desire to redo her education after the pandemic. She felt like a mere labor force without access to proper training. Many students are having problems with virtual education. One student mentioned that online education is challenging

and ineffective for certain courses like semiology, which requires in-person examinations. Technical issues, unclear instructions, delayed feedback, and ineffective assessments were also mentioned.

The COVID-19 pandemic exacerbated existing financial stressors for tuition-paying students and created new challenges. The combination of lost income, rising tuition costs, and concerns about future employment opportunities placed a significant burden on students and their families.

Grief

Grief is the emotional response to the loss of someone or something that is significant to an individual. It is a natural and normal part of the human experience, and it can manifest in various ways, such as sadness, anger, denial, and even physical symptoms like fatigue or changes in appetite. One of the students shared a heartbreaking experience: *«A 20-year-old male was brought to the CPR room in emergency department. Based on the information I got from his relatives, his mother was infected with Corona and had been quarantined at home. Despite all the efforts to resuscitate the patient, he tragically passed away. The mother was overwhelmed with guilt, blaming herself for her son's death, and she believed that she should have been the one to pass away. It was a very sad night for me.»* Another student pointed out that there is a common misconception that doctors are accustomed to patient deaths. This student stressed that this is not the case, highlighting that each patient's passing has a profound and lasting emotional impact on medical staff.

The pandemic has taken a heavy toll on healthcare workers worldwide. The number of healthcare professionals who have lost their lives due to the virus is significant, and their sacrifices should not be overlooked. The loss of these healthcare workers has not only affected their families but also the entire medical community. They were not only professionals but also friends, mentors, and role models for many. Their absence leaves a significant gap in the healthcare system, making it harder for the remaining staff to cope with the increasing number of patients.

Uncertainty

One student shared her deep sense of confusion caused by the pandemic: *“COVID-19 left me in a state of profound confusion. I found myself putting off many of my plans due to the pandemic, and even now, after a year has passed, I am filled with uncertainty about whether I made the right choices. Trips, exams, classes, and all my other commitments were postponed due to the pandemic. The looming question of whether I will be alive tomorrow, continues to haunt me. I'm not being pessimistic, but rather realistic about the uncertainty that lies ahead. The future seems shrouded in*

mystery, and I can't help but wonder if this disease will ever truly vanish.” Another student commented, *“It feels like time has come to a standstill. Currently, everything is on hold until we see what the future holds.»* Another student stated, *“I felt really disoriented. It was different from what we expected. It wasn't supposed to be like this!”*

In this era, students often find themselves in a state of confusion due to the limitations of science and the unknown nature of COVID-19. One student said, *“There is no specific treatment for COVID-19, so I feel powerless. The changing recommendations for management of patients only add to this confusion.”* Another student shared, *“I felt perplexed by the changing treatments for COVID-19 patients. First, they recommended antibiotics, then suddenly switched to antivirals. I recall that some patients spent significant amounts of money on medications which were proven ineffective later. Even after almost two years, the disease remains unknown.”* One student recounted her experience in the field, expressing, *“I experienced confusion when faced with questions about COVID-19 from patients and their family members to which I did not have the answers. This uncertainty was disconcerting. God bless us. That's all I can say.”*

Isolation

Isolation among medical students during the pandemic has been a significant challenge. Due to the virus's contagious nature and the need for strict precautionary measures, medical schools have had to implement various restrictions to ensure the safety of their students. With many schools transitioning to online learning, students have been cut off from their peers, mentors, and the hands-on experience they would typically receive in clinical settings. This lack of interaction has led to feelings of loneliness and a sense of detachment from the medical community. Two of the interviewees highlighted the challenges of the current conditions, particularly for new students. They mentioned, *“I have friends who are first-year and are struggling. They are unable to make friends, unfamiliar with the university environment, and have no face-to-face classes.”*

Discussion

The lived experiences of medical students during the COVID-19 pandemic highlight a dual narrative of growth and suffering. While the challenges were considerable, they also provided opportunities for personal and professional development¹⁶. Several studies have identified similar themes of growth during crises. For instance, a study by Rose emphasizes the rapid adaptation to telehealth and virtual learning platforms, which required enhanced communication skills and technological proficiency from students.¹⁷ This aligns with our findings where communication was a critical

skill needed during the pandemic.¹⁸ Similarly, the ability to adapt to new learning environments and clinical practices was paramount. The shift from traditional, in-person learning to online platforms required students to be flexible and resourceful.¹⁶ Research by Ferrel and Ryan found that medical students developed resilience and adaptability as they navigated these changes,¹⁹ which echoes the experiences of the participants in our study. Reflection on personal and professional growth was another significant theme. The pandemic provided an unexpected pause, allowing students to introspect about their roles and motivations in the medical field. This mirrors the findings of a study by Byrnes et al, which noted that reflective practice during the pandemic helped students reaffirm their commitment to healthcare and patient care.²⁰ Finally, many students expressed pride in their contributions during the crisis. Whether through direct patient care, volunteering, or supporting public health initiatives, students felt a sense of accomplishment and purpose. This sentiment is supported by research from Dewart et al, which found that medical students who engaged in pandemic response activities reported increased confidence and professional pride.²¹

While opportunities for growth were notable, the pandemic also brought significant psychological and emotional challenges for medical students. The theme of suffering and fear was prevalent, reflecting the broader impact of the pandemic on mental health.²² Depression was a common issue, exacerbated by isolation and the abrupt transition to remote learning.²³ Many studies found that the prevalence of depression among medical students increased significantly during the pandemic due to social isolation and academic disruptions.²⁴ Aggression and anxiety were also prominent themes. The heightened stress and fear of contracting or spreading the virus contributed to increased anxiety levels among students.²³ This aligns with findings by Saraswathi et al,²⁵ who reported elevated anxiety and stress levels among medical students during the pandemic, driven by concerns about their education and future career prospects.²⁶ Grief was another significant emotion, as students dealt with the loss of normalcy and, in some cases, the loss of loved ones. The disruption of educational routines and cancellation of key milestones contributed to a sense of grief.²³ Many studies highlight similar experiences, where medical students reported feelings of loss and mourning due to the pandemic's impact on their professional and personal lives.²⁷ The uncertainty about the future was a pervasive concern, affecting students' mental well-being. The rapidly evolving situation and unclear future of medical education left many students feeling anxious. A study by Lyons et al found that uncertainty regarding academic progression and career outcomes was a significant source of stress for medical students during the pandemic.²⁸

Isolation due to social distancing measures further compounded these issues.²⁹ The lack of peer interaction and support was particularly challenging.³⁰ Research by Meo et al indicated that social isolation and lack of peer support were significant factors contributing to mental health issues among medical students during the pandemic³¹.

Based on the findings from this study, several recommendations can be made for managing future disasters and epidemics. Universities and medical institutions should prioritize creating structured support systems that address both the psychological and educational challenges students face in such crises. Emphasizing mental health support through counseling services and peer support networks is crucial to mitigate the negative impacts of isolation, anxiety, and grief identified in the study. Additionally, fostering adaptability and resilience among students by incorporating crisis management and communication skills into the medical curriculum can help prepare them for future emergencies. Institutions should also encourage reflective practices, allowing students to process their experiences, which can promote personal and professional growth during challenging times. Proactive interventions by universities, including early identification of students struggling with fear and uncertainty, can help reduce long-term repercussions and enhance overall well-being. These efforts should be sustained and integrated into medical education to ensure preparedness for future public health crises.

Conclusion

The lived experiences of medical students during the pandemic reveal a complex interplay of growth and suffering. While the challenges were significant, they also provided opportunities for personal and professional development. The themes of communication, adaptation, reflection, and pride illustrate how students rose to the occasion and found ways to grow amidst adversity. Conversely, the themes of aggression, anxiety, grief, uncertainty, and isolation underscore the profound emotional toll of the pandemic.

Addressing these dual aspects requires a multifaceted approach. Providing robust support systems, fostering resilience, and creating opportunities for growth will be essential in preparing medical students for future challenges. The lessons learned from this period will undoubtedly shape the future of medical education and the professional identities of the next generation of healthcare providers.

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The authors declared no conflicts of interest.

Ethical Approval

This study was approved by the ethical committee of Tabriz Islamic Azad University with the code IR.IAU.TABRIZ.REC.1400.204. Interviews were conducted after the participants were informed about the purpose of the study and signed informed consent. Participants were also assured that data would remain confidential and anonymous.

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