ORIGINAL ARTICLE

Specific coping styles and its relationship with psychological distress, anxiety, mental health, and psychological well-being among student nurses during the second wave of the COVID-19 pandemic

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Abstract

Purpose: To identify specific coping skills that contribute to relieving anxiety and stress while supporting student nurses' mental health and psychological well-being. **Design and Method:** This is a cross-sectional online survey involving 261 students nurses from private and government-owned nursing schools in the Central Philippines. **Results:** *Resilience* was associated with reduced stress and anxiety and better mental health and psychological well-being. *Mental disengagement* was associated with lower anxiety and stress levels. *Spiritual and not scientific sources* of support were associated with lower stress and increased psychological well-being and mental health. **Practice Implications:** Nurse faculty should foster functional coping skills in student nurses to enhance their ability to endure negative psychological and mental health outcomes related to the pandemic.

KEYWORDS

anxiety, coping, COVID-19, mental health, nursing, stress, students

1 | INTRODUCTION

Nurse education and training is known to cause a significant amount of anxiety and stress among student nurses compared to students in other educational programs, partly due to the clinical nature of the program. Even in normal circumstances, estimates of the prevalence rates of anxiety and stress in student nurses have ranged between 20% and 42% (Zeng et al., 2019), significantly higher than those reported by students in other health professions (Lasheras et al., 2020).

The emergence of the coronavirus pandemic in China in the last quarter of 2019 and its rapid spread to the rest of the globe has caused an additional mental and psychological burden to student nurses, fueling more stress, anxiety, and even depression. Available studies have estimated that between 13% and 46% of students enrolled in nursing programs have experienced moderate to severe anxiety (Akman et al., 2020; Savitsky et al., 2020), while 40%–83% have experienced moderate to high stress levels during the current pandemic (Sheroun et al., 2020; Temiz, 2020). Aside from common stressors exerted by normal circumstances, compelling evidence has testified to added stress and anxiety during the pandemic mainly due to extreme fear of being infected with the disease and/or infecting family members (Fernández et al., 2021). Some researchers have also reported stress associated with distance learning during the pandemic, mainly from heavy academic workloads and assignments, ineffective teaching strategies, poor distance learning strategies, a lack of resources for learning, and environmental distractions (Masha'al et al., 2020).

While researchers have recognized that a minimal stress level is vital to increase such factors as learning, motivation, productivity, focus, and concentration, persistent exposure to stress and anxiety during a pandemic may potentially cause adverse consequences on

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student nurses' overall learning and their physio-psycho-social health (Cool & Zappetti, 2019). Therefore, equipping student nurses with coping skills to effectively deal with the different stressors accompanying the pandemic and the nurse education program itself is imperative.

Since the implementation of a national lockdown in March 2020 to slow the spread of the COVID-19 infection, the Philippine government mandated that all educational institutions in the country, including all nursing schools, would close and continue the delivery of their program through an online and or modular learning platform. Moreover, various infection control measures were put in place to slow the spread of infection, such as social distancing, quarantine, closure of nonessential establishments and a night curfew (Akman et al., 2020; Savitsky et al., 2020). All these elements, collectively, had the potential to increase student nurses' stress, anxiety, and fatigue (Labrague & Ballad, 2021). Given these circumstances, nursing faculty must ensure that student nurses are still supported and equipped with functional coping mechanisms to effectively deal with the mental and psychological burden of the pandemic.

The literature has classified coping, defined as "thoughts and actions that individuals use to manage and reduce the impacts of traumatic and stress- inducing situations" (Folkman & Lazarus, 1984; pp. 462), into two broad categories: emotion-centered and problemcentered coping strategies. Problem-centered coping strategies comprise actions to address the origins of stress, including problem-solving behaviors, self- confident tactics, planning and establishing objectives, and seeking adequate social support (Labrague et al., 2018; Stephenson & DeLongis, 2020). Emotioncentered coping strategies include actions directed towards controlling an individual's reaction to stress, such as transference, avoidance behaviors, use of distraction activities, and mental disengagement (Stephenson & DeLongis, 2020). A few studies conducted during the current coronavirus pandemic have suggested that student nurses have employed a wide range of coping skills, both problem-centered and emotion-centered, to effectively manage the mental and psychological health consequences brought by the crisis. For example, Savitsky et al. (2020) identified the use of resilience and humor in coping to significantly reduce students' anxiety levels, although the researchers also attributed the frequent use of mental disengagement to a severe form of anxiety-specific coping skills. Additionally, Huang et al. (2020) investigated the use of problemfocused coping methods to effectively reduce anxiety, stress, fear and depression in nursing students.

To date, research describing the coping styles that student nurses have used to deal with psychological distress and anxiety during the pandemic remains limited (Huang et al., 2020; Savitsky et al., 2020). Moreover, none have assessed specific coping styles' influence on these students' mental health and psychological wellbeing. By identifying specific coping skills that contribute to students' stress, anxiety, mental health and psychological wellbeing, nurse faculty can effectively formulate tailored interventions to students to effectively enhance their mental health and well-being while reducing their stress and anxiety levels. Hence, this study was conducted to identify specific coping skills that contribute to relieving anxiety and stress while supporting mental health and psychological well-being in student nurses.

2 | RESEARCH DESIGN

This online cross-sectional study used standardized scales to collect data from student nurses during the 12th month after the implementation of the national lockdown to control the COVID-19 pandemic.

3 | SETTINGS AND PARTICIPANTS

This study was conducted in one region in the Philippines, Region 8, which is comprised of 13 nursing schools. In this study, student nurses enrolled in 3 government and 3 private nursing schools were recruited to take part in the study. These schools were randomly selected from a list of all schools in the region. A two stage-sampling technique was done to collect data from the identified schools: a proportional stratified sampling technique to identify the number of required students from each school and a convenience sampling to select the respondents from each school. Student nurses qualified if they were full-time students, were enrolled in the current semester, and consented to join in the study.

4 | MEASURES

This study used five self-report scales. All scales used a Likert scale. The internal consistency values of the five scales in the presented study ranged from 0.82 to 0.92. The original English versions of the scales were used.

The modified Coping Behavior Questionnaire (COPE; Carver, 1997; Savitsky et al., 2020) was used to evaluate student nurses' coping skills exhibited during the pandemic. The modified scale was previously tested in student nurses in Israel at the height of the pandemic. In that instance, 12 items categorized into five factors emerged: "resilience," "seeking information and consultation," "mental disengagement," "spiritual and not scientific sources of support," and "humor." The students responded to each statement in the scale using a 5-point Likert scale of 0 (*not at all*) to 4 (*true nearly all of the time*). Score ranges from 0 to 48, with higher scores representing higher coping abilities. The criterion validity of the scale was previously confirmed by Savitsky et al. (2020), while earlier research found the scale's reliability to be excellent (Carver, 1997).

Student nurses' perceptions of stress during the pandemic were assessed using the 4-item Perceived Stress Scale (PSS; Cohen et al., 1994). This scale was previously used to assess psychological distress among nursing professionals during the coronavirus outbreak (Labrague & De los Santos, 2021). The students were required to answer each item using a Likert scale from 0 (*never*) to 4 (*very often*).

Score ranges from 0 to 16, with higher scores representing higher stress levels. Previous research established the scale's predictive validity and reliability (α = 0.83; Cohen et al., 1994).

Anxiety related to the pandemic was examined using the COVID-19 Anxiety Scale (CAS; Lee, 2020). The CAS was designed to assess common symptoms or reactions to anxiety due to the COVID-19 pandemic. The scale, which has a cut-off score of 9, can differentiate those with or without dysfunctional anxiety (Lee, 2020). The students used a 5-point Likert scale (0 = not at all to 5 = nearly every day) to indicate how frequently they had experienced symptoms over the previous few weeks. Earlier research established the scale's reliability and predictive validity (Lee, 2020).

The psychological well-being of the student nurses was assessed using the Psychological Well- Being Scale by Diener et al. (2010). The scale consisted of 12 items that captured students' overall assessment of their well-being. Students, using a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree), indicated their responses to each item in the scale. Score ranges from 12 to 48, with higher scores representing higher psychological well-being. Previous reports established the convergent and criterion validity of the scale (Diener et al., 2010) as well as its reliability (Diener et al., 2010).

Student nurses' perception of their mental health was examined using a single-item scale of mental health (Casu & Gremigni, 2019). Students were asked to evaluate their overall mental health during the past few weeks using a 5-point Likert-type scale (1 = poor to 5 = excellent), with a higher score representing excellent mental health. The reliability and convergent validity of the measure were established in a previous report (Casu & Gremigni, 2019).

5 | ETHICAL CONSIDERATIONS AND DATA COLLECTION

The Ethical and Review Board of the Samar State University provided ethical clearance for the research. After the clearance was granted, the questionnaires were distributed to students using an online survey via their social media accounts and email addresses. The online survey's cover page outlined the research purpose, presented a statement seeking their consent and provided instructions on how to complete the form. The students were not required to divulge any personal identification to ensure confidentiality. The cover letter also informed the students that their participation in the research was voluntary. The online form was re-sent to the students' email addresses once weekly for a month to remind them to complete the survey. The data were collected from September 2020 to November 2020.

6 | DATA ANALYSIS

The data were checked and examined for completeness before entering them into $\mathsf{IBM}^{\circledast}$ SPSS[®] version 23 for data analysis. No missing values were noted in four scales, except for two missing

values for the COVID-19 Anxiety Scale. Data were imputed using an imputation strategy since the cases were missing <5% of responses. To estimate the sample size, we used the G*power program, which indicated that 261 samples were required to attain a statistical power of 80%, with a 0.05 effect size and an alpha value set at 0.05. Initially, out of 350 students invited to take part in the study, 261 responded to our survey.

Standard deviations, means and percentages were used to quantify the data, while bivariate analysis was used to compare and correlate key study variables, including Pearson's correlation coefficient (r), a Student's *t* test and analysis of variance. Bonferroni's test was used for post hoc analysis. While controlling for the students' variables, the different coping styles were regressed into the four outcome variables (stress, anxiety, health, psychological well-being) using multiple linear regression.

7 | RESULTS

The mean age was 20.70 years, and the vast majority were female (n = 212), comprising about 81.2% of the overall sample. More than half of the students were from Levels 1 (n = 65, 24.9%) and 2 (n = 100, 38.3%) and currently enrolled in public nursing schools (n = 177, 67.8%). Many came from urban areas (n = 179, 68.6%). Most of the students (n = 224, 85.8%) reported no attendance of COVID-19 related training or updates (Table 1).

The composite score of the PSS was 3.01 (out of 5), which was above the midpoint, suggesting moderate psychological distress in the student nurses surveyed. Using the cut-off score of 9 in the CAS, 151 (57.9%) students were identified as having dysfunctional anxiety levels. The composite score in the PWS and the single measure for mental health were 5.38 (out of 7) and 3.84 (out of 5), respectively, which were above the midpoint, suggesting better mental health and well-being in these student nurses. The composite score of the COPE was 4.75 (out of 5), with "seeking information and consultation" (M = 4.26, SD = 0.60) having the highest mean score, while "humor" (M = 2.45, SD = 1.25) exhibited the lowest mean score (Table 2).

Resilience was negatively correlated with anxiety (r = -0.190, p < 0.01) and psychological distress (r = -0.147, p < 0.05) and positively correlated with psychological well-being (r = 0.523, p < 0.01) and mental health (r = 0.360, p < 0.01). Meanwhile, "seeking information and consultation" had a significantly positive correlation with psychological well-being (r = 0.427, p < 0.01) and health (r = 0.258, p < 0.01). "Mental disengagement" correlated significantly with anxiety (r = -0.311, p < 0.01) and psychological distress (r = -0.295, p < 0.01). Lastly, "spiritual and not scientific sources of support" had a significant correlation with anxiety (r = 0.221, p < 0.01) and negative correlations with psychological well-being (r = -0.164, p < 0.01) and mental health (r = 0.142, p < 0.05). However, "humor" did not correlate with any outcome variables (Table 3).

Table 4 reflects the findings of the multiple linear regression analysis to identify specific coping styles associated with anxiety, psychological distress, psychological well-being and mental health

TABLE 1 Students' characteristics and its relationship with coping behaviors (*n* = 261)

Characteristics	Categories	Ν	%
Gender ^a	Male	49	18.77
	Female	212	81.23
Year level ^b	1	65	24.90
	2	100	38.31
	3	65	24.90
	4	31	11.88
Type of school ^a	Private	84	32.18
	Public	177	67.82
Location of school ^a	Urban	179	68.58
	Rural	82	31.42
Attendance in COVID-19 trainings ^a	Yes	37	14.18
	No	224	85.82
Ago ^c			

Age^c

^aIndependent t test.

^bAnalysis of variance.

^cPearson r.

among student nurses. Among the different coping behaviors, resilience ($\beta = -1.211$, p = 0.003), "mental disengagement" ($\beta = -1.311$, p = 0.001) and "spiritual and not scientific sources of support" ($\beta = 1.302$, p = 0.001) were associated statistically with anxiety. Higher scores in the "resilience" and "mental disengagement" subscales were associated with lower anxiety scores, while a higher score in the "humor" subscale was associated with increased anxiety. These coping styles accounted for 15.1% of the COVID-19 anxiety variance. Concerning psychological distress, only the "resilience"

$(\beta = -0.137, p = 0.034)$ and "mental disengagement" ($\beta = -0.286$,								
p = 0.001) coping behaviors were identified as predictive variables.								
Higher scores in the "resilience" and "mental disengagement"								
subscales were associated with significant decreases in the psycho-								
logical distress score. Predictors of psychological distress accounted								
for 10.3% of the variance. Meanwhile, "resilience" (β = 0.419,								
p = 0.001), "mental disengagement" (β = 0.260, p = 0.001) and "spiri-								
tual and not scientific sources of support" ($\beta = 0.141$, $p = 0.006$) were								
associated with psychological well-being. Higher scores in these								
three coping behaviors were associated with a higher score in the								
psychological well-being measure. These three coping styles ac-								
counted for 35.2% of the psychological well-being variance. Lastly,								
"resilience" (β = 0.315, p = 0.001), "mental disengagement" (β = 0.132,								
p = 0.034) and "spiritual and not scientific sources of support"								
(β = 0.129, <i>p</i> = 0.025) significantly predicted mental health. Higher								
scores for these three coping styles were associated with higher								
scores on the mental health measure. Predictors of mental health								
accounted for 15.9% of the variance.								

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8 | DISCUSSION

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Overall, the nursing students surveyed reported moderate stress during the current pandemic. This result corroborates earlier reports during the pandemic, where nursing students reported moderate to severe stress levels (Aslan & Pekince, 2020). These stress levels are congruent with reports during the prepandemic period, where student nurses' stress levels ranged from moderate to high (Labrague et al., 2017; Li & Hasson, 2020). In addition, using the cut-off score of 9, 57.9% of student nurses were identified as experiencing dysfunctional anxiety. The proportion of nursing students reporting severe anxiety levels in this study was high compared to earlier studies involving nursing students (Akman et al., 2020;

				Standard
Variables	Minimum	Maximum	Mean	deviation
COVID-19 anxiety ^a	5.00	22.00	8.69	4.06
Psychological distress ^a	1.00	5.00	3.01	0.82
Psychological well-being ^a	2.75	7.00	5.38	0.93
Health ^a	1.00	5.00	3.84	0.84
Coping behaviors ^a	2.75	4.75	3.82	0.37
Resilience ^b	1.00	5.00	3.79	0.63
Seeking information and consultation $^{\mathrm{b}}$	1.67	5.00	4.26	0.60
Mental disengagement ^b	1.00	5.00	3.46	0.88
Spiritual and not Scientific Sources of Support $^{\mathrm{b}}$	2.00	5.00	4.24	0.61
Humor ^b	1.00	5.00	2.45	1.25
^a Mean scale score				

TABLE 2 Descriptive statistics

^aMean scale score.

^bMean subscale score.

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TABLE 3 Relationship between coping ways, anxiety, stress, well-being, and health

	COVID-19	Psychological	Psychological Psychological		
Coping Styles	anxiety	distress	well-being	Health	
Resilience	-0.190**	-0.147*	0.523**	0.360**	
Seeking information and consultation	-0.009	-0.056	0.427**	0.258**	
Mental disengagement	-0.311**	-0.295**	0.093	0.067	
Spiritual and not scientific sources of support	0.221**	-0.044	0.164**	0.142*	
Humor	-0.017	0.115	0.021	-0.057	
* 0.05 ** 0.04					

p < 0.05. p < 0.01.

TABLE 4 Multiple regressions on the influence of the different coping styles on anxiety, stress, psychological well-being, and health

	Anxiety			Psychological Distress			Psycholo	Psychological Well-being			Health		
Coping styles	β	SE	p value	β	SE	p value	β	SE	p value	β	SE	p value	
1. Resilience	-1.211	0.404	0.003	-0.137	0.084	0.034	0.419	0.081	0.001	0.315	0.083	0.001	
2. Seeking information and consultation	0.188	0.420	0.654	-0.018	0.088	0.775	0.260	0.084	0.001	0.132	0.087	0.034	
3. Mental disengagement	-1.311	0.269	0.001	-0.286	0.056	0.001	0.099	0.054	0.053	0.063	0.056	0.275	
4. Spiritual and not scientific sources of support	1.302	0.385	0.001	-0.068	0.080	0.250	0.141	0.077	0.006	0.129	0.079	0.025	
5. Humor	-0.074	0.189	0.696	0.105	0.039	0.078	-0.030	0.038	0.549	-0.095	0.039	0.099	
F value	10.219			6.993			28.149			10.897			
p value	0.001			0.001			0.001			0.001			
R ²	15.1%			10.3%			35.2%			15.9%			

Note: adjusted for age, gender, year level, school location, and trainings.

Savitsky et al., 2020; Temiz, 2020) and students from other disciplines (Abas et al., 2021). However, despite the higher proportion of nursing students experiencing stress and anxiety, their self-assessed psychological well-being and mental health were moderate to high. Notably, the data were collected during the first wave of the crisis; hence, the stress and anxiety levels were high. At the onset of a pandemic and other crises or traumatic events, individuals can be expected to have sufficient personal resources, including resilience and coping capacity, to deal with the adverse consequences of the event (i.e., stress and anxiety; Hart et al., 2014), resulting in better psychological well-being and mental health (Cooper, 2020). However, long-term infection control measures (e.g., social distancing, lock-down and quarantine) imposed during the pandemic could ultimately deplete an individual's personal resources, leading to psychological issues and poorer mental health (Labrague, 2021a).

Among the different coping strategies, "seeking information and consultation" obtained the highest mean. This subscale represents actions and behaviors to increase knowledge and information about the disease by seeking advice from someone or searching for professional sources. This result reflects that the COVID-19 pandemic is relatively new; hence, the students have attempted to increase their understanding of the disease, its symptoms and its management by searching for information through different sources. Additionally, regression analysis associated "seeking information and consultation" with higher levels of self-reported health and wellbeing. This result corroborated the previous research where employing problem-centered coping skills, including seeking information, was linked to lower anxiety levels (Huang et al., 2020). Similarly, Labrague (2021a) demonstrated that information-seeking could help individuals identify essential information to educate themselves about the pandemic and other infection control measures (e.g., quarantine, social distancing and lockdown measures), thereby reducing their loneliness and stress.

In the present study, a higher score on the resilience subscale was associated with positive outcomes on four indicators. This finding is consistent with the literature recognizing psychological resilience as a vital protective factor against traumatic events and stress-producing situations, such as calamities, infectious disease outbreak and emergency situations (Hart et al., 2014). Evidence from studies set during the prepandemic period has shown that resilient individuals confronted with crises or distressing situations are less likely to experience stress and loneliness than their counterparts (Labrague, 2021a,b). The results of this study provided additional support to earlier reports from the initial months of the crisis in which

resilient college students experienced less anxiety than nonresilient students (Savitsky et al., 2020) and fewer acute stress disorders (Ye et al., 2020) than nonresilient students.

Interestingly, a higher score in mental disengagement (excessive eating and the use of alcohol or sedatives during the pandemic) was associated with lower anxiety and stress levels. This finding is alarming, considering the adverse consequences of long-term utilization of these coping strategies in the overall physiological health of an individual (Stephenson & DeLongis, 2020). According to Carver (1997), excessive use of alcohol and drugs as a coping method can pose detrimental consequences to the health of an individual and should therefore be discouraged. This finding differs from those previously reported, in which higher utilization of dysfunctional coping, such as mental disengagement, was highly attributed to moderate to severe anxiety (Savitsky et al., 2020), psychological distress and extreme sadness (El-Monshed et al., 2021). Given the adverse effects of these dysfunctional coping behaviors, nurse faculty should educate student nurses about the harm posed by excessive eating and alcohol consumption. Furthermore, nurse faculty should foster positive coping skills in nursing students through coping skills training to foster students' ability to endure the burden of the current pandemic.

Multiple linear regression associated "spiritual (trusting God) and not scientific sources of support (use of social networks)" with lower stress levels and better health and well-being in students. As they reside in a predominantly Catholic country, Filipinos consider spirituality and praying vital in coping effectively with various challenges, including adversity, traumatic events and stressful situations (Labrague et al., 2016). This result is similar to earlier reports showing that engaging in spiritual activities as a way of coping with the pandemic was strongly associated with less stress and increased well-being (Abdulghani et al., 2020).

The use of social networks as a way of coping among students during the pandemic is both alarming and greatly concerning. According to Guessoum et al. (2020), information obtained from unreliable sources during the pandemic, such as social media posts, may result in further anxiety, distress and worry. While it may significantly lower their stress levels and enhance their health and well-being, the propagation of fake news and unverified information on many social networking sites highlights the importance of guiding these students to identify credible and reliable sources of information on social media concerning the disease. Nevertheless, this result mirrored earlier research in which students coped with anxiety related to the pandemic through watching movies and internet use (Temiz, 2020).

Prepandemic studies showed the effectiveness of "humor" in helping individuals overcome adversity and preventing adverse consequences related to stressful situations (Tagalidou et al., 2018). Available studies set during the height of the pandemic have suggested that humor could be useful in adequately coping with anxiety-based emotional distress and further improve individuals' psychological well-being (Canestrari et al., 2020; Savitsky et al., 2020). Interestingly, humor had no effect on students' stress, anxiety, health or psychological well- being in this study.

9 | LIMITATIONS OF THE STUDY

This study had a few limitations that must be acknowledged when interpreting the study findings. Although a sample size calculation was done to identify the required sample size, a future study involving a much larger and representative sample size may yield a more generalizable result. Furthermore, student nurses' mental and psychological health, as well as their perceived stress and anxiety, can be best assessed using longitudinal research designs to assess how these factors may change over time.

10 | CONCLUSION

Overall, 57.9% of the student nurses surveyed were identified as having dysfunctional anxiety levels. Despite the moderate stress levels that the student nurses experienced during the second wave of the pandemic, their overall health and well-being were good to excellent. Furthermore, the students reported employing both problem-centered (e.g., seeking support, consultation, resilience) and emotion-centered (e.g., use of social networks to obtain information, excessive eating, alcohol use) coping behaviors when dealing with stress and anxiety associated with the current pandemic. Finally, this study identified specific coping behaviors that promoted health and well-being and reduced stress and anxiety in student nurses. Investment is needed to support future studies exploring the efficacy of interventions to reduce anxiety and psychological distress and improve mental health and psychological well-being among nursing students.

11 | IMPLICATIONS FOR NURSING PRACTICE

Findings of the study underscore the relevance of providing proactive measures to reduce stress and improve nursing students' mental health during the current ongoing pandemic. Accordingly, nurse faculty can guide student nurses in identifying credible sources of information related to the pandemic, such as peer-reviewed journals. Moreover, the result suggests that nurse faculty must implement resilience-promoting measures (Cleary et al., 2018) and integrate teaching and learning methods (e.g., use of reflection, inquiry-based learning, peer activities; Walsh et al., 2020) to support devel oping resilience in students. Theory-driven interventions, including mindfulness therapy (Franco, 2020), cognitive behavioral therapy (Mazurek Melnyk et al., 2020) and body-mind interventions (e.g., biofeedback, guided imaginary, relaxation techniques and breathing exercises; Amanvermez et al., 2020), were found equally effective in managing stress among college students. However, because of certain restrictions to face-to-face interaction, nurse faculty should explore strategies delivered through an online platform to support students' mental and psychological needs. This approach may include implementing online mindfulness interventions, providing

asynchronous virtual mental health resources (Richardson et al., 2020) and establishing a virtual clinic to support students during the ongoing pandemic (Jethwa et al., 2020).

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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