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An exploratory study of the experiences of emergency medical care (EMC) students transitioning through the COVID-19 pandemic in South Africa

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Abstract:

BACKGROUND: The COVID-19 pandemic coalesced into increased mental health problems, particularly anxiety, stress, and depression for university students. Students from the emergency medical care (EMC) department encountered these difficulties, more intensely, particularly those in WIL or clinical placements, as they worked at the interface of illness, trauma, and grief during the pandemic. While empirical research has burgeoned in relation to healthcare practitioners within this context, little exists on EMC students at South African higher education institutions (HEIs), within the context of the COVID-19 pandemic. This qualitative study aimed to explore the academic and psychosocial challenges experienced by EMC students, as they transitioned through the COVID-19 pandemic and the ensuing lockdown during 2021.

MATERIALS AND METHODS: A qualitative approach with an exploratory descriptive design was used to guide the study. A sample of students from all levels of the EMC Department in the Faculty of Health Sciences was recruited. This was done using non-probability sampling techniques, which includes purposive sampling. Data saturation was reached after interviewing 15 participants using a virtual platform. Interviews were recorded, transcribed, and analyzed using thematic analysis.

RESULTS: Our results revealed five broad themes and six subthemes which reflected the psychosocial experiences that EMC students faced. The themes and (subthemes) included encountering COVID-19 during WIL or clinical, infection or loss of loved ones, psychological effects of living and working at the interface of COVID-19 (negative emotional toll of the pandemic, misinformation, isolation and social disconnectedness, and sense of responsibility/duty to work) and disruption to academic life (online learning challenges and challenges related to clinical training experiences) and financial impact of the pandemic.

CONCLUSIONS: The findings suggested that there is a critical need for HEIs to develop strategies that ensure EMC students' well-being amidst their academic journey within the context of the pandemic. This study will therefore assist EMC departments at higher education institutions to formulate strategies in relation to the pandemic.

Keywords:

COVID-19, Emergency medical care, Exploratory study, Healthcare workers, Higher education, Psychological students

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Introduction

The novel COVID-19 virus transcended human and geographical boundaries

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as it has spread to almost every country in the world.^[1] It has left in its trail global community, education, and industry disruptions; the actual impact of which is still being measured. It was on March 11,

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2020, that the World Health Organization upgraded the global outbreak of COVID-19 to pandemic status. On March 15, 2020, the South African government declared a National State of Disaster under the Disaster Management Act of 2002.^[2]

A national lockdown, which included guideline measures stipulated for education during emergencies, was subsequently implemented in South Africa on March 26, 2020.^[3] This presidential declaration and corresponding lockdown emerged at a time when some higher education institutions (HEIs) in South Africa were grappling with challenges of starting a new academic year, or to make up for time lost due to ongoing student protests related to students financial difficulties. Disaster management however mandated the closure of all schools and higher education institutions with immediate effect, for an extended period, thereby compelling the consideration of alternative methods of ensuring access to education.^[3]

According to Kapasia *et al.* (2020),^[4] the closure of educational institutions due to the pandemic had a negative effect, in an unprecedented way on education which consequently threatened the academic survival of students. At risk, adjusted strategies were implemented at South African higher education institutions, once the pandemic started to show signs of dissipating, in order to accommodate the return of students to campus. Lockdown level one allowed for 100% of the student population to return to campus. Despite the shift to Level 1, which supported the resumption of activities, provided that all necessary precautions and health guidelines were followed, the University of Technology opted to continue with a blended approach in order to limit social contact among students and academic staff. Students who had to complete clinical placements and work integrated learning requirements as part of their assessment were allowed to undertake same, during the latter part of 2020. This included EMS students as well.

EMC students, as part of the healthcare fraternity, are at greater risk of exposure,^[5] as they play a pivotal role in managing and caring for ill and injured patients in the prehospital setting. More importantly, they are at the forefront of the fight against COVID-19. However, despite their role in contributing to improved health outcome, EMS in South Africa remains a comparatively under-researched area within the context of the pandemic,^[6] with scarce research that being conducted thus far with EMC students in South Africa.^[7] It is against this backdrop that we intended to explore the impact of the COVID-19 pandemic on EMC students in South Africa, to more comprehensively understand the challenges students experienced during their clinical training, and the subsequent psychosocial effects of this

experience to potentially assist with providing HEIs with insights on how to respond to the needs of EMC students. This study will serve as a valuable reference for insight and comparison for future studies. In addition, it is vital to clarify and identify the perceptions of EMC students toward the emergency medical care fraternity to formulate strategies for better application and for the sustainability of the workforce.

Subjects and Methods

Study design

The study utilized a qualitative exploratory approach. This design enables describing and documenting aspects of a situation in a natural environment, while simultaneously analyzing its meaning and providing a detailed perspective of human experiences.^[8] The main aim was to understand the experiences of EMC students transitioning through the COVID-19 pandemic in South Africa. This was intended to deepen an understanding of the psychosocial effects of working at the forefront of the COVID-19 pandemic, during their clinical placements, especially enquiring about their anxieties related to potentially becoming infected, losing loved ones, as well as the challenges of adapting to online learning and the associated academic distress it caused.

Study participants and sampling

Permission to recruit students for participation was acquired from the Executive Dean of the Faculty of Health at a University of Technology. Non-probability sampling, specifically purposive sampling, was used to recruit students from the EMC department specifically. Purposive sampling can be described as non-judgmental sampling. The population for this study comprised students from all levels of the EMC Department in the Faculty of Health Sciences, which at the time of the study was 153 students. After interviewing fifteen students from the second-, third-, and fourth-year levels, data collection stopped as saturation was reached. The inclusion criteria included students who had been involved in clinical practicum placements specifically during the pandemic, students from all racial and gender groupings and who had volunteered to participate in the study. Table 1 below reflects the demographic characteristics of the participants.

Data collection

Data were collected from August to September 2021 by the researchers, who are also members of the Health Sciences faculty. Students were recruited after permission was

Table 1: Demographics characteristics of participants

Participants (n=15)	Gender	Age
Undergraduate students n=13	Ten (males)	19–25 years
Postgraduate students n=2	Five (females)	19–25 years

sought from Head of Department of EMC and through liaison with class representatives of EMC in the Faculty of Health Sciences. Semi-structured interviews allowed for flexible data collection. A pre-determined schedule was used to guide the interviews. Interviews were held online via MS Teams due to lockdown regulations and varied between 30 and 60 minutes. These interviews were audio recorded and provided thick and rich data.

Rigor

The data rigor and trustworthiness were guided by using Guba’s model.^[9] The four criteria to ensure rigor in qualitative studies, credibility, dependability, conformability, and transferability, were adopted. Strategies included member checking of data following the interviews, maintaining an audit trail, coding of the data by two researchers, and keeping a reflective journal.^[10] Moreover, the research process was carefully documented for transferability. Collectively, this ensured trustworthiness of data and reflexivity of the researcher.

Data analysis

The research utilized thematic analysis [TA] to analyze the audio recorded data.^[11] Castleberry and Nolen stated that: “TA is a method of identifying, analyzing, and reporting patterns [themes] within data”.^[12] The audio-taped data were transcribed verbatim to ensure authenticity. During analysis, the data were first collated into smaller groupings called “meaning units” which were then condensed, and codes were generated from this information.^[13] These codes were then sorted into categories and subcategories, which enabled a more manageable data set to record in the final narrative report.

Ethical consideration

Ethical clearance for this study was obtained from the institutional research ethics committee (ethics number IREC 114/21). Prior to commencement, all participants were informed verbally and in writing that their participation was fully voluntary; that they could leave the study at any time without consequences; that anonymity would be upheld as their identifying details would be kept confidential.

Results

Based on qualitative thematic analysis, codes were extracted, which were then decreased into five main themes and two subthemes presented in Table 2. The following sections show the meaning of each theme and subtheme with relevant quotations.

Theme 1: Encountering COVID-19 during WIL or clinical placements

The first theme that emerged from the data related to the fact that participants experienced acute anxiety at

Table 2: Main themes and subthemes that have emerged from the data

Themes	Subthemes
1. Encountering COVID-19 during WIL or clinical placements	
2. Infection or loss of loved ones	
3. Psychological effects of living and working at the interface of COVID-19	3.1 Negative emotional toll of the pandemic 3.2 Misinformation 3.3 Isolation and social disconnectedness 3.4 Sense of responsibility/duty to work
4. Disruption to academic life	4.1 Online learning challenges 4.2 Challenges related to clinical training experiences
5. Financial impact	

having to work within a COVID-19 milieu, during WIL or clinical shifts. They expressed being very afraid as in most instances, they were the first point of call when COVID-19 positive patients required emergency medical care. Participants reported as follows:

“When we were told that we were going to go to shift. I was stressed personally because I didn’t even know if the next person that I am going to see is a COVID-19 patient and if I’m going to get it...it was just very difficult ” [P2].

“When you go to work at casualty. You basically are the first health care professional intervening with patients...it is risky and scary” [P6].

As evident from the above excerpts, the most pressing concern among the students was the fear of contracting the virus during their training shifts and consequently infecting family members. This is evidenced in the following two participants’ reflections:

“Going back home after clinical practice, I remember I was kind of scared to go home and the fact that I might infect my parents and my sisters” [P13].

“I have been experiencing some fears because in some cases you feel like ok, you don’t need to ride along with these people because they are transporting a COVID-19 patient and you feel that you may catch it or spread it to your family” [P12].

It is evident from the excerpts that fear and anxiety related to the COVID-19 virus are exacerbated as a consequence of placement in the healthcare setting.

Theme 2: Infection or loss of loved ones

The second theme that emerged from the data was linked to personal infection of loved ones or loss of loved ones. One participant expressed huge distress at the fact that they had personally infected a loved one.

"I have infected one of my family members with COVID-19" [P3].

Another reported experiencing emotional distress as he had lost a family member to the virus.

"My sister passed from COVID-19, it was a difficult time for me" [P14].

The infection or death of close family members further negatively impacted the participants psychologically.

Theme 3: Psychological impact of living and working at the interface of COVID-19

The third theme that emerged from the data related to the psychological sequelae emerged through working during the COVID-19 pandemic. This theme included four subcategories: negative emotional toll of the pandemic, misinformation, isolation and social disconnectedness and sense of responsibility/duty to work. EMC students reported as follows:

Subtheme 1: Negative emotional toll of the pandemic

"I just think this pandemic is not only affecting us with our health, it's also affecting our mental state of mind" [P6].

"I feel like we are sitting in a whole pool of sadness, fear, anxiety, depression and guilt" [P5].

Subtheme 2: Misinformation

Another participant identified misinformation as a potential stressor particularly where inaccurate information fueled heightened levels of anxiety for them:

"COVID-19 was new thing; nobody knew much... we were getting a lot of information, sometimes false information so there was a lot of grey area. So that brought a lot of anxiety" [P10].

Subtheme 3: Isolation and social disconnectedness

Isolation and social disconnectedness were also reported as creating additional stress, as one participant iterated:

"We have been restricted a lot with a loss of contact with other people and just from our personal experience... I don't think it's like a healthy way of living to not have contact with people that you love... because you're obviously scared of infecting them." [P6].

Subtheme 4: Sense of responsibility/duty to work

Despite the huge mental health burden that came with working within the milieu of the virus, participants also felt a deep need to serve their patients and fulfil their duties regardless of the associated risks and dangers:

"I knew I was at risk, but that didn't change how I felt about being a paramedic, because I know that deep down in my heart,

i have to help people. So even if it meant putting my life at risk, I still wanted to help." [P12].

The COVID-19 pandemic had myriad mental repercussions on numerous aspects of the participant's personal and professional lives.

Theme 4: Disruption to academic life

The fourth theme that emerged related to the huge disruption to students' academic life. This theme included the subthemes of online learning challenges and challenges related to clinical training experiences. They reported as follows:

Subtheme 1: Online learning challenges

The first subtheme to emerge revolved around online learning challenges. Participants described online learning as being "challenging" and "stressful," for several reasons. Participants lamented the loss of face-to-face contact with academic staff and students, while the other expressed being stressed having to do their practical shifts and study as well. They said:

"With classes being online as well as having to deal with working was challenging" [P2].

"Online learning which wasn't very great, seeing as that we have many practical components, I think more importantly for me is that I am quite used to the physical interaction, so that was a bit difficult and stressful to transition to online" [P13].

Others shared that the inability to have personal meetings with clinical supervisors was difficult to adjust to.

"One cannot access their supervisors face to face, it becomes problematic for those who are accustomed to that kind of face to face contact supervision..." [P14].

"In Health Sciences we got a lot of work that we needed to cover. So that also brought its own stress. I personally struggled a bit just to find my feet...also transitioning from going to class campus to online" [P8].

The impact on academic grades was evident in the excerpt that follows:

"It became a very challenging problem it showed with our marks. We also had to go do clinical practice. It has been very stressful. Not an easy situation for us as students" [P9].

Subtheme 2: Challenges related to clinical training experiences

Participants, shared that the restrictions ensuing from the pandemic, impacted on their practical learning opportunities, which consequently hindered their ability to understand practice-related issues and also caused delays in their studies. They said:

“The practical components and clinical learning became quite challenging” [P15].

“Being with prehospital providers, and prehospital care providers, as well as in hospital, there were a lot of reservations. So that caused a lot of delays as well, it’s caused us to overlap from 2020 to go into this year...the effects, really are still there in the forms of online learning and some facilities that may not be as easily available now, as they would have been prior to COVID-19 times” [P14].

One participant described how simulation exercises are impossible to demonstrate using online platforms. This hampers the ability to acquire practical experience, required for critical life performing interventions in real-world contexts.

“A practical session with simulation learning which obviously can’t be done online, like mechanical ventilation it was easier for us to just, for example, grab a ventilator and have a look at it and actually use it, not talk about initiating a process but actually run through the process which is so much better, it was challenging in that aspect ” [P15].

The issues and challenges faced by the participants in the general course of their academic studies were compounded by the pandemic, notably with lack of access to practical experience.

Theme 5: Financial impact

The fifth theme emerged from the data related to the financial strain students experienced. They said

“COVID-19 has affected me financially...when the pandemic first started, I lost my job and I really didn’t know what I was going to do with my life ” [P4].

“Financially COVID-19 did affect me, like others have mentioned and the stress of not being able to provide for your family” [P1].

Students experienced financial strain and difficulty during the pandemic restrictions, both with income and expenditure.

Discussion

One of the most significant overall findings of this study was that student’s experienced deep levels of anxiety and fear of infection, while doing their training. Moreover, the fear of transmitting the virus to loved ones became a reality for one participant who shared that they had personally infected a loved one. While clinical placements allow student paramedics to acquire valuable practical experience, under the supervision of qualified medical professionals, the COVID-19 pandemic has increased risk of exposure of HCWs as the first

responders. In fact, research has shown that they have a threefold higher rate of COVID-19 infection than the general population.^[14] This exacerbates the uncertainty in their lives and the potential risk of infection, especially the transmission to children, the elderly, and immune compromised or chronically ill patients.^[15] According to the Health Education England, it is suggested that clinical students should regularly take breaks while on clinical placement and become aware of options for psychological support in order to improve students individual clinical experiences.^[16]

As discussed, some students either transmitted the virus to their loved ones or experienced bereavement, which exemplifies how the COVID-19 pandemic impacted on the well-being of student paramedics. Infection or death of a loved one inevitably magnifies psychological distress among HCWs.^[17] A study by Ardebili *et al.*^[18] showed that 80.95% of HCWs interviewed, while working through COVID-19, had reported that they would hold themselves responsible for infecting a family member or members. The study found that when eight members of the healthcare team lost a family member because of COVID-19, they blamed themselves and experienced immense remorse and guilt. According to Assari and Habibzadeh, HCWs need to be prepared to endure these emotions as well as cope with unresolved grief and sadness related to deaths and illness, both personally and professionally.^[19] However, despite these realities, students still expressed that they would not fail to assist patients as part of their duty.^[1] Related studies on healthcare students have indicated comparable findings in the attitudes of students.^[19,20]

Substantial research has been conducted regarding the mental state of HCWs. As the first line of defense within the battlefield of COVID-19, they are noticeably more susceptible to the psychosocial stressors that emerge, which is amplified by their close proximity to the virus. This manifested in the myriad forms of negative emotions such as guilt, fear and sorrow within the data. Moreover, at the start of the pandemic, the infodemic, that was circulating widely various media platforms regarding the number of deaths and other issues, led to heightened levels of stress among students. This was visible even within the current sample. News reports, rumors, and fabricated reporting of COVID-19 fueled anxiety and fear among the participants in this study. Overall, this has contributed significantly to the rise in levels of panic within the COVID-19 pandemic.^[21]

Moreover, pandemic restrictions necessitated that HCWs self-isolate from their families to eliminate or reduce possible infection.^[22] Thus, HCWs have to bravely exist in a perpetual state of psychological turmoil, while enduring fears of transmitting the virus

to loved ones. According to Yang *et al.*^[23], some long-term outcomes of untreated stress can contribute to be post-traumatic stress disorder, anxiety, and depression. Mental healthcare strategies to support HCWs during the pandemic are therefore essential^[24]. The need for this is especially apparent within the responses of student paramedics, who had to struggle with feelings of isolation and loneliness and endure increased levels of sadness, depression, and feelings of separation from loved ones.

For South African students, the obligatory move to online teaching and learning due to the pandemic restrictions was experienced as being abrupt and unprecedented.^[25] Although some South African HEIs have gradually been transitioning to online teaching and learning, inclusive of blended learning, the majority of HEIs were not well equipped to implement mass online learning systems. The shift to online teaching and learning was characterized by minimal preparation with limited basic educator training. The study illuminated the difficulty students experienced with this transition, with the influx of information through diverse software platforms, mobile applications, and emails further adding to anxiety and stress for students.^[26] Research has further supported the notion that students studying Health Sciences exhibited greater stress levels compared to other faculties.^[27] This was primarily due to pressure associated with clinical practices^[7] and the strenuous workload.^[28]

Face-to-face interactive practical sessions are a critical tool for student paramedics' preparedness particularly in a discipline where experiential learning is critical to learning skills required for emergency medical care. Because of the superior level of practical clinical skills and procedures in paramedicine, delegating paramedicine to online learning is challenging for students who need to physically obtain experience and knowledge of practical skills. The removal of interactive learning unsettles the normal student paramedic study routine.^[7] Accounting for individual preferences, many students choose to study on campus and infer that home study is distractive.^[29] Thus, virtual home studying may prove prohibitive for certain student paramedics whereby this interruption of routine warrants enhanced cognitive willpower to participate in online learning sessions and consequently causing delays in their studies.

Moreover, a 2018 study by Alfehaid indicated healthcare students felt they benefitted vastly from engaging in real-time scenarios and receiving productive evaluation from classmates and academic staff during these practical sessions.^[30] Marias noted that technological learning is an inadequate substitute to knowledge that would have

been derived from a clinical perspective.^[7] Hence, a deficiency of clinical interaction had led to reservations and fear in students regarding their expertise and sufficient competence in the diagnosis and treatment of patients in a clinical setting.^[31]

Finally, participants described the negative financial and economic impact of the COVID-19 pandemic, which ensued from the South Africa lockdown and associated restrictions. They described the latter as severe and debilitating and expressed their concern about their ability to provide for their families. Wang *et al.* postulated that augmented levels of depression, anxiety, and stress in students were enhanced by numerous issues, supplemented by financial challenges.^[17]

Limitations

One of the limitations of this study is the small sample size, which limits the generalizability of the results. While this study may not be representative of the experience and views of all South African student paramedics, it nonetheless provides rich data through the lens of student paramedics.

Conclusion

The study explored the effects of the COVID-19 pandemic and associated sanctions across numerous aspects of life among EMC students, who were completing their clinical placements while studying at a University of Technology. The most significant findings related to the difficulties are related to adapting and adjusting to the new online learning methods, while grappling with the fear and anxiety of potentially infecting themselves or family members. It is imperative that students receive greater academic support when physical clinical placements are impossible. This can be achieved through enhancing practical simulation exercises to ensure that their clinical preparedness is not jeopardized and that learning outcomes are achieved. The study supports the need for more enhanced support and empowering students with coping strategies and mechanisms that can assist them to learn while living with the threat of the virus in their work milieu. It requires the implementation of accessible counseling services and effective measures to provide care for their mental well-being.^[32]

In addition, universities will need to develop curricula to integrate specific pandemic and infection control-related content. Consideration should also be given to placement adjustments that allow students to enable a productive learning experience in a safe manner. Preparing students to engage successfully with an online learning environment should also be prioritized, to cater for potential long-term societal restrictions.

Furthermore, financial support for students should be considered to ensure minimal disruption to their studies and family life. In conclusion, in order to make sure that students complete their program of study within the expected timeframe, effective management strategies and approaches to student well-being are crucial, especially for healthcare students.^[33]

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Conflicts of interest

There are no conflicts of interest.

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