

# Facing the Pandemic: A Study on Learning Effectiveness among Medical Students

<sup>1</sup>\* Wang Yazhe , <sup>2</sup> Chng Lay Kee 

City Graduate School, Faculty of Education, Citi University Malaysia, Malaysia,

\*Corresponding Author: chng.lay@city.edu.my

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## ABSTRACT

This paper delves into the multifaceted impacts of the COVID-19 pandemic on medical students, exploring academic, psychological, and professional dimensions. Utilizing Albert Bandura's social learning theory, the study examines how pandemic-induced environmental changes influence nursing students' professional identity and career choices. Employing a mixed-methods approach with questionnaires and interviews, the paper uncovers the state and determinants of professional identity amidst the pandemic. It highlights the challenges posed by online learning, the psychological strain on students, and the alterations in social and extracurricular activities, alongside the resilience and adaptability demonstrated by students and educational institutions. The paper concludes with recommendations for medical educational institutions to support students in future crises, emphasizing the need for digital literacy, mental health support, curriculum flexibility, and crisis management preparedness.

## 1. Introduction

The Covid-19 pandemic has heralded an unprecedented global public health crisis, profoundly affecting societal norms and individual behaviors, particularly in the education sector and more specifically among medical students. The pandemic, caused by the novel coronavirus (SARS-CoV-2), has been characterized by its rapid transmission, prompting the World Health Organization to declare it a global pandemic (WHO, 2020). The resultant shift to a "post-epidemic" phase has not mitigated its impact; instead, the reverberations continue to be felt across various sectors, including education and healthcare employment. Medical colleges, tasked with training the next generation of healthcare professionals, have faced significant disruptions. These range from the transition to online learning, with its inherent challenges in delivering medical education, to the increased psychological pressures on students navigating a complex and uncertain future in the healthcare sector (Huang, 2020).

Amidst these challenges, the pandemic has also underscored the critical role of healthcare workers, with medical students gaining a deeper appreciation for their future profession's demands and societal importance. This evolving scenario presents a unique mix of stressors and enlightening moments, shaping the professional identity and career trajectories of medical students in profound ways.

This paper aims to dissect the multifaceted impacts of the Covid-19 pandemic on medical students at a particular medical college, exploring academic, psychological, and professional dimensions. By weaving in the latest research findings and expert analyses, the paper seeks to offer a comprehensive overview of the pandemic's legacy on medical education and student experiences, contributing valuable insights into navigating future crises in healthcare education.

## 2. Research Methodology

This study embarks on an exploration into the nuanced impacts of the COVID-19 pandemic on the professional identity and career choices of nursing students, leveraging Albert Bandura's social learning theory as its conceptual underpinning (Rumjaun, 2020). It posits those alterations in the external environment—exemplified by the pandemic—trigger shifts in individuals' internal cognitions, thereby influencing their behavior. The focal point of this investigation is the current status of nursing students' professional identity amidst the pandemic and the environmental factors shaping it. By synthesizing existing scholarly literature by McGinness (2023), the research constructs a framework based on Bandura's triadic reciprocity model to examine the pandemic's influence on nursing students' occupational

identity. This study employs a mixed-methods approach, utilizing questionnaires derived from relevant literature for data collection, followed by interviews with selected participants. This dual-method strategy aims to uncover the state and determinants of nursing students' professional identity under the pandemic's shadow, offering insights to bolster their occupational identity and decisiveness in career choices.

### *2.1 Research Design*

**Questionnaire Survey:** As the empirical backbone, the survey methodology is deployed to gather quantitative data. Rooted in the "Nursing Students' Occupational Identity Questionnaire," the survey is tailored to reflect the pandemic's context, aiming at senior nursing students for its relevant timing and potential impact on career orientation. The questionnaire facilitates a broad understanding of the changes in professional identity and choices among nursing student's post-pandemic.

**Interviews:** Complementing the quantitative survey, structured interviews delve deeper into individual experiences and perceptions. This qualitative facet aims to unearth the deeper, nuanced factors influencing nursing students' professional identities and career choices amid the pandemic's challenges.

### *2.2 Sampling and Data Collection*

Focusing on higher vocational nursing students impacted by the pandemic, this study zeroes in on students enrolled in 2021 at a central Chinese medical school. This cohort, having navigated their entrance examinations amidst the pandemic's onset, presents a unique perspective on the professional identity formation process influenced by the health crisis. The questionnaire dissemination and data collection were executed through an online platform, ensuring broad and efficient participant engagement.

### *2.3 Questionnaire Design*

The questionnaire, crafted based on Hao Yufang's work and adjusted to fit the study's context, spans three sections: personal background, professional identity, and career choice impacts due to the pandemic. This instrument aims to capture the multifaceted dimensions of nursing students' occupational identity, incorporating Likert scale ratings for nuanced data capture.

### *2.4 Reliability and Validity*

To ensure the questionnaire's integrity, a pilot test was conducted, validating its reliability and effectiveness for the study's purposes. The final questionnaire's reliability and validity were affirmed through statistical analyses, ensuring the study's findings rest on a solid empirical foundation.

### *2.5 Data Analysis and Interview Implementation*

Data from the questionnaire were analyzed using SPSS software, employing statistical methods for a comprehensive understanding of the professional identity shifts among nursing students. The interviews, conducted online to adhere to pandemic precautions, offered rich, qualitative insights that augmented the quantitative data, providing a more holistic view of the pandemic's impact.

## **3. Impact on Academic Activities**

The COVID-19 pandemic, as a global public health emergency, has profoundly reshaped the landscape of medical education, presented unprecedented challenges and necessitated swift adaptations in academic activities (Rose, 2020). The sudden shift to online learning platforms, the interruption of practical and clinical training, and the psychological toll on students have collectively impacted the educational journey of medical students (Dedeilia, 2020).

**Transition to Online Learning:** The pandemic-induced closure of educational institutions forced a rapid shift from traditional classroom learning to online platforms (Turnbull, 2021). This transition, although necessary, was fraught with challenges. The lack of direct interaction between instructors and students, compounded by the varying quality of internet access and digital resources, significantly affected the learning experience (Clark, 2021). Medical education,

known for its heavy reliance on practical and clinical training, faced particular hurdles. The absence of hands-on experiences and direct patient care opportunities has raised concerns about the adequacy of online learning in imparting the essential skills required in medical practice.

**Adaptations in Curriculum Delivery:** In response to the constraints imposed by the pandemic, medical colleges swiftly adapted their curriculum delivery methods. Innovative solutions, such as virtual simulations and telemedicine, were employed to bridge the gap in clinical training. Despite these efforts, the limitations of virtual platforms in fully replicating the nuances of clinical environments and patient interactions have been evident. The reliance on online platforms has also necessitated a reevaluation of assessment methods, with institutions exploring alternative formats to traditional examinations to gauge students' competencies effectively (Molerov, 2020).

**Impact on Student Well-being:** Beyond academic challenges, the pandemic has exerted a considerable psychological impact on medical students (Ardekani, 2021). The anxiety and uncertainty engendered by the pandemic, coupled with concerns about academic progress and future career prospects, have heightened stress levels among students (Zhou, 2022). This psychological burden is compounded for medical students by the awareness of the heightened risks and responsibilities awaiting them in their professional lives.

**Professional Identity and Career Choices:** The pandemic has also influenced the professional identity and career choices of medical students (Wurth, 2021). Exposure to the dedication and sacrifices of healthcare professionals during the crisis has inspired many students, reinforcing their commitment to the medical profession. However, the stark realities of the challenges faced by healthcare workers during the pandemic have also led some students to reconsider their future in medicine.

The COVID-19 pandemic has undeniably left an indelible mark on medical education. While it has prompted innovative approaches to teaching and learning, it has also exposed the vulnerabilities of the existing educational framework in responding to such crises. As the medical education community continues to navigate these challenges, the lessons learned from the pandemic offer valuable insights into strengthening resilience and adaptability in medical training for future emergencies.

#### **4. Psychological and Emotional Effects**

Moving forward from the considerable disruptions to academic activities, the COVID-19 pandemic's toll extends deeply into the psychological and emotional well-being of medical students, a fact that demands equal attention (Liu, 2020). The onset and relentless progression of the pandemic introduced a pervasive atmosphere of uncertainty and stress, affecting students not just academically but also psychologically. Medical students, already navigating the rigors of an intense curriculum, found themselves confronting additional layers of anxiety concerning their education, future careers, and the well-being of themselves and their loved ones.

The shift to online learning, while necessary, contributed to a sense of isolation among students. The absence of physical classrooms and peer interaction compounded feelings of loneliness and detachment, impacting students' motivation and engagement. Moreover, the unique nature of medical education, which relies heavily on hands-on clinical experience, left students anxious about the adequacy of their training and preparedness for future roles as healthcare providers (Pfefferbaum, 2020).

Furthermore, the pandemic highlighted the vulnerabilities of the healthcare system and the intense pressures faced by healthcare professionals (Lotta, 2022). For medical students, witnessing the frontline challenges, including the risk of infection, the physical and emotional toll on healthcare workers, and the stark realities of dealing with life-and-death situations, prompted a reevaluation of their professional paths. Such observations stirred a mix of admiration, fear, and reconsideration of the personal and professional implications of pursuing a career in medicine (Kontogiannis, 2021).

The psychological impact of these factors has been significant, leading to increased reports of stress, anxiety, and depressive symptoms among medical students. The disruption of normal life and academic routines, coupled with the constant influx of distressing news about the pandemic's impact, has heightened the mental health burden on this group.

Recognizing these challenges, medical colleges and institutions have initiated mental health support and counseling services, aiming to mitigate the adverse psychological impacts and support students' resilience and well-being.

In addressing these psychological and emotional effects, it is crucial to understand that they extend beyond immediate academic concerns, reflecting broader existential and professional uncertainties faced by medical students during the pandemic. As the medical education community continues to adapt to the ongoing challenges, fostering a supportive and understanding environment remains paramount in nurturing the future generation of healthcare professionals. This holistic approach to medical education, acknowledging and addressing both academic and psychological needs, is essential in preparing students not only as competent clinicians but also as resilient individuals capable of navigating the complexities of healthcare in times of crisis.

## **5. Social and Extracurricular Activities**

The COVID-19 pandemic significantly altered the landscape of social and extracurricular activities within medical colleges, impacting students' ability to engage in these vital aspects of their educational experience (Mehta, 2020). Traditionally, social interactions and extracurricular engagements play crucial roles in the holistic development of medical students, offering opportunities for personal growth, leadership, community service, and the building of professional networks (Walsh, 2020). However, the pandemic-induced restrictions and the shift to virtual platforms have transformed how these activities are conducted, presenting both challenges and opportunities for adaptation.

The limitation on physical gatherings has deeply affected students' social interactions, a fundamental aspect of college life that fosters camaraderie, peer support, and collaborative learning (Irawan, 2020). The spontaneous, informal exchanges that occur within campus settings, valuable for relieving stress and building social bonds, were largely absent. Instead, students found themselves navigating a more isolated learning environment, where interactions were confined to screens, diminishing the richness of personal connections and potentially impacting their sense of belonging and community within the college.

Extracurricular activities, including clubs, sports, and community service initiatives, faced significant disruptions (Ettelal, 2020). Many of these programs had to be canceled, moved online, or significantly modified to comply with social distancing guidelines. While some activities transitioned effectively to virtual formats, the lack of in-person engagement reduced the appeal and impact of these experiences. Particularly affected were areas like clinical volunteering and community outreach, essential for medical students seeking hands-on experience and opportunities to apply their learning in real-world contexts. The constraints imposed by the pandemic limited these experiential learning opportunities, potentially affecting students' professional development and their understanding of community health needs.

However, the pandemic also spurred innovation in how social and extracurricular activities are conducted. Virtual platforms became arenas for new forms of engagement, with students and faculty finding creative ways to maintain community spirit, share knowledge, and support each other. Online seminars, virtual wellness initiatives, and telehealth volunteering emerged, allowing students to continue their extracurricular involvement and contribute to community health efforts from a distance. These adaptations have underscored the resilience and flexibility of the medical education community, highlighting the potential to leverage technology in expanding access to learning and service opportunities beyond traditional boundaries.

As medical colleges look to the future, the experiences gained during the pandemic provide valuable lessons in the importance of maintaining a supportive social environment and the potential of virtual platforms to enhance, though not replace, the richness of in-person interactions. Balancing the benefits of digital engagement with the irreplaceable value of direct human connections will be crucial as institutions continue to evolve their approaches to social and extracurricular activities. This balance is essential not only for fostering a vibrant educational community but also for preparing medical students to be empathetic, well-rounded professionals capable of thriving in both the clinical and interpersonal dimensions of healthcare.

## **6. Adaptation and Resilience**

The COVID-19 pandemic has undeniably tested the resilience and adaptability of medical students and educational institutions worldwide (Mojtaba, 2021). Faced with unprecedented challenges, the medical education community has been compelled to innovate and adapt rapidly to ensure the continuity of education and the well-being of its students. This period of adversity has not only revealed vulnerabilities but has also catalyzed significant growth, resilience, and innovation within medical education.

**Innovative Educational Practices:** One of the most significant adaptations has been the widespread adoption of virtual learning platforms and simulation-based training (Shah, 2019). To mitigate the impact of reduced clinical exposure, medical schools have incorporated virtual reality simulations, online case discussions, and telehealth observations into their curricula (Daniel, 2021). These technologies have allowed students to continue developing their clinical skills in a safe environment. Furthermore, the situation has accelerated the integration of digital health technologies into medical training, preparing students for the increasing role of telemedicine in healthcare delivery.

**Building Resilience:** The pandemic has underscored the importance of resilience, both personal and professional, for medical students (Duarte, 2022). Institutions have responded by integrating wellness programs, mental health resources, and resilience training into their curricula. These initiatives aim to equip students with coping strategies to manage stress and uncertainty, fostering a culture of wellness and support. Peer support groups and mentorship programs have also been vital in maintaining a sense of community and belonging among students during these isolating times.

**Enhanced Professional Identity:** The global health crisis has also had a profound impact on the professional identity of medical students (Cruess, 2019). Witnessing the dedication and sacrifice of healthcare workers has inspired a renewed sense of purpose and commitment to the medical profession. Many students have actively participated in COVID-19 relief efforts, such as volunteering at testing sites, assisting with contact tracing, and engaging in public health education (Irandoost, 2022). These experiences have not only contributed to the fight against the pandemic but have also enriched students' understanding of their roles as future healthcare providers.

**Lessons Learned for Future Crises:** The pandemic has provided valuable lessons in flexibility, innovation, and resilience that will benefit medical education long into the future (Papapanou, 2022). It has highlighted the need for adaptive curricular frameworks that can accommodate sudden shifts in the learning environment. Moreover, the experience has emphasized the critical role of healthcare professionals in society, inspiring a generation of medical students with a deep sense of duty and preparedness for future challenges (Mehta, 2020).

In essence, the adaptations and resilience demonstrated by medical students and educational institutions during the COVID-19 pandemic have been remarkable. The experiences gained during this period have not only ensured the continued progression of medical education but have also prepared students to become more adaptable, resilient, and compassionate healthcare providers. As the world moves beyond the pandemic, the lessons learned and the innovations implemented will undoubtedly continue to shape the future of medical education, fostering a resilient and dynamic medical workforce capable of facing the challenges of tomorrow.

## **7. Conclusion**

The COVID-19 pandemic, an unprecedented event in modern history, has deeply influenced the fabric of medical education, presenting both formidable challenges and unique opportunities for growth and innovation. Through this analytical journey, this study has explored the diverse impacts of the pandemic on students at a medical college, highlighting disruptions in academic activities, the psychological and emotional toll on students, the alteration of social and extracurricular engagements, and the fostering of resilience and adaptation in the face of adversity. The pandemic has underscored the essential role of medical professionals in managing public health crises and has served as a potent reminder of the critical responsibilities awaiting medical students in their future healthcare careers.

The experiences garnered during this pandemic offer valuable lessons for the future direction of medical education. The accelerated adoption of digital learning tools, the emphasis on mental health resources, and the importance of curriculum flexibility have demonstrated the capacity of medical education systems to adapt and evolve in response to

global challenges. Furthermore, these insights compel a reevaluation of traditional educational models, advocating for greater integration of technology, emphasis on student well-being, and preparation for unforeseen crises.

In light of these reflections, several recommendations emerge for medical educational institutions aiming to better support their students in future crises. First, there is a clear need to enhance digital literacy among students, ensuring they are adept at navigating telehealth services and adaptable to diverse clinical settings. Second, fostering resilience and well-being through comprehensive support systems must be prioritized to support students' mental health and promote a healthy work-life balance. Third, medical curricula should be designed with flexibility in mind, allowing for seamless transitions between in-person and remote learning modalities without compromising the quality of clinical training. Fourth, encouraging active participation in community service and public health initiatives can strengthen students' professional identities and sense of social responsibility. Lastly, incorporating crisis management and public health emergency preparedness into medical curricula will ensure future healthcare professionals are well-equipped to respond to global health challenges.

As the research envisage the post-pandemic landscape of medical education, it is clear that the COVID-19 pandemic has been a catalyst for reimagining the training of future medical professionals. By embracing the lessons learned and continuing to innovate, the medical education community has a unique opportunity to not only recover from the impacts of the pandemic but to emerge stronger, more adaptable, and more attuned to the evolving demands of healthcare. The resilience and adaptability demonstrated by medical students and educational institutions during these trying times are testament to the enduring strength and commitment of the medical profession to serve society, even in the face of unprecedented challenges.

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