BMJ Open

Role of COVID-19 pandemic in the academic life and well-being of private sector university students: an exploratory qualitative study

Naureen Akber Ali ![ORCID],[1] Anam Shahil Feroz,[2] Noshaba Akber,[3] Adeel Khoja[4]

[1]School of Nursing & Midwifery, The Aga Khan University, Karachi, Pakistan
[2]Department of Community Health Sciences, Aga Khan University, Karachi, Pakistan
[3]Sociology, University of Karachi, Karachi, Pakistan
[4]Department of Medicine, Aga Khan University, Karachi, Pakistan

Correspondence to
Naureen Akber Ali;
naureenalimeghani@gmail.com

ABSTRACT

Objective The advent of the COVID-19 pandemic has caused a drastic impact on students' life, causing physical and emotional sufferings. Considering the relevance of unprecedented conditions, we explored perceptions and attitudes of students towards their academic life and well-being amid the COVID-19 pandemic.

Setting We conducted an exploratory qualitative study using a purposive sampling approach conducted at a single-centre private nursing institution in Karachi, Pakistan.

Participants The current study used in-depth interviews with female university students. Study data were analysed manually using the thematic analysis approach.

Primary outcome The primary outcome is to explore perception of students on academic life and well-being amidst the COVID-19 pandemic.

Results A total of 10 in-depth interviews were conducted between August and September 2020. Four overarching themes were identified: (1) impact of COVID-19 on students' well-being; (2) effect of COVID-19 on students' academic life; (3) current coping mechanisms adopted by students and (4) recommendations to address students' concerns. The pandemic-related stressors served as a major impediment on students' motivation, concentration span and socioeconomic conditions which negatively influenced their well-being and academic life. However, students have adopted diverse coping mechanisms to combat unstable circumstances that include connecting with family and relatives, indulging in diverse activities, and getting academic support from faculty, senior students, and university administration. Students also recommended the need for arranging online mental health services, integrating e-learning mediums in existing academia, and constant efforts by the government to address electricity and internet connectivity issues to promote virtual learning.

Conclusion University students have been struck hard due to rapid pandemic-related transitions in their life. The study finding served as the potential guide for educational institutions and government officials to employ appropriate psychological interventions and provide infrastructure and technical facilities to provide support with their academic journey and overcoming the ongoing pandemic repercussions.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This study provides in-depth exploration of students' perception of their academic situation and their well-being during the COVID-19 pandemic.

⇒ A well-established qualitative thematic analysis approach is used to understand in depth students' perception towards their academic life and well-being.

⇒ A limitation of this study is that in-depth interviews were taken from 10 (n=10) participants, though a small sample size does not detract us from capturing the important findings.

⇒ The researchers did not have the chance to build rapport with the students or obtain non-verbal cues during interviews as all the interviews were conducted virtually given the risk of contracting the virus and maintaining adequate social distancing.

⇒ The results of the current study can be used as exploratory rather than definitive, as we have selected students from a single institution. Hence, it would be good to select participants from diverse institutes.

BACKGROUND

The COVID-19 pandemic presents a substantial public health challenge across the world, affecting all national and international countries and territories. To combat this disease, government officials and public health experts have implemented lockdown and social distancing measures that have led to closures of all public activities.[1] The pandemic has heavily hit the educational system, disturbing the lives of many students around the globe.[2] There is a paradigm shift in the learning medium from on-site to online learning, which has caused hurdles for both learners and educators/facilitators.[2] Due to this rapid transition, students are facing major disruptions in teaching–learning methods, assessment pattern and communication channel that have enhanced students' workload and inflicted detrimental consequences on their health.[3]

A study also highlighted that students who were confined at home have undergone mental and emotional distress as there is lack of daily routine and physical activity, and limited social interaction to engage them productively, which may have resulted in a feeling of worthlessness, boredom and agitation.[4 5] Adolescents, particularly university students, have been struck hard, as the pandemic has imposed a negative influence on their academic-related activities and professional development.[6] Many students faced a delay in their graduation process as their research work and final examinations were postponed along with the cancellation of all on-site campus activities.[7] These transitions have been considered as key precipitators of mental distress among students during the lockdown.[5–7]

Further, the global recession triggered by the COVID-19 pandemic has a devastating impact on the financial condition of many families, leading to stressors among the students. Literature showed that many family members have faced deduction in their salaries, or their businesses were ceased or on hold in the time of this crisis.[8] Some students have lost their part-time jobs that impede them to support their families or bear their academic expenses, which creates a hurdle for them to continue with their studies.[9] Besides this, financial constraints can also hinder students' access to online learning due to limited ability to buy gadgets or digital tools,[10] which certainly is an added burden. Studies also highlighted that ineffectiveness of infrastructures such as power breakdown, telecommunication issues, along with the lack of exposure to an online medium, and unfavourable household environment were found to be major obstacles in students' e-learning medium.[2 11]

The advent of the COVID-19 pandemic has caused a drastic impact on students' life, causing physical and emotional sufferings. These pandemic-related stressors served as a major impediment on students' motivation, concentration span and social connection which are fundamental in the success of their academic journey. Indeed, even before the COVID-19 pandemic, students around the globe suffered from mental distress.[12] However, the COVID-19 pandemic appeared as the most devastating turmoil as it prompts a sense of insecurity about the current academic journey and future career goals among students that triggered appalling consequences on their well-being. This may call for timely support services to deal with the physical and emotional repercussions of COVID-19 infection. Thus, considering the significance of all the above aspects, we explored perceptions and attitudes of students towards their academic life and well-being during the COVID-19 pandemic. This study is also aimed at informing policymakers of the education and health needs of students, so they can plan strategies and interventions to lessen the devastating effects of the pandemic.

Research question

What are the perceptions and attitudes of students towards their academic life and well-being amidst the COVID-19 pandemic?

METHODS

Study design and setting

The current study employed an exploratory qualitative research design using in-depth interviews (IDIs) and a purposive sampling technique. Through IDIs, individuals' ideas, perceptions, attitude, emotions and feelings are elicited, providing us with distinctive and interesting insights about their lives.[13 14] The exploratory approach was chosen because it enables the researcher to investigate a broad range of diverse patterns of individual and group experiences.[15] This study is being stated as per the reporting guidelines for qualitative research provided in the consolidated checklist (online supplemental file 1). The study was conducted on Bachelor of Science in Nursing students during August and September 2020. The participants were enrolled from a single-centre private nursing institution in Karachi, Pakistan which is universally benchmarked, with around 150 students enrolled per year, representing diverse areas of Pakistan. This programme provides a fully integrated, patient-centred, and clinical-based curriculum that inculcates diverse pedagogical approaches including interactive theory lectures, tutorials, clinical skills sessions, practice-based simulation and field visits that prepare clinically competent professional nurses.

Patient and public involvement

There was no patient or public involvement in setting the research agenda.

Data collection methods and study participants

The data collection methods for this research included IDIs conducted with nursing students. The aim of the IDIs was to explore students' perceptions and attitudes regarding the COVID-19 pandemic and its impact on their academic life and well-being. Students currently enrolled in the bachelor's nursing programme and having proper internet accessibility in their areas were included. We used the purposive sampling technique to ensure that the target population provides sufficient diversity of opinions by recruiting students from their first year through the final year, as mentioned in table 1. Students who refused to give consent to participate in this study were excluded. Moreover, students were excluded if they have contracted the disease or tested positive for COVID-19 or have been isolated or quarantined due to exposure. This is because COVID-19 survivors might have different experiences and perceptions,[16] which will be explored in a different study.

Data collection procedure

We developed a semistructured interview guide for students to explore their views towards the COVID-19 pandemic and understand its impact on their academic life and well-being,

Table 1 Characteristics of in-depth interview (IDI) study participants (IDI=10)

Characteristics of participants (n=10)	n (%) or mean±SD
Age	19.8±0.78*
Academic year	
First year	3 (30)
Second year	3 (30)
Third year	2 (20)
Fourth year	2 (20)
Ethnicity	
Urdu speaking	2 (20)
Sindhi	3 (30)
Gujrati	3 (30)
Gilgiti	2 (20)
Marital status	
Single	8 (80)
Engaged	2 (20)
Current residency	
Owned house	7 (70)
Rented house	3 (30)
Engaged in paid employment	
Yes	4 (40)
No	6 (60)
Family system	
Nuclear	5 (50)
Extended	5 (50)

*Mean+/- Standarad deviation (SD)

as mentioned in online additional supplemental file 2. The students for IDIs were identified and contacted via email and a student's WhatsApp group. We scheduled interviews based on participants' convenient days and timings. The study investigators explained the study objectives, purpose and procedures before starting the interview. Permission was taken from all the eligible students in which they agreed that the interview can be audio-recorded and written notes can be taken. Online qualitative interviews were conducted by trained researchers and all the participants preferred the WhatsApp audio call function for the IDIs. The duration of each interview lasted approximately 30–35 min and it was conducted in either Urdu or English language. Students were ensured that their information and data will remain confidential, and no identifying characteristics will be stated on the transcript. We anticipated conducting 10–15 interviews with students purposively. However, the interview procedure went through 10 study participants until no different themes emerged and data saturation was reached.[17]

Data analysis

A thematic analysis approach was used to manually analysed study participants' data.[18] Initially, the audio recordings from the students' interviews were transcribed and then translated into English language. In the transcriptions, no identifying features/characteristics were included. Research investigators read transcripts several times to develop an understanding of the students' perceptions regarding the COVID-19 pandemic and its impact on their life and well-being. This was done through an iterative process where participants' data were coded, compared, contrasted and refined to develop emergent themes. The transcribed text was separated into 'meaningful units' which were further shortened and labelled with a 'code'. Codes were then analysed and assembled into similar categories. In the last step, comparable categories were grouped under subthemes and main themes. Two independent investigators finalised the coding and created the categories. Any inconsistencies were solved through discussion until a mutual agreement was reached.

RESULTS

In this qualitative study, we anticipated conducting 10–15 interviews with students to explore their perceptions and attitudes towards their academic life and well-being amidst the COVID-19 pandemic. However, the data saturation was achieved after the 10th interview. All interviews were conducted between August and September 2020 with female nursing students. Data collection was ceased once saturation was reached. Each interview lasted around 30–35 min in duration. The demographic information for the participants is illustrated in table 1.

Based on the data collection and thematic analysis, four overarching themes were identified: (1) impact of COVID-19 on students' well-being; (2) effect of COVID-19 on students' academic life; (3) current coping mechanisms adopted by students and (4) recommendations to address students' concerns. The themes and categories are presented in table 2.

Theme 1: Impact of COVID-19 on students' well-being
Anxiety and fear
Students (n=6) mentioned that the perceived uncertainty related to COVID-19 has heightened stress and anxiety within them and induced a feeling of unpredictability about the future as explained by a respondent:

> The biggest fear was associated with unpredictability about the future … how long pandemic will last and how many people will survive?… how we get rid of this deadly virus to continue with our normal routine. (IDI-3)

Some students (n=5) pointed out that initially they were less scared and worried about the pandemic because it was limited to China, and they considered this virus as a normal influenza virus. However, they described that when the virus has swiftly travelled to Pakistan and lockdown was imposed within the country, there was a state of shock and confusion. This point was illustrated by a respondent who stated:

Table 2 Themes and categories

Themes	Categories
Impact of COVID-19 on students' well-being	▸ Anxiety and fear ▸ Effect of financial adversity amidst COVID-19 pandemic ▸ Effects of media on emotional well-being ▸ Impact of social distancing on feelings and thoughts
Effect of COVID-19 on students' academic life	▸ Academic concerns and anxiety ▸ Burden of assignments and examinations ▸ Struggle during self-study ▸ Lack of interaction and engagement ▸ Academic progress and future career ▸ Challenges of online classes
Current coping mechanisms adopted by students	▸ Connecting with family and relatives ▸ Indulging in diverse activities ▸ Academic support from faculty and senior students ▸ Academic support from the university administration
Future recommendations to address students' concerns	▸ Arranging online mental health services for students ▸ Integrating an online medium in existing academia ▸ Role of government to support students

Initially I was not worried because the virus was confined to China. I considered it as a common flu-like disease but when the pandemic was announced and the lockdown was implemented within the country, I got worried and anxious about the severity of the disease. (IDI-1)

The majority of students (n=8) expressed their fear and anxiety about the risk of contracting the virus and transmitting it to their family members, particularly older people who are suffering from different chronic diseases and are immunocompromised. They shared their concern that older people are significantly at a greater risk of having severe disease complications and devastating outcomes following infection from COVID-19. Highlighting these points, a respondent stated:

I am concerned about my family particularly elderly people that are already suffering from different ailments and are at high risk of contracting the virus. There is a fear that if I will go out, they might get infected and something bad will happen to them. (IDI-2)

Students (n=4) discussed that they were worried as there is no treatment against this contagious virus to control the spread of the disease. Few students (n=3) also stated that they were anxious as there was a lack of compliance in using precautionary measures which may lead to transmission of COVID-19, resulting in a rapid increase in cases and mortality rates. A similar thought is verbalised by a respondent:

I think the number of cases and deaths will continue to rise because there are many people that are not following precautionary measures… This makes me anxious that even if I followed all the precautions, I would still have the risk of catching the virus. (IDI-7)

Effect of financial adversity amidst COVID-19 pandemic

The majority of the participants (n=7) stated that the financial fallout from the COVID-19 pandemic has resulted in unemployment and economic insecurity for many. Dialogue with the students notified that their parents faced layoffs or received pay cuts due to the COVID-19 pandemic. Students (n=4) pointed out that in the wake of COVID-19, their present and future employment prospects, that is, part-time jobs or internships have been badly affected, which has created a very difficult and distressing situation for them. Highlighting these points, a respondent stated:

My family is affiliated with the teaching profession, I used to give tuition to support my family expenses. But, during the pandemics, we were unable to carry on with our earning medium which has caused financial distress in my family. (IDI-5)

Moreover, some students (n=4) highlighted that considering existing financial hardships, paying full tuition fees has increased their stress. They shared that they were expecting to have fee deduction or availability of any student loans from the university to pay their academic dues. A similar comment was raised by a participant:

Currently, I have no face-to-face classes however I am paying a complete tuition fee which is a big stressor for me in this stressful time… I think that considering the current unprecedented time university management should either waive or cut down our fees to minimize the financial burden. (IDI-2)

Effects of media on emotional well-being

Students (n=4) raised their concerns about the accuracy and source of information presented in the media. Further, students (n=5) also shared that repetitive

exposure to media about COVID-19 has increased their mental stress. They expressed that this overwhelming misinformation creates negativity in their minds, which has impaired their focus and concentration levels. However, some students (n=5) also pointed out that the media can emphasise awareness messages to promote behavioural change among common masses. A similar point was illustrated by a participant who mentioned:

> Continuous listening to news related to COVID-19 cases and death rates has affected my mental health and impaired my productivity… I think media should motivate people by showing positive messages for COVID-19 prevention that will raise awareness among people. (IDI-7)

Students (n=3) have been notified that the media is not providing any direction rather it has enhanced fear among them. Therefore, they avoid using the media in order to maintain their psychological well-being. Highlighting this view, a participant expressed:

> Media has induced fear and anxiety within us and impede adaptive coping mechanisms. We must minimize our media exposure to avoid adverse mental health consequences. (IDI-8)

Impact of social distancing on feelings and thoughts
Many students (n=8) also verbalised that the imposition of lockdown has hindered their daily routine that has negatively impacted their social life. Students expressed (n=3) that this restricted environment has made them lazy and irritable that has triggered mental health problems within them. Similar feelings revealed by the participant:

> I am a very socialized person, being confined to four walls has affected my daily routine and elevated my stress and anxiety level… Further, my phone usage has increased which has altered my sleep pattern and made me futile. (IDI-5)

Some students (n=5) also discussed that social isolation has hindered their social connections with their colleagues and relatives, which was an important source in venting out their life stressors. This alteration in social connection caused emotional distress. Expressing these thoughts, a participant verbalised:

> The COVID-19 pandemic has brought a big change in our life… I am very sad and depressed because all educational and religious activities are halted, and I am unable to meet with friends and share my concerns. Many of my friends also verbalized that sitting at home during pandemic makes them irritable and annoyed. (IDI-9)

Theme 2: Effect of COVID-19 on students' academic life
Academic concerns and anxiety
Students (n=8) voiced their concern that there has been an extensive delay in their studies due to pandemic-related

changes in teaching methods. Most of the students (n=9) pointed out that during the lockdown, internet connectivity was the main hurdle to connect with students who are residing in remote areas of the city, which has widened the learning gap for all students including Karachiites. However, students (n=5) shared that these disproportionate academic losses have created a detrimental effect on their mental health, which was evident in a participant response:

> We have long gap and hindrance in academics due to which I feel that I am going under mental distress…I am unable to express my feelings and emotions due to a lot of anxiety regarding academics. (IDI-4)

Students (n=6) explained that they were confused about their semester as they were halfway through their courses before the COVID-19 pandemic. They shared that they were worried about their coursework completion as they do not want to hang back with their semester. Similar feelings were mentioned by a respondent:

> I am unsure whether my semester course will be completed by the year-end as there is a lot to study. I am hoping that things will get normal so that we can timely achieve our academic targets. (IDI-3)

Burden of assignments and examinations
Many students (n=8) complained that they were burdened with all course materials and assignments to finish their semester after a long study break during the pandemic. They stated (n=6) that there have been no clear instructions regarding the open book examination which was due within a few weeks after receiving their online course content. Students (n=8) also expressed that they were unable to cover the entire course content in a short time, which has added to their stress and anxiety level. A similar thought is discussed by a respondent:

> After a long gap in our studies we were provided with all modules and assignments. Surprisingly, within few weeks we have an open book exam which was a big stressor for me… I have given my full attention to open book exams to pass it out though I was unable to cover all lecture presentations. (IDI-2)

The unexpected condition due to the COVID-19 pandemic has resulted in disruption in various academic operations including transition in the grading system that led to reduced motivation among students. Students (n=4) verbalised that the pass or fail grading system has upset them because it has impeded them to attain their desired academic outcomes. Highlighting this point, a respondent verbalised:

> There were certain courses in this semester that can certainly help me to gain a good GPA (Grade Point Average) and improved my scores. However, grading criteria has been changed into pass and fail that

hindered me to achieve my academic targets and it was the source of disappointment for me. (IDI-10)

Struggle during self-study

During interviews, all students (n=10) gave insights about their learning practices that have been modified due to COVID-19. Many students (n=7) shared their concerns that self-study was very challenging for them because they must cover multiple module contents, which has intensified their distress. This point was illustrated by a respondent who stated:

> There are seven modules on VLE (virtual learning environment) and in self-study, I can manage only one module at a time not seven modules concurrently… therefore, self-study is one of the biggest stressors for me. (IDI-1)

Students (n=6) mentioned that managing time and staying productive in self-learning were also one of the significant problems in their learning process. Some students (n=4) added that their screen time has increased to comprehend the intensive module material as expressed by a participant:

> I appreciate online learning to an extent… I found it very difficult and stressful to sit in front of the laptop for 5 to 6 hours to understand a single presentation whereas, at the same time I can cover maximum content in the university… This academic transition has drastically affected my learning. (IDI-4)

Lack of interaction and engagement

Many students (n=5) have raised their concerns regarding the need for implementing effective online teaching strategies. Adding to this point, they shared that using the synchronous mode of learning, along with user-friendly tools, would enable smooth learning as compared with an asynchronous learning medium. Similar feelings have been illustrated by a student:

> Instead of asynchronous learning mode in which material is uploaded on Moodle, I preferred interactive online classes (synchronous mode) with the application of an innovative and creative tool that generates strong learning environment. (IDI-2)

Students verbalised (n=8) that before the pandemic in their first half of the semester, interactive classes, group work and query sessions were conducted face-to-face. However, during the pandemic, there was no interaction with faculty and classmates that creates a barrier and distress for them to understand important concepts and broadened their knowledge gap, as verbalised by a participant:

> The COVID-19 pandemic has inflicted a huge impact on my academic journey. I am uncertain or unclear about the basic concepts that lay the foundation for

the upcoming year. This will surely create trouble for me in my professional career. (IDI-6)

Academic progress and future career

Students (n=6) also stated that in online learning modality, they were unable to perform practical and clinical work which is a core component of their professional and academic journey. They further added that they were not allowed to go for clinical rotations and perform case-based scenarios which impeded their exposure to work in a hospital care setting. This has resulted in increased fear and anxiety among students:

> In the future, I will be a nurse, and learning clinical skills is very significant for this profession. However, during a pandemic, our clinical practice has been halted… The main fear is that lack of clinical experience will not allow me to integrate theory into practice which will create problems in upcoming academic years. (IDI-9)

Challenges of online classes

A significant number of students (n=9) have pointed out that the unavailability of electricity and internet connection is a major hurdle and stress in their virtual learning. Besides, some students (n=4) verbalised that a non-conductive learning environment at home has adversely influenced their studies, leading to frustration and distress among them. This is also evident in a participant's view:

> We have encountered multiple challenges during the online medium. Electricity shutdown and internet connectivity were the foremost issues during online classes. Besides unavailability of gadgets, improper space at home, and ongoing distraction at home, further adds to the student's stress level. (IDI-3)

Students (n=4) also shared their opinions regarding their struggle with the digital medium. They added that due to lack of competency in using online modality, they suffer from multiple technical challenges, and it is a major obstacle in distance learning as mentioned by a participant:

> …I am very uncomfortable in using online mode of learning. I have faced many technical issues and my overall experience was not good. (IDI-8)

Theme 3: Current coping mechanisms adopted by students
Connecting with family and relatives

The social distancing related to the pandemic has impacted students by disrupting routines, academics and recreational activities. However, a supportive family environment is significant to overcome the stressors of the pandemic. Students (n=5) verbalised that social distancing provides a way to connect with their family and loved ones. They added that immediate family support helped them to stay positive during this challenging

time that promotes their well-being. Expressing similar thoughts, a participant verbalised:

> The positive aspect of this pandemic is that I have spent quality time with my family…This has helped me to think about life in a positive manner by hoping that this temporary situation will end soon… (IDI-6)

Indulging in diverse activities

Students (n=3) shared that the lockdown has given them a chance to engage in healthy activities such as reading and exercising that kept them active and motivated in this stressful time. Some students (n=4) highlighted that they spend their long semester breaks by indulging themselves in something innovative or exploring new ideas. Students (n=5) also enrolled in an online course to enhance their knowledge and learn different skills. Similar thoughts were expressed by a respondent:

> I have utilized my semester break constructively by learning different things in this pandemic that has given me a chance to explore myself. I have enrolled myself in different courses that has upgraded my knowledge level… (IDI-1)

Academic support from faculty and senior students

Students (n=4) shared strategies to combat the current pandemic situation as they have made their own schedule to achieve academic targets. They (n=4) further added that an online group study with their classmates was effective in covering the challenging module content timely. Further, students (n=5) expressed that assistance from faculty and senior students also provided them direction that kept them motivated and productive. Highlighting similar perception, a student shared:

> I found studying within a group was a great way to learn course content concretely… at times we also approached our faculty to rectify our concepts and resolve our queries …this has encouraged us to continue learning during this uncertain time. (IDI-3)

Academic support from the university administration

Students (n=8) pointed out that despite the physical lockdown, university management has taken urgent measures to move towards online education. They added that university administration has made tireless efforts to make the course content accessible for remote students having connectivity issues. Students (n=5) also highlighted that their university was collaborating with different schools in remote areas to arrange an internet facility for students residing in those areas. Given the COVID-19 pandemic crisis, the university management remains committed to their responsibilities and came up with possible solutions to offer an equitable opportunity for all students, as verbalised by a participant:

> This was a unique experience for student, faculty, and university management … we have many students

from remote areas with poor internet connectivity. To facilitate remote students' university, sent entire course material in pan drive to their respective area. They also built a university-school partnership to accommodate our remote students. This was a very challenging and big initiative; therefore, it took quite a long… I think we are blessed that all the course material is available to us which has moved us forward and prevent our academic loss. (IDI-8)

Theme 4: Future recommendations to address students' concerns

Arranging online mental health services for students

The COVID-19 pandemic has imposed a detrimental impact on students' health and academic life, which calls for urgent measures. In this regard, all students (n=10) pointed out that there is a strong need for an online mental well-being programme for students that can help them in coping with their studies in the current unprecedented time. Some students (n=5) mentioned that the university should also arrange psychological support services and counselling sessions for students to identify and treat high-risk students. Highlighting these points, a respondent stated:

> Yes, there is a high need of arranging mental health programs or sessions for students because we are anxious and worried in terms of managing our studies… (IDI-9)

Integrating an online medium in existing academia

Most of the students expressed that the COVID-19 pandemic has allowed us to pave the condition by introducing digital mediums in our learning. Students (n=6) shared that not only in a pandemic but there is a pressing need to implement this medium in the existing educational system to enhance technology acceptance among students. But an online platform should be made creative and interactive with the application of innovative strategies and tools as verbalised by a student:

> Eventually, this pandemic has changed our entire academic journey however, this experience has prepared us for the future… I think there is a high need of implementing the online medium in our curriculum that enables students to become technology-friendly and improve their skills to become independent learners… (IDI-5)

Role of government to support students

During the interview, most of the students (n=8) notified that government support is crucial in considering electricity and internet connectivity issue that has drastically affected their studies. Students (n=6) shared that the government should take immediate actions for strong education system and allocate funds to telecommunication companies to expand data connection services

in distant areas for smooth learning. Expressing similar views, a participant mentioned:

> COVID-19 has made us realize the significance of the internet. However, internet connectivity was a major issue and stressor … I think the government should invest money to build 3G and 4G towers in remote areas to minimize students' learning loss. (IDI-10)

DISCUSSION

To our best knowledge, this is one of the few studies to explore perceptions and attitudes of students towards their academic life and well-being amidst the COVID-19 pandemic. The study investigated the impact of COVID-19 on students' well-being, effect of COVID-19 on students' academic life, current coping mechanisms adopted by students and future recommendations to address students' concerns.

The study findings showed that the unexpected COVID-19 situation instigates fear and anxiety among university students. Worries regarding personal infection, as well as family members contracting the virus, emerged as a sense of danger for students in current research. Participants expressed that the implementation of lockdown and social distancing measures in the country is perceived as a sense of shock and chaos for them. Further, an unexpected surge in COVID-19 cases and death rates, improper compliance along with uncertainty surrounding the virus to settle their current and future goals were the challenging factors that can potentiate distress in their well-being. Similar thoughts and emotions have been evident in various studies, where students perceived COVID-19 as an imperilling disease.[6 7 19]

Our study participants also notified that the rapid change in daily routine, quarantine, and social isolation have compelled the feelings of relinquishment and helplessness among them that affected their well-being, which is also evident in literature.[3 20] Participants expressed that a restricted social environment has hindered students' communication channel with their family and friends that led to negative emotions, though students' social network is found as a significant determinant in coping with stressors of life that helped them to be productive in their daily routine.[3 21] However, lack of social interactions and support in the current COVID-19 pandemic could impair students' well-being. Thus, there is a need for proper intervention to be implemented for students to combat a sense of helplessness and social isolation associated with the pandemic.

When we inquired participants about the effect of media consumption about COVID-19 on their health, they shared that the media has created artificial hype or exaggerated the information about the virus that amplified pandemic-related emotions. This is an interesting finding as it highlights the student's awareness regarding the detrimental effects of using social media as a reliable source. Previous outbreak of the swine influenza virus was also associated with the media hype.[22] Literature also reported that COVID-19 has given rise to fake news and misinformation that has created unwarranted anxiety and stress.[19 23] Therefore, differentiating between scientific knowledge and facts from unauthentic sources has become difficult.[24] In addition, hearing routine news about COVID-19 cases and the death toll also contributes to the development of distress and therefore many students verbalised that they avoid using social media. A similar finding is also evident in several studies that suggested an inverse association between media exposure and the mental health of an individual.[6 25 26]

Our findings undoubtedly show that the COVID-19 pandemic has imposed financial constraints on the well-being of the students. Participants shared that the pandemic has brought extreme financial pressure on them: some of the students have lost part-time jobs that has hindered them to manage their academic expenses. This finding is parallel with the results of a multicentre study conducted on 30 383 students from developed and developing countries, which showed around 61.7% of students had lost their paid job due to the pandemic.[3] Therefore, students were expecting from university management to waive or cut down their tuition fees in this unstable condition. Our study participants also expressed that their family members also suffered from financial constraints in terms of a job loss or reduction in income that acts as substantial stressors for them, resulting in increased distress and negative consequences on their well-being. Emerging evidence also suggested that pandemic-associated unemployment and financial uncertainty are putting university students in an unfriendly state that has a devastating impact on their psychological health.[9] However, future research is required to assess dose–response relationship between the financial hardship and its effect on students' health.

The spread of the virus has forced universities across the world to close their physical doors. Students shared that to salvage the academic year, university officials have opted for a digital platform to continue the learning process; however, the unavailability of internet facilities in remote areas delays the timely implementation of online learning. This finding is consistent with a study from Punjab, Pakistan, which also pointed that the foremost challenge which delays academic learning in the pandemic era is the internet connectivity among students representing rural areas.[27] Concurrently, students expressed that transition from traditional to an online medium has created a gap in their learning that has elevated academic stress and increased ambiguity about their current academic and future career goals. The ineffectiveness of an online medium was also apparent in many other studies conducted during the pandemic representing low/middle-income countries, where students voiced their concern that they are unable to meet their academic requirements through an online platform.[9 11 28] Therefore, it is imperative to consider the technical hurdles that imposed challenges in teaching

and learning of students. Students also pointed out that along with technological hurdles, infrastructure issues (electricity issues, improper space and distraction at home), and unavailability of gadgets, also act as major stressors for them in their academic journey. Besides, the study finding revealed that technical incompetency was also a hurdle for students. These challenges can be more witnessed in developing countries as compared with technologically advanced nations that create implementation of online learning much more difficult.[2 11 29–31]

Another interesting finding is that participants experienced increased academic workload, as they are compelled to self-study, which is also a source of distress for them. Evidence also emphasised that a self-controlled learning environment was culturally less common among the Asian students as compared with those in Western countries,[32–35] as they are more comfortable in a traditional supervised teaching environment rather than self-study.[5] Keeping this in mind, most participants discouraged an asynchronous learning mode since it offers no interaction with instructors and peers, and limits their understanding of core concepts. This finding is interesting as it reflects that students prefer synchronous learning and highlights the drawbacks of using an asynchronous medium in current teaching practice. Existing literature also notified that synchronous classes keep students motivated and accountable.[36]

Other academic changes, such as the implementation of a pass/fail grading system and adaptation of open book examination, had also created distress among study participants. Alternatively, a study conducted on US students shared different opinions, where university professors implemented vital steps, such as decreased course work, introduced open book examinations and permitted flexibility on grading criteria (pass or fail) to alleviate or reduce students' stress that help them in coping with the sudden transition in academic learning. Interestingly, study participants also highlighted that lack of clinical placement has undoubtedly created a detrimental impact on learning and developing important skills such as patient communication, head-to-toe examinations and other patient care skills. The study participants also highlighted that discontinuation of hands-on training would not prepare them properly to enter in their professional journey, which increased their stress level. The finding is also consistent with the literature.[37–40] Therefore, there is a need to adopt distance learning technical-based pedagogy, such as simulation models, to ensure continuity in health education during the pandemic era.[41 42]

Despite the fact that the nationwide lockdown was aimed to save students from this lethal virus, this notion has probably increased psychological issues and its impact is expected to last much longer than the physical health impact. Therefore, students have adopted a diverse coping mechanism to combat unstable circumstances. Students highlighted that spending quality time with family members is a fundamental element in coping with the pandemic stressors and staying positive

also helped them to maintain their mental well-being. Literature also supports that a positive family environment often promotes the psychological well-being of vulnerable adolescents suffering from mental distress.[9] Many students pointed out that indulging in adaptive coping mechanisms, such as proactive behaviours and healthy practices, has a good effect on their well-being. Similar findings are noted in literature that using positive self-managing approaches by students assisted them in coping with stress and anxiety inflicted by the COVID-19 pandemic.[8]

One encouraging finding of the present study was that students recognised online group learning with peers and guidance from faculties as beneficial in achieving effective learning outcomes and minimising their distress. Literature also supports that engagement with classmates and ongoing interaction with faculty enhance students' motivation and provide support to cope with distance learning during the pandemic.[36] Another unique yet encouraging finding highlighted by our study was that to achieve academic milestones, the university management team put in their tremendous effort and provide semester content in pan-drives to all remote students in their respective areas. Besides, they also widened their collaboration with different partners to avail stable internet connections for remote students. Thus, the institutional staff and management create a favourable learning environment that stimulates and promotes student involvement to continue their studies even in these unpredictable circumstances. Our findings verified with a multicentre study, showing students were satisfied with the role played by their universities during the pandemic.[3] This finding showed the prevailing battle against the lethal virus has influenced university management to take necessary steps to sustain academic progress.

In the contemporary world, the COVID-19 pandemic appeared as the most devastating turmoil among students belonging to socially disadvantaged countries since they have more stressors and are more vulnerable to stress due to a lack of mental health facilities.[43 44] Further, sudden academic transition prompts a sense of insecurity about their learning journey that triggers appalling consequences on their well-being and calls for pandemic preparedness measures.[19 45] In that regard, students recommended that there is a strong need to introduce online mental well-being services to cope with heightened distress levels. Such sessions will have the potential for students to overcome the repercussion of the pandemic as well as academic challenges. Moreover, students also emphasised that universities should provide mental well-being services by delivering virtual lectures, guidance, training and one-to-one counselling sessions to manage sudden transition in their life. Studies conducted during the COVID-19 pandemic also identified the role of universities in organising mental health services for the students.[8 37] It is the need of the hour that governments, non-governmental organisations and voluntary organisations should work together with academic bodies

to launch telemental health services to promote appropriate actions that encourage students to anonymously convey their fears and anxieties in a free environment, which will enhance their well-being.[23 46]

Our finding recommended the need for developing innovative online teaching methods in the existing academic system that will motivate students to adapt to technology-learning environment. Students suggested that the implementation of modern communication technology, along with advanced, creative and interactive online learning tools, will make an effective learning environment. In this regard, educational authorities across the globe urgently design and implement effective e-learning pedagogy and train students and teachers to orient with this new learning mode and prepare the education system for any unpredictability in upcoming COVID-19 waves.[2] Our study also reported some recommendation at the governmental level that includes the provision of proper electricity and internet connectivity to address the students' academic challenges. These suggestions corroborate with several studies conducted in low/middle-income countries to manage unavoidable consequences of this pandemic.[9 11 39]

Strength and limitations

This is one of the few studies that have explored students' perceptions regarding COVID-19 and its impact on their academic life and well-being in Karachi, Pakistan. The current study also has some limitations. One of the limitations is that all IDIs were done virtually through WhatsApp audio call, therefore the researcher was unable to note the non-verbal cues of students. Second, this is short-term research and does not capture long-term perceptions of the students. Therefore, future research is necessary to comprehend the impact of the COVID-19 pandemic on the students' academic life and well-being across time. Third, the results of the current study should be used as exploratory rather than definitive, as we have selected students from a single institution. Hence, it would be good to select participants from diverse institutions. Fourth, we have included 10 (n=10) participants for the qualitative interviews though a small sample size did not detract us from capturing important findings in the current research. Evidence also suggests that in a qualitative study, the number and count are not that relevant and views and perspectives of even a single participant might be much more important and logical than responses from multiple participants.[47] In lieu of this, a low sample size is acceptable in qualitative research[48–50] and is also consistent with ceasing criteria for IDIs in terms of data saturation.[51]

The findings from this study will be beneficial to tailor current public health measures to address academic hardships and well-being of students related to the COVID-19 pandemic. The insights gained from this study can directly be used to improve academic infrastructure and mental health facilities to prepare them for future COVID-19 waves or another outbreak. Future research

studies should be focused on designing and executing interventions to improve students' academic life and well-being in response to the pandemic. In addition, research studies can be carried out to assess longitudinal variation in assessing student perceptions and attitudes particularly with the emergence of different COVID-19 vaccines.

CONCLUSION

This study provides a holistic view of students' perceptions of various pandemic-related academic and well-being challenges. This sudden leap in students' life has impeded their learning and caused academic and professional uncertainty, and financial insecurity, which give rise to distress among university students. The finding suggests that in the evolving and ever-changing COVID-19 period, universities, educational authorities and private bodies should implement online mental health services such as counselling sessions to address the needs of students that will avert and manage any emerging issues related to their well-being. Additionally, the present disruptive conditions give an insight regarding the execution of e-learning tools in the current academia that assist them to move with their counterparts from different parts of the world. However, this calls for extensive efforts from the government to build strong infrastructure with appropriate provision of electricity and internet facility that will support graduates to accept this innovative learning medium to prevent academic loss. Lessons taken from this study are immensely invaluable and can be transferred to other university students in Pakistan having similar infrastructure. However, findings of the present study cannot be generalised to other settings because of the variation in participants' sociodemographic characteristics, health and academic infrastructure.

ORCID iD
Naureen Akber Ali http://orcid.org/0000-0001-5442-5598

REFERENCES

1 Sintema EJ. Effect of COVID-19 on the performance of grade 12 students: implications for stem education. *Eurasia J Math Sci T* 2020;16:em1851.
2 Pokhrel S, Chhetri R. A literature review on impact of COVID-19 pandemic on teaching and learning. *High Educ Future* 2021;8:133–41.
3 Aristovnik A, Keržič D, Ravšelj D, *et al*. Impacts of the COVID-19 pandemic on life of higher education students: a global perspective. *Sustainability* 2020;12:8438.
4 Brooks SK, Webster RK, Smith LE, *et al*. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet* 2020;395:912–20.
5 Risal A, Shikhrakar S, Mishra S, *et al*. Anxiety and depression during COVID-19 pandemic among medical students in Nepal. *Kathmandu Univ Med J* 2020;18:333–9.
6 Rodríguez-Hidalgo AJ, Pantaleón Y, Dios I, *et al*. Fear of COVID-19, stress, and anxiety in University undergraduate students: a predictive model for depression. *Front Psychol* 2020;11:3041.
7 Sahu P. Closure of universities due to coronavirus disease 2019 (COVID-19): impact on education and mental health of students and academic staff. *Cureus* 2020;12:e7541.
8 Son C, Hegde S, Smith A, *et al*. Effects of COVID-19 on college students' mental health in the United States: interview survey study. *J Med Internet Res* 2020;22:e21279.
9 Islam MA, Barna SD, Raihan H, *et al*. Depression and anxiety among university students during the COVID-19 pandemic in Bangladesh: a web-based cross-sectional survey. *PLoS One* 2020;15:e0238162.
10 Rudenstine S, McNeal K, Schulder T, *et al*. Depression and anxiety during the COVID-19 pandemic in an urban, low-income public university sample. *J Trauma Stress* 2021;34:12–22.
11 Fawaz M, Samaha A. E-Learning: depression, anxiety, and stress symptomatology among Lebanese university students during COVID-19 quarantine. *Nurs Forum* 2021;56:52–7.
12 Holm-Hadulla RM, Koutsoukou-Argyraki A. Mental health of students in a globalized world: prevalence of complaints and disorders, methods and effectivity of counseling, structure of mental health services for students. *Ment Health Prev* 2015;3:1–4.
13 Pham NC, Pham HH, Hossain T, *et al*. Servicescapes in healthcare: a qualitative study on the elderly's perception of an aged care facility. *APJHM* 2020;15:26–34.
14 Hossain T, Hoang M, Nguyen S, Pham HH, Pham N. A qualitative study of consumers' perceptions of the affordable care act. *Theor Econ Lett* 2019;09:1569–93.
15 Stevens RE. *Concise encyclopedia of church and religious organization marketing*. Psychology Press, 2006.
16 Shahil Feroz A, Ali NA, Feroz R, *et al*. Exploring community perceptions, attitudes and practices regarding the COVID-19 pandemic in Karachi, Pakistan. *BMJ Open* 2021;11:e048359.
17 Francis JJ, Johnston M, Robertson C, *et al*. What is an adequate sample size? Operationalising data saturation for theory-based interview studies. *Psychol Health* 2010;25:1229–45.
18 Vaismoradi M, Turunen H, Bondas T. Content analysis and thematic analysis: implications for conducting a qualitative descriptive study. *Nurs Health Sci* 2013;15:398–405.
19 Salman M, Asif N, Mustafa ZU. Psychological impact of COVID-19 on Pakistani university students and how they are coping. *Medrxiv* 2020.
20 AlAteeq DA, Aljhani S, AlEesa D. Perceived stress among students in virtual classrooms during the COVID-19 outbreak in KSA. *J Taibah Univ Med Sci* 2020;15:398–403.
21 Elmer T, Mepham K, Stadtfeld C. Students under lockdown: comparisons of students' social networks and mental health before and during the COVID-19 crisis in Switzerland. *PLoS One* 2020;15:e0236337.
22 Klemm C, Das E, Hartmann T. Swine flu and hype: a systematic review of media dramatization of the H1N1 influenza pandemic. *J Risk Res* 2016;19:1–20.
23 Sifat RI. COVID-19 pandemic: mental stress, depression, anxiety among the university students in Bangladesh. *Int J Soc Psychiatry* 2020;1:2.
24 Bavel JJV, Baicker K, Boggio PS, *et al*. Using social and behavioural science to support COVID-19 pandemic response. *Nat Hum Behav* 2020;4:460–71.
25 Duan L, Zhu G. Psychological interventions for people affected by the COVID-19 epidemic. *Lancet Psychiatry* 2020;7:300–2.
26 Gao J, Zheng P, Jia Y, *et al*. Mental health problems and social media exposure during COVID-19 outbreak. *PLoS One* 2020;15:e0231924.
27 Mehta AM, Ali FH. Risk management amidst COVID-19 by Pakistani universities: a study of university of the Punjab. *J Manag Inf Decis Sci* 2020;23:150–7.
28 Dhawan S. Online learning: a panacea in the time of COVID-19 crisis. *J Educ Technol Syst* 2020;49:5–22.
29 Savitsky B, Findling Y, Ereli A, *et al*. Anxiety and coping strategies among nursing students during the covid-19 pandemic. *Nurse Educ Pract* 2020;46:102809.
30 Bhaskar A, Ng AKM, Patil NG, *et al*. Zooming past the coronavirus lockdown: online spirometry practical demonstration with student involvement in analysis by remote control. *Adv Physiol Educ* 2020;44:516–9.
31 Chandra S, Laoteppitaks C, Mingioni N, *et al*. Zooming-out COVID-19: virtual clinical experiences in an emergency medicine clerkship. *Med Educ* 2020;54:1182–3.
32 Holen A, Manandhar K, Pant DS, *et al*. Medical students' preferences for problem-based learning in relation to culture and personality: a multicultural study. *Int J Med Educ* 2015;6:84.
33 Khoo HE. Implementation of problem-based learning in Asian medical schools and students' perceptions of their experience. *Med Educ* 2003;37:401–9.
34 Leatemia LD, Susilo AP, van Berkel H. Self-directed learning readiness of Asian students: students perspective on a hybrid problem based learning curriculum. *Int J Med Educ* 2016;7:385.
35 Frambach JM, Driessen EW, Chan L-C, *et al*. Rethinking the globalisation of problem-based learning: how culture challenges self-directed learning. *Med Educ* 2012;46:738–47.
36 Armstrong-Mensah E, Ramsey-White K, Yankey B, *et al*. COVID-19 and distance learning: effects on Georgia state University school of public health students. *Front Public Health* 2020;8:547.
37 Burns D, Dagnall N, Holt M. Assessing the impact of the COVID-19 pandemic on student wellbeing at universities in the United Kingdom: a conceptual analysis. *Front Educ* 2020;5.
38 Nakhostin-Ansari A, Sherafati A, Aghajani F, *et al*. Depression and anxiety among Iranian medical students during COVID-19 pandemic. *Iran J Psychiatry* 2020;15:228.
39 Mukhtar K, Javed K, Arooj M, *et al*. Advantages, limitations and recommendations for online learning during COVID-19 pandemic era. *Pak J Med Sci* 2020;36:S27.
40 Aslan H, Pekince H. Nursing students' views on the COVID-19 pandemic and their percieved stress levels. *Perspect Psychiatr Care* 2021;57:695–701.
41 Jiang Z, Wu H, Cheng H, *et al*. Twelve tips for teaching medical students online under COVID-19. *Med Educ Online* 2021;26:1854066.
42 Gewin V. Five tips for moving teaching online as COVID-19 takes hold. *Nature* 2020;580:295–6.
43 Kar SK, Oyetunji TP, Prakash AJ, *et al*. Mental health research in the lower-middle income countries of Africa and Asia during the COVID-19 pandemic: a scoping review. *Neurol Psychiatry Brain Res* 2020;38:54–64.
44 Radwan E, Radwan A, Radwan W, *et al*. Prevalence of depression, anxiety and stress during the COVID-19 pandemic: a cross-sectional study among Palestinian students (10–18 years). *BMC Psychol* 2021;9:1–12.
45 Ossai EN, Ogbuoji O. Redressing the impact of COVID-19 on medical education in Africa: the need for collective action. *BMJ Glob Health* 2021;6:e005067.
46 Al Omari O, Al Sabei S, Al Rawajfah O, *et al*. Prevalence and predictors of depression, anxiety, and stress among youth at the time

of COVID-19: an online cross-sectional multicountry study. *Depress Res Treat* 2020;2020:8887727.

47 Hannah DR, Lautsch BA. Counting in qualitative research: why to conduct it, when to avoid it, and when to closet it. *J Manag Inq* 2011;20:14–22.

48 Mahmood A, Nayak P, Kok G, *et al*. Factors influencing adherence to home-based exercises among community-dwelling stroke survivors in India: a qualitative study. *Eur J Physiother* 2021;23:48–54.

49 Aydin R, Körükcü Öznur, Kabukcuoğlu K. Investigation of the experiences of mothers living through prenatal loss incidents: a qualitative study. *J Nurs Res* 2019;27:e22.

50 Rooney C, Hadjri K, Mcallister K, *et al*. Experiencing visual impairment in a lifetime home: an interpretative phenomenological inquiry. *J Hous Built Environ* 2018;33:45–67.

51 Malterud K, Siersma VD, Guassora AD. Sample size in qualitative interview studies: guided by information power. *Qual Health Res* 2016;26:1753–60.