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Differential impact, differential adjustments: diverse experiences of the COVID-19 pandemic by college students in an Upper-Midwestern University, USA

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Abstract

The impact of the COVID-19 pandemic though widespread is not monolithic. Therefore, a differentiated understanding of the pandemic's impact on people is critical. Further, it is important to recognize that even within the same group people's experiences may differ. The current study explored how the onset of COVID-19 and its mitigation measures impacted university students across the broad spectrum of their lives. The study utilized a qualitative approach based on individual and focus group interviews through Zoom. Participants were recruited using convenience and purposive sampling strategies. Twenty-one students (mean age = 33.8, over 76% whites, 15 females) participated in the study. Guided by systems and ecological systems theories and grounded in a contextualist paradigm, the data were analyzed thematically. Pseudonyms were adopted to preserve the anonymity of the participants. The findings revealed that COVID-19 has impacted students in varied ways ranging from the seemingly simple to the multi-layered and complex. An overarching theme, "same storm, different boats", which conveys the notion of differential impact, and differential adjustments was identified. Nested under the overarching theme are two main themes (1) Impact of COVID-19: disruptions, stressors, and silver linings and (2) Coping with COVID-19. Participants reported positive as well as negative impacts. Factors that helped students cope included institutional support, empathy from instructors, and family support. The findings suggest that to effectively respond to the impact of COVID-19 on students, it will be important to identify and attend to the distinct and diverse stressors within this population, and systems and ecological systems theories are important guiding frameworks.

Keywords COVID-19 · Students' experiences · Stress · Coping · Systems theory · Qualitative research

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Introduction and background

The recent global outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), commonly referred to as the COVID-19 pandemic, has had widespread impact on various segments of society (Huckins et al. 2020; Walter-McCabe 2020a; World Health Organization [WHO] 2020). Mitigation measures to respond to the morbidity and mortality rates of the pandemic, such as physical and social distancing, business closures, etc. are widely reported to have been disruptive for many people, with some attendant stressful and traumatic effects (Kaplan et al. 2020; Walter-McCabe 2020a). However, empirical knowledge of the pandemic's effects on college and university students, especially as academic institutions try to adapt to the pandemic, is sparse. The purpose of this qualitative study is to explore the impact of the COVID-19 pandemic on university students across the broad spectrum of their lives and contribute to the emerging body of knowledge about university students' experiences navigating through the pandemic.

Disaster research shows that outbreaks like the COVID-19 pandemic usually have multidimensional effects, and tend to heighten the vulnerability of those impacted differently (Feast and Bretag 2005; Fussell et al. 2010). For example, in the wake of a disaster, an older person's age may have an increased level of risk due to pre-existing factors such as declining immune functions and comorbidities which may be associated with aging (Mueller et al. 2020), Further, the risks for individuals and communities with a lower socio-economic status could increase exponentially due to limited resources to meet basic needs (e.g. shelter, food, access to healthcare, and water) (Deitz and Meehan 2019; Fussell et al. 2010). Moreover, other personal, social, and cultural factors mediate how disasters impact people (Marsella and Christopher 2004; Van Bavel et al. 2020).

Disaster research also reveals differences in effects and responses based on geographic location (Fussell et al. 2010). Disasters and the resultant responses may assume a unique character reflective of the social, cultural, political, and economic conditions and systems in a particular region. For example, in the U.S context, because of racial residential segregation, racial minorities (e.g., African Americans, Latinos/a, Native Americans, and Asian Americans) sometimes do not attract the same degree of attention or prioritization for assistance and may therefore be more vulnerable (Deitz and Meehan 2019; Walter-McCabe 2020b; Laurencin and McClinton 2020).

Similarly, COVID-19's effects have shown to be multi-layered and are different along several socio-demographic markers similar to those noted above (Anderson et al. 2020; Huckins et al. 2020; Yehia et al., 2020). However, research and public attention toward the pandemic is often segmented and does not adequately capture its nuances. To a certain extent, the medical and pharmacological foci have dominated discussions around COVID-19 (Gostin and Wiley 2020; Van Bavel et al. 2020). Likewise, there was much focus on the economic impacts as social distancing and lockdown protocols were enforced with businesses either closing or operating partially (Gostin and Wiley 2020; Huckins et al. 2020). The changes or modifications in the operations of businesses and organizations, the loss of

revenue to institutions including schools, the disruptions to academic and professional training, furloughing of employees are only part of a long list of issues (Smith et al. 2020; Van Bavel et al. 2020; Walter-McCabe 2020b).

Emerging work has highlighted increasing levels of vulnerabilities, indicated by higher levels of depression, anxiety, eating disorders, and substance use among university students when compared to the public (Browning et al. 2021; Misca and Thornton 2021). Comparing the COVID-impacted academic period to pre-COVID periods, in a sample of 217 college students, Huckins et al. (2020) found a significant increase in sedentariness, depression, and anxiety in correlation to COVID-related policy changes at the college level and beyond. Browning et al. (2021), using both qualitative and quantitative measures, examined the psychological impacts of COVID-19 among students at seven large, state universities in the United States. They found that university students who were women reported fair/poor general health status and spent eight hours or more on screens daily. Further, students, aged 18 to 24 years old, who knew someone infected with COVID-19, were likely to experience higher psychological distress when risk factors were simultaneously examined. Chief among these risk factors was the increasing levels of anxiety associated with the pandemic relative to their social life, academic success, and future careers.

Relatedly, Misca and Thornton (2021) used both quantitative and qualitative measures in a study involving 31 women students in the United Kingdom (UK). They found that the students with pre-existing mental health conditions struggled to cope with the pandemic compared to those who did not have any pre-existing conditions. Additionally, Misca and Thornton (2021) observed that the closure of schools caused parents to restructure their time in order to take care of their children at home and noted that, "parental responsibility impacts daily functioning" (p. 11). The women with children found parenting during the pandemic to be rewarding yet challenging. The aspects of parenting that made it rewarding included the sense of accomplishment associated with providing support to their children with school work, comfort about the lockdown situation, and also helping them establish meaningful routines. Some of the same factors accounted for the challenges as providing the needed supports to the children was sometimes demanding and marked by stress. Again, some of the student parents felt they were not doing enough for their children.

In another study, Cao et al. (2020) examined the psychological impact of the COVID-19 pandemic in a sample of college students ($n = 7143$) in China and found that 24.9% of the students experienced some form of anxiety (severe anxiety—0.9%; mild anxiety—21.3%, and moderate anxiety—2.7%). Regarding the factors linked to anxiety, participants whose relatives or associates had been infected with the virus were significantly more likely to experience severe anxiety. Cao et al. (2020) noted that having economic resources and social support, such as living with parents, were buffers against anxiety. They also reported that living in an urban area compared to a rural area helped mitigate students' level of anxiety. A key distinction they identified between urban and rural areas was that the former was typically resource-laden and offered more conveniences compared to the latter.

Overall, while the research on COVID-19 is burgeoning, a considerable number of studies exploring the pandemic's impact have been largely quantitative, using brief surveys and questionnaires (e.g. Cao et al. 2020; Pennycook et al. 2020). Although Browning et al. (2021) and Misca and Thornton (2021) included some qualitative measures, they were open-ended questions that participants responded to and did not have the level of detail that is possible with interviews and focus groups. Browning et al.'s (2021) qualitative component was based on the following, "We are interested in the ways that the coronavirus (COVID-19) pandemic has changed how you feel and behave. What are the first three ways that come to mind?" (p. 4). Their participants had the option of providing a fourth response. Misca and Thornton's (2021) qualitative component was based on two open-ended questions appended to the quantitative survey that elicited retrospective information about participants' strengths and challenges during the pandemic. Further, the extant and emerging literature on the pandemic predominately focuses on the medical and health sciences (e.g., Anderson et al. 2020). The deployment of other research methods such as qualitative approaches which allow for in-depth accounts of how people, especially higher education students, have been affected are critical in furthering our understanding of the pandemic's multi-layered impact (Browning et al., 2021; Engel and Schutt 2005; Misca and Thornton, 2021). In that vein, this exploratory qualitative study examines the impact of the COVID-19 pandemic on university students in a rural/mostly-urban Upper-Midwestern state in the United States of America (USA). The study explores students' experiences navigating through the pandemic, and the complex and nuanced intersections between various systems the students are enmeshed in. Though broad discussions continue about the multi-level impact of the pandemic, and despite evidence that the pandemic affects individuals differently (Alves et al. 2020; Mishna et al. 2020), there is a tendency to generalize the effects on individuals. Therefore, paying attention to the differential impact on people is essential to ensure equity in the administration and distribution of care and support (Anderson et al. 2020; Cao et al. 2020; Dempsey et al. 2021; Huckins et al. 2020). The section that follows covers the theoretical framework for the study.

Theoretical framework

The current study is undergirded by systems and ecological systems theories (Anderson et al. 1999; Bronfenbrenner 1979, 1986; Friedman and Allen 2011). While systems theory helps to conceptualize the interrelationships between society as a social system and smaller groups or units of individuals as subsystems (Anderson et al. 1999), ecological systems theory helps to visualize these relationships at multi-levels in an overlapping fashion (microsystem, mesosystem, exosystem, macrosystem, and chrono systems) (Bronfenbrenner 1979, 1986).

The principles and concepts derived from systems and ecological systems theories can support assessments and intervention strategies that take into account the particularity of a client in relation to the others within the client's proximal, distal, as well as the larger social context across time and space to capture the nuanced ways that an individual can affect and be affected by events that impact the system(s)

they are connected with (Anderson et al. 1999). The SARS epidemic of 2003 offers an example of how society as well as communities and individuals as systems operating in interconnected ways at multiple and overlapping levels can be impacted by disasters. According to Feast and Bretag (2005), the SARS epidemic of 2003 severely impacted Australian higher education institutions involved in transnational education. There was a multi-system impact that extended beyond the institutions. The stress ensuing from work as staff and faculty adjusted to their administrative and instructional roles affected their personal and family lives. Anxiety was common among students due to changes in instructional formats, notably, the switch from face-to-face to online learning and having to embrace new technology. The researchers also reported an emerging challenge with the prioritization of commercial considerations over teaching and assessment standards.

As social systems, humans have the organizing capacity to adapt and achieve some form of steadiness amidst uncertainties (Dvorsky et al. 2020; Vaterlaus et al. 2021). These features common to humanity are what make social distancing in the context of COVID-19 possible, especially for those who are able to maintain social and professional relations virtually. Implicit in the social and physical distancing practices is the understanding that the society as a whole is a system, and that the interactions of the various subsystems at multiple levels (e.g.microsystem, mesosystem, exosystem, macrosystem, and chronosystem) are necessary for society to persist in the face of pandemic like COVID-19 (Reynolds 2020). It is important to recognize that the responsibility of public prevention efforts is not evenly distributed. There are several individuals who, by the nature of their work—working with chronically ill patients, caring for the elderly in assisted living facilities, etc.—may shoulder a heavy load (Bao et al. 2020). Even messaging intended to create a positive buzz and demonstrate solidarity such as "we are all in this together" does not always reflect the actual experiences of people and the differential impact of the pandemic. Therefore, from a narrative and experiential perspective, this study explores the experiences of students in the midst of the COVID-19 pandemic.

Method

The method section outlines the approach taken in conducting the study. Specifically, it presents information encompassing the participants and how they became involved in the study, the type of data and means of data collection, analysis, and compliance with ethical standards.

Sampling and data collection

Convenience and purposive sampling were utilized. Recruitment was conducted through emails to participants' academic departments and direct referrals. Data were collected between May and July 2020 through 18 individual interviews and one focus group discussion which involved three participants using Zoom. The average duration of interviews was about 30 min. Recruitment of participants stopped after saturation was achieved (Saunders et al. 2018). This was determined at the

point when newly collected data replicated that which had already been gathered even after purposive sampling had been applied to diversify the sample. During the data collection period, COVID-19 was at its peak, and the students' University, like many others across the United States, had ceased on-campus instruction with very minimal student, staff, and faculty presence on campus. Additionally, lock-down measures were in place in many cities across the United States. The protocol for the study was reviewed and approved by the Institutional Review Board of the first and second authors' institution. In keeping with ethical standards for human participant research, among other things, participation was voluntary, interviews were scheduled at the convenience of participants to prevent undue pressure or coercion, and participants were also able to withdraw at any point of their involvement with no obligation to explain why. Participants could also request that their data/submissions not be included in the study.

The central question guiding the study was: how has the COVID-19 pandemic impacted university students across the broad spectrum of their lives (looking at their academics, family/social relations, work/employment, etc.)? The study used a semi-structured interview guide covering the following primary questions:

(1)   How have you been impacted by the COVID-19 pandemic?
(2)   What has helped you cope with the pandemic?
(3)   What has been less helpful in your efforts to cope with the pandemic?

Additional questions and prompts were posed as probes to guide and allow for the clarification of responses. For example, in relation to the first question, prompts included life in general, school/academics (including internships), work, social life, etc. Some demographic information including age/age range, gender, program of study, academic level, place of residence, etc. were requested from participants. The provision of demographic information was not a prerequisite for participation in the study but to allow for contextual and meaningful interpretation of the data.

Participants

There were 21 participants (14 graduate/professional students and seven undergraduates; 15 females [71%] and six male students). Participants' ages ranged from 21 to 53 years with an average age of 33.8 years. Two participants did not provide their ages. The participants were all students of the same university in the Upper-Midwest in the United States. However, they were located in 12 cities/towns across four states (i.e., North Dakota, Minnesota, Colorado and Nebraska). Four of the participants were international students who were all living in the United States at the time of study. Sixteen participants (over 76%) identified as white. The other five participants represented the following racial/ethnic groups: Asian, Black, and Hispanic. One was mixed-race (Native American/European). Participants' programs of study (and academic departments) included Social Work, Nutrition and Dietetics, Aerospace/Aviation, Geography and Geographic Information System, and Petroleum Engineering. Participants are referred to by pseudonyms to preserve anonymity.

Data analysis

The data were analyzed thematically (Braun and Clarke 2006, 2013). The study was guided by a contextualist paradigm (combining essentialist and constructionist paradigms). From the essentialist paradigm, the study highlights participants' experiences and realities as overtly presented. From the constructionist paradigm, the data are embedded within a socio-cultural context and highlight the socio-cultural influences on meaning making (Braun and Clarke 2006, 2013). First, the recorded interviews were listened to repeatedly and the transcripts of the interviews were also read repeatedly. Initial observations were noted using analytic and reflexive memos. Second, succinct labels (codes) were applied as key features of the data relevant to the research questions were identified. Third, after coding all the data, the codes were collated and initial themes capturing broader patterns of meaning were developed. Fourth, the data were further reviewed and correspondingly, the initial themes were further examined for their viability. All authors agreed on the codes and emerging themes.

It is important to mention that coding and the exploration of themes straddled the lines between the inductive and deductive approaches as well as the semantic and latent approaches (Braun and Clarke 2006; Gibbs 2007). It is worth noting that, despite ordinal presentation above, the actual processes were cyclical and iterative. The first author collected the data and conducted preliminary data analysis with peer debriefing and support from the second and third authors. Further analysis of the data was performed by all three authors.

To ensure the trustworthiness of the findings and conclusions, a peer debriefing and support system, and negative case analysis were applied. As part of the peer debriefing, preliminary findings were shared with a close group of faculty and researchers. Ensuing discussions informed further analysis (including the negative case analysis) and the refinement of themes. Member checking was also conducted. Participants had the opportunity to review their transcripts as well as an initial draft of the key themes. No concerns were expressed about the transcripts or the themes.

Findings

Overarching theme: "same storm, different boats"

The analysis revealed varied ways that COVID-19 has affected participants and diverse ways they tried to cope with the situation. Participants shared experiences ranging from the seemingly simple to the multi-layered and overlapping relationships within and across the microsystem, mesosystem, exosystem and macro-levels of interactions. While several participants revealed that COVID-19 has significantly altered how they conceptualize and engage life, the extent to which they framed the alteration show some similarities as well as differences. Thus, the analysis showed differential impacts as well as differential adjustments through a matrix of interactions across multiple systems and based on participants' unique contexts. A phrase, "same storm, different boats", used by one student, Phoebe, in her account of her

academic, work, and home experiences reflects this core finding and serves as the overarching theme of this study. It must be noted that the phrase, "same storm, different boats", is a derivative of a quote by writer and broadcaster, Damian Barr, "We are not all in the same boat. We are all in the same storm. Some of us are on superyachts. Some have just the one oar" about the pandemic which was popularized by Wall Street Journal columnist, Peggy Noonan (2020).

The findings are captured in two main themes—(1) Impact of COVID-19: Disruptions, Stressors, and Silver linings and (2) Coping with COVID-19. In addition, there are sub-themes that reflect more closely the specific variations in the impact of the pandemic on students and the individualized manner in which they adjusted. Figure 1 illustrates the general context and matrix of interactions in the transmission of the pandemic's impact across different systems without making any specific value-judgments.

The first level designated "A" represents the direct impact the COVID-19 Pandemic had on participants' (students') education/university system (which also represents students' academic interests), their state/county/city, and their employment/ work. The next level, represented by "B", shows the interface between the state/ county/city, the education/university system, and the (students') family and employment systems. Contextually, the state/county/city has a moderating effect on how other systems respond to the pandemic. The position or stance of state and local leaders resulted in varied responses. For example, when some states delayed or hesitated to implement mask mandates, some businesses took the initiative to do so without waiting for a state policy (Gostin et al. 2020).

Following "B", is the direct impact of the education/university and employment systems on the students' family and the students themselves (designated by "C"). The actions or responses by the education/university, and the employment systems can also be viewed at multiple levels. The education/university system's response is operationalized through diverse channels. Students may experience the university's response through their academic department/program and also through their instructors (both are designated by "D"). Further, an academic department/program may also have its own direct response which may be distinct yet not at variance with the university's (designated by "E"). Individual instructors or professors may also have their own distinct responses to students (designated by "F"). The employment system mirrors some of the patterns discussed concerning the university. In addition to the direct response from a person's employer, there may also be responses from other subsystems (Designated by E, F). The impact of all these responses on student has direct implications for their families (designated by "G"), their education (designated by "H") and their employment (designated by "I").

Next, the two main themes and subthemes are presented in detail with supporting quotes.

Impact of COVID-19: disruptions, stressors, and silver linings

In a general sense, the data showed the participants had been impacted by the COVID-19 pandemic in diverse ways. Notable areas of impact included school,
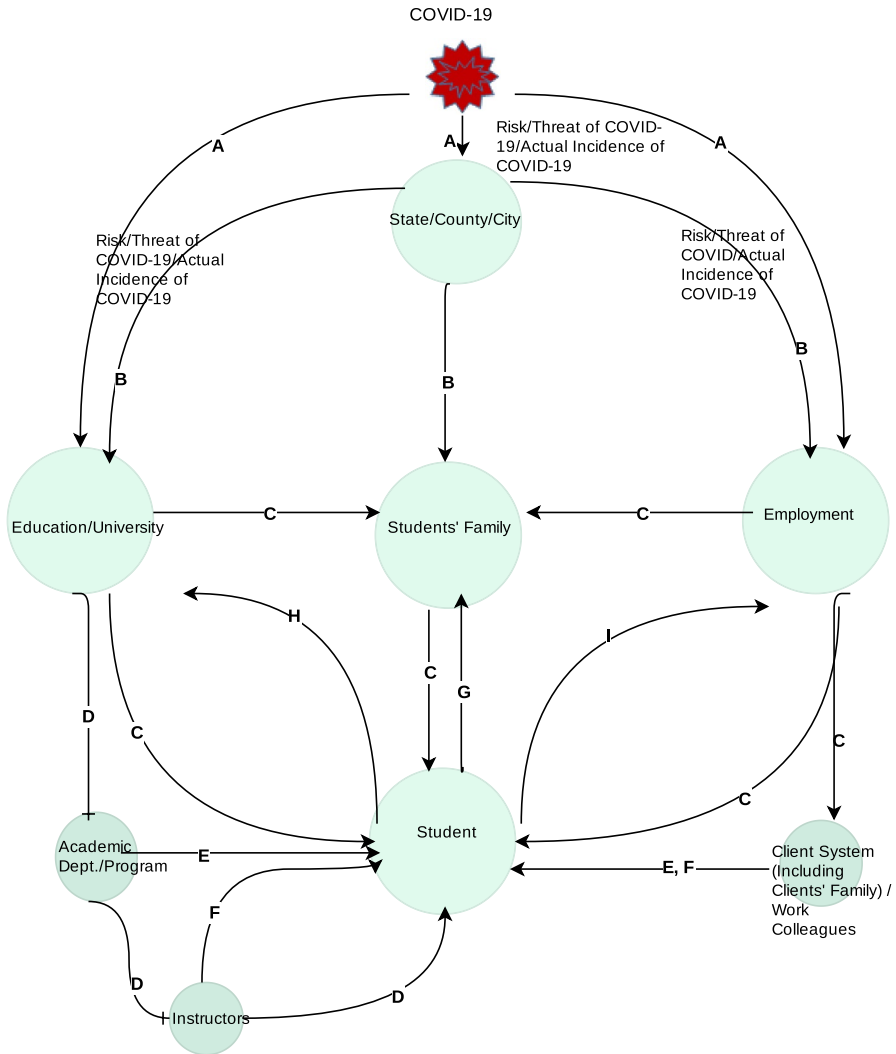
Fig. 1 Matrix of interactions of the COVID-19s impact

work/occupation, family, and social relations. How the participants' conceptualized the impact of the pandemic is captured quite succinctly in the following statement, "*personally and professionally, it's impacted a lot about my daily life*." However, when contrasted, it appears some areas were impacted more greatly than others (e.g., school compared to work, or family relations compared to work) In addition, depending on the area or domain in focus, participants perceived the impact to be positive, negative or neutral. In some cases, participants perceived the impact to be both negative and positive. Overall, most participants had mixed perceptions of the

pandemic's impact. The subthemes below convey both the general and distinct experiences of participants.

"It's like riding a bigger roller coaster than life normally is and so, you know, it has many more kind of ups and downs" and "hypervigilance mode"

Participants shared that the pandemic has disrupted the normal flow and order of their lives. Some participants associated adjustment to this disruption with some degree of steadiness on some days, and challenges at other times. The challenge they faced related to the nature of the tasks they had to perform. Here is an example:

> Like I'll wake up one day and I'll write a paper and it's going great. And the next day, you know, just basic self-care and getting up are more challenging. And so, that to me makes it hard when you want students to produce something [referring to their capstone independent project] that shows, they've got this higher level thinking and they're learning stuff (Mary, Graduate student).

Participants described how work-related interruptions spilled over to affect the personal life domain (exosystem level factors interacting with the microsystem level factors) to demonstrate complex ways that the COVID-19 impacted them. The following example from a participant, *Maia*, shows their initial view about the impact of COVID-19 which suggested it was limited to their work. However, she subsequently elaborated on how it was affecting her ability to focus on school as well as the risk her children faced and thus, demonstrated the pervasive nature of the impact:

> The only real impact I've had is due to where I work and what I've been going through…I've felt the mental effects of it. I work in a nursing home, and we're struggling right now…We have a COVID-19 positive wing and I've lost a lot of residents to it. So mentally it's affected me. And with my last classes that I just finished. I had a really hard time finishing one of my papers and I had [a professor], who was nice enough to extend my paper a couple weeks because I just told him mentally [I] have been going through so much that I just couldn't wrap my head around the paper at that time…when I came home, I'm just mentally drained from dealing with upset families and losing my residents and half of our workers being out who are positive and afraid for myself too and bringing it home to my kids. I'm not afraid for me to get it. I'm afraid you know if my kids get it, what would happen?

Similarly, another participant shared that they had a child with an underlying health condition which placed them at a very high risk and because they worked in a health setting, they had to take extra precautions when they returned home from work. The participant stated:

> … I come home and before I can even see my family. I have to shower…I have to put everything in the laundry, have to wipe everything down. I over the top sanitized before I can even just go in and give my kids a hug. (Goldie, Graduate student)

The experiences shared above illustrate the multi-level impact of the pandemic, cutting across work, academics and family/home life. Between work and home, it appears there was a persistent fear of contracting COVID-19 and endangering one's family members or clients. Though participants' accounts showed the pandemic has impacted them in multiple ways, some expressed that the effects were more prominent on some levels than others. For example, a participant (Mary) who had shared that the pandemic had affected her ability to work more consistently on her academics, stated that her major concern was for her son. She shared that:

> I think the biggest impact for me is my [teenage] son is failing school…I know doing stuff online wouldn't be a good fit for him…if they're not going to a physical building and someone's not saying give me this paper, it's like it's not real…It's a very powerless feeling.

Academics/training: distance (online) and on-scampus courses

Distance (online) students Some students felt that, their academic program/department and the University did not recognize the "*variety of new stressors*" they [the students] were experiencing, and overlooked the multi-level relationships through which their lives were disrupted by the pandemic. In particular, for those enrolled in online classes, some participants believed that because they were already online the University and their Department's intention was to maintain "*business as usual.*" A participant, Lourdes, shared that in response to a request to reconsider the volume of work/tasks for a class, an instructor stated that, "*I'm not going to take it back and I'm still keeping pop quizzes.*" Below is an additional example:

> When the news first broke, and we started looking at locking down, making arrangements for the universities to shut down or go entirely virtual…I was an online student and so I was actually already online. And so the school itself, the classes did not skip a beat…And I think that because of that the response of professors was maybe a little delayed in saying, 'wait a minute…there might be some big changes and we might need to make some changes in our class.' Because initially we were kind of just running on momentum and doing things the same…in my personal life…there were just a variety of new stressors…my [partner's company] had three positive cases. So I never got to go home for six weeks. I actually stayed with [relatives] and because my partner… had been in contact with individuals. So we waited a length of time and then more positives came along and we waited more time. (Lydia, Graduate student)

As indicated, the impact of the pandemic on online/distance students was also differentially felt. For example, in contrast to Lydia, Salome in the Nutrition and Dietetics program shared that her program was completely online before the pandemic so in terms of the impact, the "*school portion didn't affect me a whole lot…*".

This suggests that depending on the systems that one interacts with, and the degree of the nature of the interactions (e.g., spouse, children, parent, or other significant others) individuals may be indirectly impacted by the pandemic that can

significantly alter access to resources (e.g. psychological, and material) to generate stressors to affect well-being.

On-campus students Several participants who were enrolled in face-to-educational instruction expressed that the outbreak of the COVID-19 pandemic and subsequent shift to online education interrupted their learning in several ways through difficulty with technology, loss of personal and social interactions that facilitated learning, and declining motivation for difficult subjects. For example, a participant who is in the Geography and Geographic Information Science program shared that:

> I was taking a class [on campus]. So the class changed completely online. It was already a difficult class for me. So having it online it was a little bit more difficult sometimes. (Penny, Graduate student).

Others expressed that the challenges they faced in adjusting to the interruptions brought by the pandemic entailed not only personal difficulties with technology but also the very nature and demands of online learning. A participant in the Social Work program shared that:

> I'm not a fan of technology. There's just a lot. There's more to, you know, just jumping on [a computer] and typing a paper; and having to figure out the whole Zoom thing and you know actually having the discipline to meet for classes on, you know, over the computer and stuff like that and being at home. That wasn't what I had signed up for so it was quite a bit (Keith, Undergraduate student).

For others such as Tammy, a social work graduate student, "technology isn't a friend of mine" but then also noted that, "[the] technology was challenging but doable." However, her chief concern was the loss of "human interactions with students" because "we were doing this [being online] for usually six hours a day, you're in front of a computer compared to interacting in the classroom." Similarly, an undergraduate social work student, Molly, shared that "as far as Zoom, it's an easy process but just that I missed that one-on-one connection."

Despite these challenges that several of the participants had to adjust to, the interruption was quite different for students enrolled in the Aviation program for whom virtual instruction was not an option in some cases, notably, for flight training. Lee, an international trainee pilot shared that, "I stopped my flight training for about three months." Concerns were also expressed about a possible domino effect with the halting of flight training in that it could substantively alter other areas of the students' academic plan and life including, the duration of their programs, graduation timeline and post-graduation plans. The quote below from Derek, an undergraduate Aviation student summarizes the multi-layered concerns resulting from the interruption caused by the pandemic:

> So where I was hoping to graduate at Christmas, I may not...I may not be able to graduate until spring commencement. It's hard to say. So that's putting an extra semester of strain on me and a few other things like a lot of extra finan-

cial load…it could even be that I will be paying loans much earlier than I really ought to be for where I'm going to be at my graduation schedule. (Derek, Undergraduate student)

Subtle distinctions in concerns for family

There was a qualitative difference in how some participants expressed or discussed concerns about others notably members of their family. There was also an apparent difference in the nature of the concerns. First, there was the concern about contracting COVID. Participants who were mothers not only expressed concerns about their children, they also appeared to be holding themselves responsible for the well-being or successful adjustment of their children. Looking at some of the extracts already presented above, Mary was concerned for her son who was failing school and bemoaned the "powerlessness" she felt in addressing the situation. Maia was also concerned about potentially *"bringing it [COVID] home to my kids"*. Goldie also discussed the meticulous steps she needed to take because she had a son who was considered high risk. Lourdes shared the following about her daughter:

> …she's in high school, she's taking college courses…and so the only real time we had together was in the mornings. But then I was now required to go in [very early] in the morning, which most teenagers are not up at [that time] in the morning. So that really was difficult because this is the last I have her just one more year. So this is her junior year in high school so that was hard. It was a hard adjustment for us. And I feel like it's kind of spaced us a little bit more even so in our relationship because that was really the only good time that we had to spend together and then it was taken away.

The extract shows that Lourdes appears to be mourning losing her connection with her child, and also appeared to be assuming some responsibility for that. Like the other mothers who had one concern or another for their child(ren), it seems as though their inability to control situations or guarantee successful outcomes was a stressful thought for them. Though other participants also shared concerns they had for their family members, it is important to note the difference. The situation is not exactly the same if one views themselves as having a responsibility for how their kith and kin adjust to the pandemic. Jamal shared that:

> My mom and sister are affected right now because [in] my hometown the cases are just going up and up and up and there's a lot of quarantine going on…so they are finding it very tough. My dad also because of his age, he's more susceptible. And because of that, even he is finding it really tough to adjust to the changes happening in the country he is residing in.

The quote above presents the raw fact about his family's situation, and he does not assume a position of responsibility. In contrast to the pattern of concern some participants expressed for their family members, Lee, the pilot trainee shared that the situation in his country had "*greatly improved*" and added that:

My parents, they don't worry about themselves, but they worry about me… they are safe.

Inconvenienced but not struggling

In contrast to the above challenges that several participants associated with the adjustments necessitated by the COVID-19 pandemic, others expressed that although the pandemic has ushered in some disruptions, the associated stress has been relatively minimal and manageable. For many of these participants, factors such as pre-pandemic lifestyle, living in rural communities, and available socio-economic resources were buffers. A participant shared that:

Life in general, probably didn't really change a whole lot for us because we're kind of reclusive anyways. So I'm just going to the grocery store or some of the normal things we did. We had to maybe plan ahead. More than we normally did… (Pete, Undergraduate student)

Similarly, another participant shared that although they were ending their temporary employment a couple of weeks earlier due to the pandemic, it was not like "being laid off or fired" but it actually provided "more time to do my homework". Regarding social relationships, they shared that the pandemic negatively impacted "visiting with people" and "socializing" however, "living in rural North Dakota. I didn't get that much anyway. And so, you know, meeting with friends on Zoom wasn't that different than having class so it really didn't change that much about my everyday life." (Elizabeth, Graduate student).

Relatedly, Magdalene, a graduate student shared that in her child protection job, "there was a lot of kind of frantic planning that happened and just a lot of stress with figuring out how to do our work really differently…[and] overall it's stress and it's challenging" but "we [her family] don't have preexisting health conditions. We don't have a financial hit…and so I am very aware of our privilege in this and so try to keep our complaining to a minimum, because we are inconvenienced but not struggling."

For Jamal, an engineering student, in their role as a Graduate Teaching Assistant, they used interactive technology to explain concepts diagrammatically and the switch to online instruction "was kind of tough initially…because I don't have the same facilities [online]". However, for other aspects of his work, he stated that, "…I was not really that affected. Most of my work I've been doing at home at night. I work remotely, most of the time. Only times I actually have to go to campus is to interact with my professor or other faculty, which now is easily just transferred online."

Silver lining

A surprising development was that some participants who expressed being stressed by the pandemic, also discussed some benefits they derived from it. For many of these individuals, while they acknowledged that life as they had known it was disrupted, generating some adjustment challenges, they also showed that

there were some benefits such as bonding time with family, more time to complete school work, and time to attend to the health needs. For example, Derek, who stated complex ways that the pandemic was likely to affect him through the impact on his Aviation program, subsequently revealed that, at the onset of the pandemic in the US, he was already dealing with *"really, really bad medical problems"* that were affecting his schooling. He further explained that the modifications to learning particularly the pausing of flight training labs was beneficial, stating that "*it was almost a comfort to have this extra time off, because if I hadn't I would have been wasting and losing a lot of time…*

Similarly, Goldie shared that while her family's tight schedule was interrupted, the pandemic provided an opportunity to strengthen family bonds that although important, they never had prior to the pandemic. She stated that because her children *"are very heavily involved in sport*s," the family has been on the road and *"every night eating meals on the run."* However, with the changes in schedule because of the COVID-19 pandemic, she said:

> I feel like we became super close as a family and our lives prior to COVID were every night gone for sports...and I feel like part of the coping has been the fact that I can spend time with my family that I can come home at night and we can play games we can watch a movie.

Another participant shared that in the midst of the pandemic and the stay-at-home order, they were able to complete a significant academic project largely because they had more time than usual:

> The one nice thing about the coronavirus, I don't know that it's a nice thing but silver lining is I had decided to do my [capstone] project in the spring semester. And having that much time at home and at first I just felt unsettled…And I said, 'well, I think, give me a couple weeks to just let my brain settle into this, ice that stay-at-home order…And it ended up being a great time for me to write that[project]…I got it finished. I got my grade in… but it was nice to work with someone [academic advisor] where they were saying 'if you get it done. Great. If you don't, don't.' (Mary, Graduate student)

Coping with COVID: what was helpful, what was less helpful

In general, several participants discussed psychological concerns (e.g., anxiety, depression, fear, and tension), and in varying degrees made numerous references to stressful and traumatic experiences. For example, Phoebe, a graduate student in the Nutrition and Dietetics program shared that they had "seven friends that have been diagnosed with COVID and recovered from it and then five people that I know that were diagnosed with COVID and passed away from it and not all of them are even in the same state." Some participants also disclosed they had close relatives who were vulnerable because of their age (i.e., being older adults), and other relatives who had underlying health conditions or had contracted COVID. Others also expressed concerns about contracting the virus since they worked

in high-risk environments such as hospitals/medical centers. It was, therefore, important to know or understand what was helping or not helping them cope with the pandemic.

Factors helpful in coping

Regarding factors helpful in coping with the pandemic, participants discussed various personal, social, and professional resources they had access to and utilized. Participants largely spoke about family and social support (example: "I'm blessed to have my immediate family with me" [Rey, Graduate student]), exercising and being able to experience the outdoors (example: "Going out for a walk, has always been an option and some physical activity out in the sunshine always helps improve one's mood" [Derek, Undergraduate student]). School was a source of stress for some participants but a "nice distraction" for others. A participant shared how they leveraged their professional experiences and training in the helping professions and health services in identifying and addressing symptoms of anxiety and depression as part of their self-care routine:

> I felt like there were times I need a therapist to help me get through this situation…And I go, thank God I had the education with these professions of social work [and health services]…what would I tell people in this situation (Tammy, Graduate student)

Another participant, shared how their parent company instituted measures to ensure their safety and comfort in the midst of the pandemic. In addition to still having an income, the company made arrangements with the University for "a shopping shuttle to take us [i.e. the company's trainee pilots] to the Walmart to buy food or something" (Lee, trainee pilot).

Several participants discussed the role of technology and entertainment in helping them cope during the pandemic. Notably, some participants mentioned using Zoom and other interactive apps in connecting with friends and family. Other participants mentioned watching movies, documentaries, and playing games. Interestingly, some of these coping measures seemed to be double-edged. A participant stated that coping strategies they used such as "watching movies and playing games" was helpful but could also be counterproductive because "at the same time the electronics makes you more sedentary" (Pete, Undergraduate).

In the focus group discussion which involved three of the students, they contrasted their University's response in the area of housing to other institutions across the nation:

> I think I read somewhere that other universities were closing down their housing facilities/residence facilities and it was like an inconvenience for many especially international students who don't have anywhere to go, because they can't even fly back home…But I think the [University] kind of did well in still maintaining the housing facilities for most people who were not able to move or who were not able to go home especially like for spring break…So that really helped because that was going to be a worry

for most internationals if they [the University] were going to emulate what some other schools did by kicking everybody out of school, that is, from their [on-campus] residence (Rey, Graduate Student)

The views expressed by these international students show appreciation for the University's efforts. Further, they highlight the distinctive experiences and concerns of different segments of the student population.

Factors less helpful in coping

Participants noted a plethora of things, ranging from their academics and employment settings to politics that made coping with the pandemic challenging. As presented in some of the direct quotes above, the transition to online learning for campus students was challenging for some students. Additionally, instructors' rigidity or perceived lack of concern and empathy for students was not considered helpful. Participants also shared that having to adjust to the changes brought on by COVID such as the disruption of work routines, spending unusually long hours online in webinars related to work or classes were not helpful.

A number of participants, especially those in the health related field, described that unsupportive responses from their organizations, work colleagues, and relatives of their clients compounded the already challenging work changes and rules they had to adjust to as a result of the pandemic. A participant, Goldie, who worked in a health setting stated that at a point they did not have enough personal protective equipment at work and they "were wearing our surgical masks for five days." She also described a tense work place scenario "that has made it far worse and super challenging to go to work." As this participant was navigating the situation at work, she was also concerned about a family member who was of higher risk because of underlying health conditions. However, her cautious navigational approach was met with some resistance from some colleagues at work, making coping very stressful. She expressed that some of her colleagues questioned, "what makes your life more important than my life?".

Lourdes, who worked with a geriatric population, also described the following work place scenario:

I had families calling me saying, 'we know that you staff are going to bring it into the building and you're going to kill my dad.' And then I would get other family members saying…'your rules are [expletive].'...and so for eight weeks, like going into this in the heat of it [i.e. the pandemic].but the first two weeks in particular, like I just went to work for eight hours a day to get screamed at…and then we had residents, say, well, 'we know it's you staff, who's going to be the one bringing it [COVID] in the building and you're going to kill us because you go home at night.'

This quote reveals a rather hostile working situation with staff having to bear the brunt of residents' and their families' fears and anxieties. In contrast to those who were not showing appreciation, Lourdes stated that there were demonstrations

of support from others as well as their corporate office. Notably, a family donated lunch to the whole campus and their corporate office also acknowledged their efforts by emphasizing that they were "essential workers" and they could also earn monetary incentives "…depending on the number of hours that we work but that's if you accumulate a certain number of hours."

Another participant, Maia, also stated that although their organization provided support to cope with the pandemic and the adjustment stressors, it was not enough because:

> We're still kind of lacking that community support. What I would like to see is our main hospital support us more it would have made a huge difference. But we're getting a lot of backlash from our main hospital that is supposed to be there to support us…It's kind of like, you know, they're holding up the cross at us, because nobody wants to get too close to us.

It appears for their work and service to a high-risk population, older persons in nursing homes, and possibly because of COVID-related deaths that had occurred within that facility, Maia and her colleagues were facing some form of stigma. The metaphor, "they're holding up the cross at us" draws on imagery associated with efforts to keep vampires at bay or warding off evil spirits. In essence, Maia perceived the treatment from the main hospital to mean that they were being compared to vampires or evil spirits. In the case of Lourdes too, the nature of the corporate support given could be viewed as an act of tokenization especially considering the pressures they had to deal with from residents and their families.

Several participants expressed the view that there was a social and political climate that was largely detrimental to coping with the pandemic. For example, some participants felt there was "more prioritization of the economy over health of individuals or a population." In addition, some also noted that there seemed to be a disregard for science:

> Some people just don't get it, and they don't care about science, like they think that everything is a hoax and everything's a conspiracy and…it was created to make [the President] look bad. (Gayle, Undergraduate student)

 In the focus group with the three international students, two of them disclosed "*other stressors going on*":

> For instance, right now as an international student like some important stuff is like the OPT [optional practical training] and CPT [curricular practical training] itself and with the current administration pulling certain things [immigration-related] like till the end of January it is creating some stress in terms of, 'okay, how is the future gonna look like?' At this point, I am uncertain of the future but it was all somehow linked in with COVID. The reason it [immigration-related policies] came in was because of the COVID-19 pandemic (Jamal, Graduate Student)

This quote covers a concern about possible implications of the pandemic on opportunities for professional and career development through the U.S. Citizenship and

Immigration Services' OPT and CPT programs. These concerns also reveal the connection between the macro, meso, and micro impact of the pandemic. The decision at the federal level (macro), had implications for the students' access to training opportunities with agencies or corporations (micro-meso), which meant professional and career growth could be stunted.

References were also made about the impact of the media traditional and social media accentuate the diverse and complex array of factors that shaped the pandemic's impact on people. The concern with the media was not solely about misinformation but also appeared to be about an overload of information. Further, the quotes illustrate the agency of individuals in responding to different situations. It is evident that the coping strategies of some participants involved avoiding traditional media and social media. For example:

> I tend to want to, you know, for lack of better words stick my head in a hole and not really get details of what's going on. So that to me all the media and knowing exact numbers and that type of thing was, was not helpful (Nelly, Graduate Student)

Another participant described their experience on their social media platforms with a rating, saying:

> 70 to 90% of it has been negative and not helped anyone…a lot of misinformation spread around without checking for facts and then bashing a lot of people if they have a different opinion [from] you...I've had to become a little bit less active on social media (Pete, Undergraduate).

The findings above, generally, highlighted the experiences of the participants with some elaboration provided as a precursor to the discussion. The discussion section that follows shows further interpretation and exploration of the findings in the context of existing research and theories.

Discussion

Consistent with systems and ecological systems theories, the findings suggest that COVID-19's impact is multi-layered (Anderson et al. 1999; Huckins et al. 2020). As several participants described, the outbreak of the pandemic and the resultant actions and policies, including health guidelines, intended to slow its spread affected multiple areas of their lives including employment, education, and family relationships, and their psychological well-being in diverse ways.

Furthermore, similar to emerging evidence (Alves et al. 2020; CDC 2020), although COVID-19 has interrupted life in general, for university and college students, the pandemic has increased vulnerabilities to higher levels of psychological concerns such as anxiety, depression, and social isolations (Browing et al. 2021; Misca and Thornton 2021). Our findings, from systems and ecological systems theoretical lens, show that the effects of the pandemic vary with respect to the systems that one is involved with, and the levels of interactions occurring

between, and among them. For example, while Salome, Jamal, Elizabeth, and Pete acknowledged that the pandemic has affected them, they do not feel they are struggling. Conversely, participants like Maia, Goldie, Mary, and Lourdes expressed being distressed, but the sources of their distress although COVID-19 related, are different. Much of the distress was linked to their relationship with other systems and other prevailing conditions within those systems (e.g., family members with preexisting conditions, employer's responses to the pandemic, relationships with colleagues and clients at work, and their University's management of the situation). These findings suggest that in acknowledging the impact of the pandemic on people, it is important to avoid homogenizing their experiences. How individuals experience the effects of the pandemic extends beyond themselves. For example, the expectation of caring for one's child(ren) as a parent appears to have changed due to the pandemic for those participants with a child(ren) creating stress and anxiety compared to those who were not parents (Misca and Thornton 2021; Newell and MacNeil 2010; Thai et al. 2019). Misca and Thornton (2021) revealed that the closure of schools due to the pandemic imposed new demands on parents as they now had to perform a schooling function previously filled by the schools.

It is also important to recognize nuances in responses to students and efforts should be made to ensure congruence as incongruence between systems or subsystems can undermine the attainment of positive outcomes (Dempsey et al. 2021; Feast and Bretag 2005). Noting distinctions between institutional, departmental, and individual faculty responses can be helpful in problem-solving and optimizing supports. Systems and ecological systems theories (Anderson et al. 1999; Friedman and Allen 2011), allow for the assessment of the whole (e.g., society, community, or family) while simultaneously attending to the particularities of the various subsystems and the overlapping relationships that help systems to maintain steadiness in the context of change. Applying these theories to examine COVID-19's impact on individuals and communities is critical to identify variations in factors that facilitated or undermined adjustment to the interruptions brought about by the pandemic in order to tailor specific supports to carry people through the pandemic.

Finally, in exploring the factors that facilitated or undermined adjustment to COVID-19 induced interruptions, it was evident that nearly the same factors that made the pandemic more or less disruptive and stressful accounted for the differential coping responses (Misca and Thornton 2021). These factors include biological concerns (e.g. underlying medical conditions), social and professional situations (relationship with family, colleagues, and peers), personality traits (e.g. introvert), place of residence (e.g. rural area), place or nature of work (health setting, residential homes, student employee, etc.), economic status (still employed or not, having sufficient income), and policymaking at several levels (Browning et al. 2021; Huckins et al. 2020; Walter-McCabe 2020a, b). This finding suggests that interactions within and across systems at different levels (namely, microsystem, mesosystems, exosystems, macro systems) can generate resources (psychological, social, and material) that support thriving or distresses that can also impede optimal social functioning especially in times of disasters such as the COVID-19 pandemic. Thus, individuals are embedded within complex and dynamic systems that can be

activated to strengthen or buffer risks. As researchers, educators, policy makers, and practitioners, the use of systems and ecological systems theories to guide assessments, and interventions is critical to organize strengths and resources to mitigate potential risks to support positive adjustment, particularly in times of disaster (Thai et al. 2019).

Implications for higher education

The current study suggests that society as a whole is a system with individuals and institutions serving as components, and the well-being of individuals and sustainability of society is dependent on a complex matrix of interactions (Anderson et al. 2020; Studzinski 2020). Thus, individual students, beyond their interface with universities and colleges, are nested within multiple and complex networks of interactions. Depending on the nature of the interactions, and the generative resources or stressors that flow to individuals through the systems they are embedded in, students may or may not be able to meet the role expectations of them especially in times of disruptive events and upheavals. It is therefore critical that, in times of a pandemic such as COVID-19, higher education, as well as organizational responses' look beyond the individual to consider other important aspects of their lives to adequately support them. Employing systemic thinking will help leadership in various areas to see beyond the immediate events or just an individual to identify behavioral patterns and the underlying interrelationships (Adam 2014; Friedman and Allen 2011; Von Bertalanffy 1972). As our findings have shown, although a pandemic like COVID-19 may have a universal impact that can result in generalized responses to individuals, it is important to guard against such generalizations. Because the factors that may facilitate or undermine adjustment to pandemic-related interruptions may be different for individuals in relation to the resources that are available and accessible to them. Assessment frameworks that are rooted in systems and ecological systems theories, although important, need to attend to the particularities and distinctiveness of individuals to tailor effective responses. Thus, assessments and interventions to address the impact of COVID-19 need to apply systemic thinking to understand the complex and dynamic effects on individuals, families and communities. Moreover, systems thinking is crucial to developing a comprehensive system of care and supports, and to build resilient communities that can effectively respond to cataclysmic situations such as the COVID-19 pandemic (Studzinski 2020; Walter-McCabe 2020a, b). Despite the changes necessitated by the COVID-19 pandemic, the findings show that people have the capacity to adapt and respond to change to achieve some level of steadiness despite the presence of uncertainties.

Some of the experiences shared by participants suggest inadequate attention to the predicaments and concerns of students. In settings like higher education institutions, the size and diversity of the student population with different races/ethnicities, ages, academic levels, and programs of study, etc. may pose a challenge in enacting general policies. Nonetheless, the avenue should be created for students to request additional supports if they are facing any peculiar circumstances. Further, as noted by Mishna et al. (2020), it is important for higher education institutions to evaluate

the measures they implemented to address the pandemic. Doing so will enable these institutions determine additional strategies needed to offer optimum support to students. We concur with Dempsey et al. (2021) that the pandemic offers lessons that can be harnessed to promote student well-being and learning now as well as in the future especially as academic institutions return to on-campus instruction and student engagement.

Limitations

The study has some limitations. The findings of the study may be transferable but they are not generalizable, especially given the sample size. Further, the number of participants and the colleges/academic departments with which they are affiliated is not representative of the whole institution. Again, majority of the participants were female thus it is possible the findings may reflect a bias of female experiences and voices even though negative case analysis was applied to capture multiple voices and varied experiences. In addition, because the data was gathered at the peak of the pandemic, the findings may be different in the aftermath. For that reason, interpretations and applications of the findings should be done cautiously and contextually. Despite these limitations, the current study reveals rich data that deepen our understanding of the immediate impact of the COVID-19 pandemic among the participants, and potentially, in the aftermath.

Conclusions

The findings highlight the distinctive experiences and needs of different students. The findings suggest that to effectively respond to the impact of COVID-19 on university students, it is important to identify and attend to diverse stressors, and systems thinking is indispensable. Further, taking into account the notion of the expanded-self (Thai et al. 2019), it appears students are inextricably linked to others, especially their kin, and also to their places of work in a manner that seems to exacerbate the pandemic's impact. Conceivably, this may be due to a situation where students vicariously internalize the challenges and stressors others have to contend with (Newell and MacNeil 2010; Thai et al. 2019). Nonetheless, we must also recognize the human capacity for strength and resilience and leverage that accordingly. The findings will be helpful in providing assistance and support tailored to the specific needs of students. Finally, while it is important to focus on the medical and economic impacts of the pandemic, research should take a systemic perspective to explore other critical domains of life that are impacted by the pandemic.

development of the first draft of the manuscript and its revisions. All authors read and approved the final manuscript.

Data availability　Anonymized transcripts can be made available per the approval of the University of North Dakota IRB.

Declarations

Conflict of interest　The authors declare that they have no conflict of interest.

Ethical approval　Ethical approval for this project was given by the University of North Dakota Office of Research Compliance and Ethics [IRB-202005–280].

Research involving human participants and informed consent　The protocols for conducting research involving human participants and obtaining informed consent were duly observed.

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