

Academic stress, COVID-19 anxiety, and quality of life among nursing students: The mediating role of resilience

Daniel Joseph E. Berdida PhD, RN, RM¹  | Rizal Angelo N. Grande EdD, RN^{2,3} 

¹College of Nursing, University of Santo Tomas, Manila 1008, Philippines

²Mental Health Nursing Department, College of Nursing, University of Ha'il, Hail, Saudi Arabia

³College of Health Allied and Medical Professions, University of San Agustin, Iloilo City, Philippines

Correspondence

Daniel Joseph E. Berdida, College of Nursing, University of Santo Tomas, St. Martin de Porres Bldg., España Blvd., Sampaloc, Manila 1008, Philippines.

Email: deberdida@ust.edu.ph; djeberdidarn@gmail.com

Abstract

Aim: This study investigated the mediating role of resilience in the relationship between academic stress, COVID-19 anxiety, and quality of life (QoL) among Filipino nursing students during the COVID-19 pandemic.

Background: The COVID-19 pandemic has impacted the QoL of nursing students who are experiencing mental health issues. The mediating role of resilience in mitigating the effects of academic stress and COVID-19 anxiety on nursing students' QoL remains understudied.

Methods: This study employed a correlational cross-sectional design, with a convenience sample of 611 Filipino nursing students. Data were collected using the scales Connor and Davidson Resilience, Brunnsvikien Brief Quality of Life, COVID-19 Anxiety, and Perception of Academic Stress and analyzed using Pearson's *r*, bivariate analysis, and multistage regression analyses.

Results: Academic stress and COVID-19 anxiety negatively correlated with QoL and resilience. Resilience was positively associated with QoL and reduced the effect of academic stress on QoL, indicating that resilience is a crucial mediating variable between academic stress and QoL. Finally, resilience had a significant mediating influence on QoL, as evidenced by a reduction in the effect of COVID-19 anxiety on QoL among nursing students.

Conclusions: Filipino nursing students' QoL was affected by academic stress and COVID-19-related anxiety. However, resilience mediated this impact, preserving QoL.

Implications for nursing and health policy: Nursing colleges and affiliated hospitals must collaborate to monitor academic stress and pandemic-related anxiety. Nursing students should be provided with programs such as seminars and team-building activities to enhance their resilience.

KEYWORDS

anxiety, COVID-19, nursing student, quality of life, resilience, stress

INTRODUCTION

The novel coronavirus was declared a pandemic by the World Health Organization (WHO) in March 2020 owing to the number of deaths and infections that rapidly spread from Wuhan, China, where it was first detected. As of October 15, 2021, the world had 4,863,818 deaths and 238,521,855 infections (WHO, 2021). The number of COVID-19 deaths in the Philippines reached 39,896, with 2,683,372 cases reported since the country's initial infection (WHO, 2021).

Nursing and other healthcare professionals in the Philippines were tasked with providing medical assistance to affected individuals. Considering that COVID-19 has had a negative impact on nearly every aspect of society, including the way people live their daily lives, it is impossible to ignore its significance for human health and well-being. Accordingly, the country, its educational system, and other government processes and systems have been impacted (Ocampo & Yamagishi, 2020). The Inter-Agency Task Force (IATF), the primary government agency in the Philippines in charge of



managing the COVID-19 pandemic response, proposed that nursing students transition from traditional face-to-face classes to online classes. Consequently, the Philippine Commission on Higher Education (CHED), the government agency in charge of higher education institutions (HEIs), issued CHED memorandum order no. 4, "Guidelines on the Implementation of Flexible Learning," which instructed all HEIs on how to conduct full online flexible classes (CHED, 2021). Unprepared, some nursing students may not have had the resources to engage in online learning, yet they had to adhere to the order. Despite the absence of preparation, readiness, or resources, this learning platform was necessary (Langegård et al., 2021; Thapa et al., 2021).

Global concerns, such as a country's ability to respond and procure vaccinations and inoculate its people, may have an impact on how citizens (Berdida et al., 2021), such as Filipino nursing students, perceive the impact of COVID-19 in the Philippines (Berdida & Grande, 2022). Therefore, it is critical to examine the effect of COVID-19 anxiety and academic stress on Filipino nursing students to determine whether they effectively manage their anxiety and stress. To ascertain this, an appraisal of an inherent positive trait, such as resilience, must be included. Thus, we examined how resilience can help mediate the negative repercussions of anxiety and stress, resulting in improved quality of life (QoL).

BACKGROUND

Nursing students have been affected by the COVID-19 pandemic. Turkish nursing students reported moderate levels of stress, whereas female students aged 18–20 years reported higher levels of stress. Their stress was attributed to COVID-19 news, fear of infection, and the enforced curfew (Aslan & Pekince, 2021). Another study reported Turkish nursing students' levels of anxiety during the pandemic that were found to be negatively correlated with self-confidence, need for social support, and anxiety (Zeynep, 2020). The stress levels, stressors, and associated sociodemographic variables among nursing students in the UAE – as a result of the transition to distance learning during COVID-19 – were found to vary based on students' sociodemographic characteristics (Masha'al et al., 2020). On the other hand, graduate student nurses in the USA attribute their stress to clinical exposure and shifts in clinical duty hours (Nodine et al., 2021). During the pandemic, nursing students were anxious because of many factors, such as being new to distance learning, assignments and workloads, clinical training, and risk of COVID-19 infection. In response to these stressors, nursing students adopted coping techniques such as searching for answers and advice and being optimistic (Majrashi et al., 2021) to enhance and strengthen their psychological well-being (Baluwa et al., 2021).

The Philippine IATF imposed a countrywide ban on social gatherings, disrupting regular classes at all levels of education, including nursing (Ocampo & Yamagishi, 2020). These con-

straints, combined with an increase in COVID-19 cases, and aggravated by academic stress, greatly affected the well-being of Filipino nursing students (Berdida & Grande, 2022). The resilience of Filipino nursing students has a protective effect on their QoL, particularly their mental well-being (Guillasper et al., 2021). Filipino college students have reported a lack of resources for distance learning, including digital devices such as computers, laptops, and tablets, as a major drawback to online education (Rotas & Cahapay, 2020). They also complained of eye strain and fatigue from sitting in front of a computer for long periods of time, with less stimulation and interaction than face-to-face learning (Oducado et al., 2021). The absence of a stable Internet connection, particularly in remote places, also hinders the efficiency of online learning (Rotas & Cahapay, 2020). These impediments make online education more difficult for these students, which could eventually impact their morale, mental well-being, and confidence (Rotas & Cahapay, 2020) and negatively affect their resilience and QoL (Berdida & Grande, 2022). The physical and mental well-being and morale of nursing students should be considered during the COVID-19 pandemic (Grande et al., 2022; Zhu et al., 2021).

The transition from a traditional and structured learning environment has exacerbated the issues faced by nursing students. During the second and third quarters of 2021, online classes became the norm for Philippine nursing education (CHED, 2021). Virtual simulations of nursing skills demonstrations were utilized instead of actual clinical experiences to ensure that students retained their clinical skills and learning (e.g., use of household materials as low-cost simulators, using family members as standardized patients, case analysis, and problem-based learning) (Dayagbil et al., 2021).

Another factor that made it difficult for nursing students to adapt to the online learning platform was the lack of assistance from nursing administrators and educators to help them study more effectively (Thapa et al., 2021). Additionally, the degree of motivation and social interaction incorporated using the online learning mode was another hindrance (Langegård et al., 2021). Consequent to the demands of nursing programs, as well as the health issues associated with COVID-19 and its associated social isolation, nursing students have reported increased levels of stress (Aslan & Pekince, 2021; Labrague, 2021b).

While anxiety may influence the development of new coping mechanisms and resilience in nursing students, it may have an indelible impact on their emotional and mental health. Several studies have found that the pandemic's severe influence on nursing students' QoL has a detrimental impact on their academic performance, ultimately leading to depression, a lack of interest in studying, and, in the worst-case scenario, withdrawal from the nursing program (Grande et al., 2021).

Amid these concerns, resilience is considered an innate human response to anxiety and despair brought on by COVID-19's continuous detrimental influence. Resilience is defined as the ability to remain focused, determined, and flexible in the face of inconceivable stress and anxiety. It can draw



a line between anxiety and depression and, if used correctly, can prevent further damage to a person's emotional and mental health (Zhang et al., 2020). Nursing students with stronger resilience may be less vulnerable to the negative consequences of the COVID-19 pandemic's perceived threat (Grande et al., 2021). Individuals with higher degrees of depression and anxiety have aggravated mental health (Aslan & Pekince, 2021; Zhu et al., 2021).

Many studies on nursing students' resilience during the COVID-19 pandemic have focused on resilience and academic and social support (Hamadeh Kerbage et al., 2021; Ozsaban et al., 2019), multidimensionality of resilience (Drach-Zahavy et al., 2021), and resilience and mental well-being of Saudi nursing students during COVID-19 (Grande et al., 2021). The mediating effect of resilience on stress, depression, and anxiety during COVID-19 has been reported among Indonesian nursing students (Devi et al., 2021). Additionally, Labrague (2021b) reported the mediating role of Filipino nursing students' resilience on COVID-19 stress, life satisfaction, and psychological well-being. However, one study examined professional nurses' resilience and its mediating role on compassion fatigue, work outcomes, and provision of quality care (Labrague & de los Santos, 2021).

Filipino nursing students' distinct culture and way of life may have influenced their adaptation to the devastating effects of the COVID-19 pandemic. Filipinos are renowned for their "madiskarte" or ingenuity, which reflects their determination to see the bright side of any situation and "masayahin" or joyousness, which is the unique strength to find enjoyment despite adversity. This exemplifies the Filipino sense of resilience. Another Filipino trait is "matapang" or bravery, which is exhibited by their tendency to endure challenges and overcome hurdles, regardless of how difficult these are (Berdida & Grande, 2022).

Previous studies on nursing students' resilience during the COVID-19 pandemic focused on Australian (Kerbage et al., 2021), Israeli (Drach-Zahavy et al., 2021), Turkish (Ozsaban et al., 2019), and US (Keener et al., 2021) nursing students. Studies conducted among Filipino nursing students concentrate on the protective function of resilience (Guillasper et al., 2021), the mediating role of resilience between the COVID-19 pandemic, life satisfaction, and psychological well-being (Labrague, 2021b), and QoL and its relationship to resilience (Berdida & Grande, 2022). This study examined the mediating role of resilience in the relationship between COVID-19-related anxiety, academic stress, and QoL among Filipino nursing students during the COVID-19 pandemic.

Hypothesized model

We hypothesized that (a) academic stress and COVID-19 anxiety negatively influence nursing students' QoL and resilience (Hypothesis 1) and (b) academic stress and COVID-19 anxiety influence nursing students' QoL via the mediating effect of resilience (Hypothesis 2).

METHODS

Design, sample, and settings

We used a correlational cross-sectional study design with convenience sampling and followed the STROBE guidelines. There are 470 universities in the Philippines that offer nursing programs and approximately 80 000 students graduate each year (Dahl et al., 2021). Our study included two Philippine government universities with a nursing program. The first university was established in 1995 in Manila, Philippines. At the time of the data collection, 415 nursing students were enrolled. The second study setting was in the Bicol region in the southeastern portion of the Philippines' Luzon Island. The university and its nursing programs were founded in 1969 and 1995, respectively. Data were collected from 335 nursing students. Our inclusion criteria were: participants must be enrolled in the research settings during the second semester of 2020–2021. In addition, regardless of whether they were traumatized or anxious during the pandemic, participants must agree to participate in the study. An online sample size calculator (Soper, 2021) was used to determine the appropriate sample size. The recommended minimum sample size was 528 after utilizing 85% power, 0.05 effect size, and an alpha of 0.05. A total of 750 students received the online survey, and 638 students responded. Of these, 611 completed forms were free of errors and suitable for analysis.

Measures

This study used four standardized scales: the 10-item Connor and Davidson Resilience Scale (CD-RISC; Campbell-Sills & Stein, 2007), 12-item Brunnsvikien Brief Quality of Life Scale (BBQ; Lindner et al., 2016), COVID-19 Anxiety Scale (CAS; Silva et al., 2020), and Perception of Academic Stress Scale (PAS; Bedewy & Gabriel, 2015).

According to Campbells-Sills and Stein (2007), the 10-item CD-RISC "measures the attainment of positive functioning of a person in the face of adversity" (p. 1020). It is a four-point scale ranging from 0 (not true at all) to 4 (almost always true), with a Cronbach's alpha of 0.85 (Campbell-Sills & Stein, 2007). In this study, Cronbach's alpha was 0.91.

The BBQ is a brief QoL measure that assesses overall QoL using 12 items that correspond to satisfaction in six areas of life: recreation, philosophy of life, self-regard, creativity, learning, and friendship. This single-factor scale is scored on a scale of 0 (strongly disagree) to 4 (strongly agree). To calculate the total life score, we multiplied the satisfaction (items 1, 3, 5, 7, 9, and 11) and importance (items 2, 4, 6, 8, 10, and 12) ratings for each life area, and then added the six products (free time, view my life, creative, learning, friends and friendly, and myself as a person). It has a scoring range of 0 to 96 points. The higher the score, the better the QoL. From 731 samples, the BBQ has a Cronbach's alpha of 0.76 and an intraclass correlation



coefficient of 0.82, showing strong test–retest reliability (Lindner et al., 2016). This study yielded a Cronbach's alpha of 0.90.

The CAS was designed to assess anxiety caused by the COVID-19 pandemic. The CAS is graded on a scale of 0 (not applicable to me) to 3 (very applicable to me). CAS has seven items, and the average score of these items was used to determine COVID-19–related anxiety. A greater average score reflects higher COVID-19 anxiety. The Cronbach's alpha and McDonald's omega values for the instrument are both 0.89, indicating good reliability. In this study, Cronbach's alpha was 0.95. This scale measures anxiety and its indications and symptoms due to the COVID-19 pandemic.

The PAS was used to assess academic stress. The scale has 18 items rated on a five-point Likert scale ranging from 1 (highly disagree) to 5 (strongly disagree). Five items were reverse scored to avoid response pattern errors. A lower score suggests greater academic pressure. Cronbach's alpha for the PAS scale is 0.70 (Bedewy & Gabriel, 2015). It was 0.89 in this study.

The pilot test and data collection were conducted using the original English version of the instrument. In the Philippines, English is the medium of instruction at all levels of education, and college students are fluent in English. The pilot test was designed to determine whether there were any difficulties in the interpretation of the statements and whether any items were deemed inappropriate for Filipino nursing students.

Data gathering procedure

We used the Google survey form to collect data owing to health constraints for face-to-face data collection during COVID-19. All nursing students who met the eligibility criteria were given access to an online survey form. We distributed the online forms to their registered email addresses, WhatsApp, and other social media platforms, such as Facebook Messenger. Participants' implied consent was obtained when they completed and submitted the survey form. The investigation began on March 4, 2021. We received the final survey forms on July 29, 2021.

Ethical considerations

We adhered to the institutional rules and ethical standards applicable to the two study settings. The Ethics Review Committee of Universidad de Manila approved this study. The participants' names and other identifying information were not obtained. They were not required to use email to return completed online forms to protect their anonymity. The replies of the participants were stored in a password-protected Google Drive that was accessible only to the authors. Upon the conclusion of the data analysis, these replies were erased. The original authors of the scale granted permission for their use. The consent forms for each questionnaire were prominently shown in the first section of each online form.

Analysis of data

The demographic profiles of the study participants and their responses on the scales were presented using means, standard deviations, and percentages. Using Pearson's correlation coefficient (r), bivariate analysis was used to assess the correlations between the key study variables. This study conducted multistage regression analyses to determine the mediating effect of resilience on the relationship between academic stress and QoL and COVID-19 anxiety and QoL. Initially, the independent variables (IVs) were regressed on the mediating variable (MV; Step 1). Next, the MV was regressed on the dependent variable (DV; Step 2). Finally, the MV was regressed on the DV while controlling for the IVs (Step 3). The Sobel test was used to test the significance of the mediation analysis.

The normality of the data was determined using the Kolmogorov–Smirnov test. Missing variables were neither replaced nor estimated. However, no data were missing. The variance inflation factor for the different predictor variables was within acceptable levels (< 10), indicating little or no multicollinearity. The Durbin–Watson test showed a value of approximately 2, indicating no autocorrelation. The graph of the standardized residual and predicted values showed homoscedasticity.

RESULTS

Demographic profile of the participants

Our study included 611 participants (response rate, 81.5%). There were more females than males (80.69% and 19.31%, respectively). The majority of participants (50.2%) were in their third year, followed by second (22.3%) and first (27.5%) year students. The highest grade point average was very good (55.0%). Furthermore, 85.45% of participants had never been tested for COVID-19. In comparison, 87.7% of those who had never been tested for COVID-19 had a close member or relative who had never tested positive for COVID-19 (see [Supplementary File S1](#)).

Correlations between the key variables

The overall mean score of the study's key variables was as follows: academic stress = 2.03 (SD = 0.51), QoL = 3.47 (SD = 0.25), COVID-19 anxiety = 2.41 (SD = 0.36), and resilience = 3.49 (SD = 0.45). Academic stress was negatively correlated with QoL ($r = -0.670$, $p < 0.001$) and resilience ($r = -0.560$, $p < 0.001$). Similarly, anxiety due to COVID-19 was negatively correlated with QoL ($r = -0.532$, $p < 0.001$) and resilience ($r = -0.144$, $p < 0.001$). Resilience was positively correlated with QoL ($r = 0.644$, $p < 0.001$) (Table 1).

TABLE 1 Correlations between the key variables

Variables	Mean ± SD	1	2	3	4
Quality of life	3.47 ± 0.25	1			
Resilience	3.49 ± 0.45	0.664**	1		
COVID-19 anxiety	2.41 ± 0.36	-0.532**	-0.144**	1	
Academic stress	2.03 ± 0.51	-0.670**	-0.560**	0.181**	1

**Correlation is significant at the 0.001 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Effect estimates

The effect of resilience in mediating the association between academic stress and QoL and the relationship between COVID-19 anxiety and QoL were explored using a multi-stage multiple regression analysis (Table 2; Figure 1). Academic stress ($\beta = -0.670, p = 0.000$) and COVID-19 anxiety ($\beta = -0.532, p = 0.000$) were found to have significant negative associations with QoL and resilience. These results support Hypothesis 1. The mediator variable, resilience, was positively correlated with QoL ($\beta = 0.664, p = 0.000$). Finally, the effect of academic stress on QoL ($\beta = -0.318, p = 0.000$) was reduced when resilience was added to the model, suggesting that resilience is a significant MV between academic stress and QoL.

Meanwhile, the effect of COVID-19 anxiety on QoL ($\beta = 0.132, p = 0.001$) vanished when resilience was added to the model, suggesting a significant mediating effect for this variable. These results support Hypothesis 2. The Sobel test confirmed the significance of the mediating effect of resilience on the relationship between academic stress and QoL (Sobel = 14.08, $p < 0.0001$) and COVID-19 anxiety and QoL (Sobel = 3.57, $p = 0.0003$). In other words, resilience reduced the impact of academic stress and COVID-19 anxiety on QoL.

DISCUSSION

The findings of our study indicate that resilience plays a mediating role in the relationship between academic stress,

COVID-19 anxiety, and QoL and is positively correlated with QoL. Our findings corroborate those reported by Keener et al. (2021), who revealed a substantially positive relationship between resilience and QoL among nursing students during the COVID-19 pandemic. The relevance of resilience and its direct impact on QoL was supported by Pardeller et al. (2020), who found that resilience is significant for the QoL of patients undergoing depressive episodes rather than only those with the absence of psychiatric illness. Thus, resilience is a valuable resource that can help patients with depression and other psychiatric conditions achieve therapeutic success (Devi et al., 2021; Zhang et al., 2020). Further supporting the findings of our study, stronger resilience was observed among homeless individuals with mental illnesses, and this was positively associated with QoL in terms of higher global mental health indicators (Mejia-Lancheros et al., 2021).

A significant negative correlation was found in terms of the relationship between academic stress and QoL (Hypothesis 1). Our findings were confirmed by Keener et al. (2021), who reported a mediating effect of resilience on the physical, psychological, social, and environmental QoL domains of nursing students during the COVID-19 pandemic. Since stress was found to be negatively related to QoL, they concluded that nursing students' stress had a deleterious impact on QoL (Keener et al., 2021). Opoku-Acheampong et al. (2017) found significant negative relationships between stress and many dimensions of QoL in undergraduate pharmacy students, corroborating our findings. Furthermore, the results of a systematic review conducted among university students, including nursing students, further support our findings (Ribeiro et al., 2018). University students reported a negative association between stress and QoL, as indicated by their worsening physical and mental health (Ribeiro et al., 2018).

Hypothesis 1 posits a negative correlation between academic stress and resilience. Consequently, this hypothesis was supported because our findings reveal that academic stress is negatively correlated with resilience. The literature on resilience corroborates our findings, stating that the more stress a person is exposed to, or the longer they are exposed to it, the less resilient they become (Bozdağ & Ergün, 2021).

TABLE 2 Effect estimates

Structural paths	B	SE	β	<i>t</i>	<i>p</i>	95% CI
<i>Step 1</i>						
Academic stress → QoL	-0.221	0.010	-0.670	-22.288	<0.001	-0.240 to -0.201
Academic stress → Resilience	-0.273	0.016	-0.560	-16.677	<0.001	-0.305 to -0.240
COVID-19 anxiety → QoL	-0.693	0.045	-0.532	-15.497	<0.001	-0.781 to -0.605
COVID-19 anxiety → Resilience	-0.170	0.077	-0.144	-3.591	<0.001	-0.321 to -0.020
<i>Step 2</i>						
Resilience → QoL	0.414	0.020	0.664	21.894	<0.001	0.371 to 0.458
<i>Step 3</i>						
Academic stress → Resilience → QoL	-0.003	0.000	-0.318	-8.226	<0.001	-0.005 to -0.003
COVID-19 anxiety → Resilience → QoL	0.004	0.001	0.132	3.425	0.001	-0.002 to 0.006

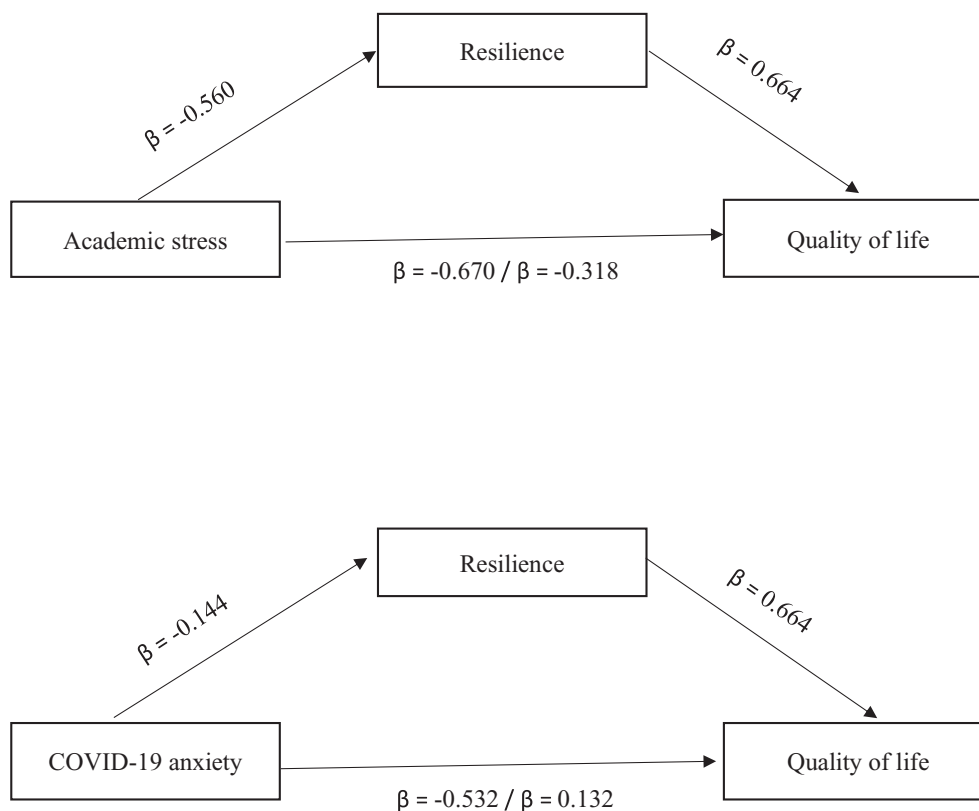


FIGURE 1 Final model

In terms of QoL, the resilience of nursing faculty and students (Keener et al., 2021) as well as homeless adults with mental illness (Mejia-Lancheros et al., 2021) is much higher. Accordingly, resilience is strongly linked to QoL (Zhang et al., 2020).

Our study found a negative correlation between COVID-19-related anxiety and QoL. Students' QoL improved because of lower levels of COVID-19 anxiety. Our findings agree with those of Al Dhaheri et al. (2021), who found a minor psychological influence of COVID-19 anxiety on mental health and QoL. Furthermore, Chinese workers who were anxious about the pandemic had a negative relationship with QoL (Chen et al., 2021). Social support, adequate knowledge, and accurate information regarding the COVID-19 pandemic have lessened anxiety, resulting in higher QoL among residents in Wuhan, China, where the novel coronavirus was first discovered (Liu et al., 2021).

The correlation between anxiety related to COVID-19 and resilience was negative. Resilience is associated with lower levels of anxiety (Zhang et al., 2020). Similarly, anxiety symptoms and resilience and GAD-7 scores correlated significantly and negatively with global resilience and acceptance of oneself and life in people with generalized anxiety disorders (Peñacoba et al., 2021). Corollary to our findings, health professionals, including nurses, identified a strong link between resilience and anxiety during the COVID-19 pandemic (Setiawati et al., 2021). The lower a person's resilience, the more anxiety they experience. In contrast to the findings of our study, COVID-

19-related anxiety and trauma were linked to nonresilient outcomes in a survey conducted in the UK (Panzeri et al., 2021).

Finally, our study hypothesized that academic stress and COVID-19 anxiety would influence nursing students' QoL via the mediating effect of resilience (Hypothesis 2). As revealed in our study, this hypothesis was accepted. During the COVID-19 pandemic, Labrague (2021b) reported a mediating role of resilience among Filipino nursing students. They found that resilience reduced the impact of COVID-19 stress on nursing students. Resilience was also found to help Filipino nurses cope with the consequences of pandemic fatigue on their mental health, sleep quality, and work satisfaction (Labrague, 2021a). Furthermore, resilience was shown to reduce the influence of COVID-19 fatigue on frontline nurses' work satisfaction, turnover intention, and the quality-of-care provision in their respective unit assignments (Labrague & de los Santos, 2021).

Resilience was reported as a mediator between QoL, COVID-19-related stress and anxiety, and associated factors among non-Filipino nursing students (Al Dhaheri et al., 2021; Grande et al., 2021; Keener et al., 2021; Masha'al et al., 2020; Nodine et al., 2021; Zeynep, 2020) and nursing students in the Philippines (Berdida & Grande, 2022; Guillasper et al., 2021; Labrague, 2021b) and are consistent with our findings. The findings indicate that resilience is a significant mediator not only of COVID-19 anxiety and stress associated with the

students' academic program but also of any type of stress associated with achieving a higher QoL.

Limitations and recommendations

Despite our study examining a variety of variables and contexts, it had some limitations. First, we used self-report instruments to assess nursing students' perceptions of the variables being studied (e.g., resilience, academic stress, COVID-19 anxiety, and QoL). These instruments are designed to measure certain variables and cannot provide additional perspectives on other relevant constructs. Additionally, since no qualitative data were gathered from the participants, quantitative responses could not be substantiated. Second, the findings of this study apply only to nursing students enrolled in the two large state universities that participated. The sampling technique used was convenience sampling, which may introduce more bias than other sampling techniques. Third, this study was conducted during the COVID-19 pandemic, when Filipino nursing students were enrolled in full-time online classes. Hence, we were unable to provide perspectives on resilience before and after the pandemic.

Given these limitations, we recommend that additional instruments be used to assess the relevant traits or qualities associated with resilience, either confirming or refuting it, to determine how resilience can be combined more effectively with another protective trait. To gain a more global perspective on resilience, the same research should be conducted on a larger cohort of nursing students, either in the Philippines or across multiple countries, using a sampling technique that renders less or no bias and better represents the study population. Finally, resilience should be assessed following the pandemic to ascertain whether the findings indicate a greater likelihood of recovery from the pandemic or whether the resilience trait is sustained even after the pandemic is over.

Implications to nursing and health policy

Resilience is just one of the positive characteristics that a nurse must possess to effectively practice the profession. Everyday demands and stressors from a variety of sources, such as patients, colleagues, and superiors, can deplete nurses' energy and focus, negatively impacting the quality of care provided. Given these considerations, nurse leaders in both academia and practice should regularly promote and enhance the resilience trait of nursing students and nurses through lectures, seminars, team-building activities, and other programs that promote and enhance their resiliency. Nursing colleges and affiliated hospitals must work together to monitor academic stress and pandemic-related anxiety. Nursing students facing a particularly trying time in their academic pursuits can benefit from a deeper understanding of the role that resilience plays in helping them cope. Online resiliency-building activities or programs may change how nursing students view their

academic struggles and encourage them to be more optimistic about completing their degree.

CONCLUSIONS

Our findings are supported by those of studies published before and during the pandemic. Similar findings have been found in previous research on the relationship between stress, anxiety, and QoL. Resilience was found to be an important mediator in the relationship between academic stress and QoL in our study. Filipino and non-Filipino nursing students alike should cultivate resilient traits to overcome the negative effects of academic stress and enhance their QoL. Students in the Philippines or elsewhere in the world may encounter difficulties when studying nursing. Additionally, our study demonstrates that resilience acts as a mediator between COVID-19 anxiety and QoL. Resilient nursing students can effectively manage COVID-related anxiety, thus preserving their QoL, which is why resilience is a critical aspect in protecting QoL from the undesirable consequences of academic stress and COVID-19 anxiety. It is critical for nurse educators and administrators to help students maintain and improve their overall QoL and mental health. Resilience is not only a trait of Filipino nursing students. While resilience is a universal human trait, nursing students exemplify resilience in unique ways.

ACKNOWLEDGMENTS

We would like to express our gratitude to Ma. Grace C. Rosales of Manila Central University-FDTMF, Inc., for her assistance and expertise in statistics. Also, we are indebted to the nursing students of two participating state universities in the Philippines.

CONFLICTS OF INTEREST

No conflict of interest has been declared by the authors.


ETHICAL CONSIDERATIONS


The Ethics Review Committee (ERC) of Universidad de Manila granted permission to conduct the study, with reference number UdM-ERC-2021-015 (approved: 02/24/2021).

AUTHOR CONTRIBUTIONS

DJEB and RANG conceived and designed the study. DJEB performed the data analysis. DJEB and RANG conducted the interpretation of data analyses, developed the manuscript, and critically revised the manuscript for important intellectual content.

ORCID

Daniel Joseph E. Berdida PhD, RN, RM  <https://orcid.org/0000-0002-5001-6946>

Rizal Angelo N. Grande EdD, RN  <https://orcid.org/0000-0003-4806-6570>



REFERENCES

- Al Dhaheri, A.S., Bataineh, M.F., Mohamad, M.N., Ajab, A., Al Marzouqi, A., Jarrar, A.H. et al. (2021) Impact of COVID-19 on mental health and quality of life: is there any effect? A cross-sectional study of the MENA region. *Plos One*, 16(3), e0249107. <https://doi.org/10.1371/journal.pone.0249107>
- Aslan, H. & Pekince, H. (2021) Nursing students' views on the COVID-19 pandemic and their perceived stress levels. *Perspectives in Psychiatric Care*, 57(2), 695–701. <https://doi.org/10.1111/ppc.12597>
- Baluwa, M.A., Konyani, A., Chipeta, M. C., Munthali, G., Mhango, L., Chimbe, E. et al. (2021) Coping with fears of Covid-19 pandemic among nursing students during clinical practice: Malawi's perspective. *Advances in Medical Education and Practice*, 12, 1389–1396. <https://doi.org/10.2147/AMEPS337783>
- Bedewy, D. & Gabriel, A. (2015) Examining perceptions of academic stress and its sources among university students: the perception of academic stress scale. *Health Psychology Open*, 2(2), 1–9. <https://doi.org/10.1177/2055102915596714>
- Berdida, D.J.E. & Grande, R.A.N. (2022) Quality of life and academic resilience of Filipino nursing students during the COVID-19 pandemic: a cross-sectional study. *International Journal of Nursing Education Scholarship*, 18(1), 20210115. <https://doi.org/10.1515/ijnes-2021-0115>
- Berdida, D.J.E., Grande, R.A.N. & Lopez, V. (2021). Filipinos' health information-seeking behaviors and their implications for COVID-19 vaccination. *Public Health Nursing*, 39, 553–561. <https://doi.org/10.1111/phn.13034>
- Bozdağ, F. & Ergün, N. (2021) Psychological resilience of healthcare professionals during COVID-19 pandemic. *Psychological Reports*, 124(6), 2567–2586. <https://doi.org/10.1177/0033294120965477>
- Campbell-Sills, L. & Stein, M.B. (2007) Psychometric analysis and refinement of the Connor-Davidson Resilience Scale (CD-RISC): validation of a 10-item measure of resilience. *Journal of Traumatic Stress*, 20(6), 1019–1028. <https://doi.org/10.1002/jts.20271>
- CHED Memorandum Order No. 4. (2021) *Guidelines on the implementation of flexible learning*. Available at: <https://ched.gov.ph/wp-content/uploads/CMO-No.-4-s.-2020-Guidelines-on-the-Implementation-of-Flexible-Learning.pdf> [Accessed 3th March 2022].
- Chen, X., Xu, Q., Lin, H., Zhu, J., Chen, Y., Zhao, Q. et al. (2021) Quality of life during the epidemic of COVID-19 and its associated factors among enterprise workers in East China. *BMC Public Health [Electronic Resource]*, 21(1), 1370. <https://doi.org/10.1186/s12889-021-11414-3>
- Dahl, K., Bjørnnes, A.K., Lohne, V. & Nortvedt, L. (2021). Motivation, education, and expectations: experiences of Philippine immigrant nurses. *SAGE Open*, 1–8. <https://doi.org/10.1177/21582440211016554>
- Dayagbil, F.T., Palompon, D.R., Garcia, L.L. & Olvido, M.M.J. (2021) Teaching and learning continuity amid and beyond the pandemic. *Frontiers in Education*, 6, 678692. <https://doi.org/10.3389/educ.2021.678692>
- Devi, H.M., Purborini, N. & Chang, H.-J. (2021) Mediating effect of resilience on association among stress, depression, and anxiety in Indonesian nursing students. *Journal of Professional Nursing*, 37(4), 706–713. <https://doi.org/10.1016/j.profnurs.2021.04.004>
- Drach-Zahavy, A., Goldblatt, H., Admi, H., Blau, A., Ohana, I. & Itzhaki, M. (2021) A multi-level examination of nursing students' resilience in the face of the COVID-19 outbreak: a cross-sectional design. *Journal of Advanced Nursing*, 78(1), 109–120. <https://doi.org/10.1111/jan.14951>
- Grande, R.A.N., Berdida, D.J.E., Cruz, J.P., Cometa-Manalo, R.J., Balace, A.B. & Ramirez, S.H. (2022) Academic motivation and self-directed learning readiness of nursing students during the COVID-19 pandemic in three countries: a cross-sectional study. *Nursing Forum*. <https://doi.org/10.1111/nuf.12698>
- Grande, R.A.N., Berdida, D.J.E., Maniago, J.D., Ablao, J.N., Llaguno, M.B.B. & Manood, E.G. (2021) Predictors of quality of life of nursing internship students from five Saudi universities. *Journal of Taibah University Medical Sciences*, 16(5), 747–754. <https://doi.org/10.1016/j.jtumed.2021.05.004>
- Grande, R.A.N., Berdida, D.J.E., Vilagrancia, H.N., Cornejo, L.T.O., Villacorte, L.M. & Borja, M.V.F. (2021) Association between perceived resilience and mental well-being of Saudi nursing students during COVID-19 pandemic: a cross-sectional study. *Journal of Holistic Nursing*, 39(4), 314–324. <https://doi.org/10.1177/08980101211009063>
- Guillasper, J.N., Oducado, R.M.F. & Soriano, G.P. (2021) Protective role of resilience on COVID-19 impact on the quality of life of nursing students in the Philippines. *Belitung Nursing Journal*, 7(1), 43–49. <https://doi.org/10.33546/bnj.1297>
- Hamadeh Kerbage, S., Garvey, L., Willetts, G. & Olosoji, M. (2021) Undergraduate nursing students' resilience, challenges, and supports during coronavirus pandemic. *International Journal of Mental Health Nursing*, 30(S1), 1407–1416. <https://doi.org/10.1111/inm.12896>
- Keener, T.A., Hall, K., Wang, K., Hulse, T. & Piamjariyakul, U. (2021) Quality of life, resilience, and related factors of nursing students during the COVID-19 pandemic. *Nurse Educator*, 46(3), 143–148. <https://doi.org/10.1097/NNE.0000000000000969>
- Labrague, L.J. (2021a) Pandemic fatigue and clinical nurses' mental health, sleep quality and job contentment during the covid-19 pandemic: the mediating role of resilience. *Journal of Nursing Management*, 29(7), 1992–2001. <https://doi.org/10.1111/jonm.13383>
- Labrague, L.J. (2021b) Resilience as a mediator in the relationship between stress-associated with the Covid-19 pandemic, life satisfaction, and psychological well-being in student nurses: a cross-sectional study. *Nurse Education in Practice*, 56, 103182. <https://doi.org/10.1016/j.nepr.2021.103182>
- Labrague, L.J. & de los Santos, J.A. A. (2021) Resilience as a mediator between compassion fatigue, nurses' work outcomes, and quality of care during the COVID-19 pandemic. *Applied Nursing Research*, 61, 151476. <https://doi.org/10.1016/j.apnr.2021.151476>
- Langegård, U., Kiani, K., Nielsen, S.J. & Svensson, P.-A. (2021) Nursing students' experiences of a pedagogical transition from campus learning to distance learning using digital tools. *BMC Nursing*, 20(1), 23. <https://doi.org/10.1186/s12912-021-00542-1>
- Lindner, P., Frykheden, O., Forsström, D., Andersson, E., Ljótsson, B., Hedman, E. et al. (2016) The Brunnsviken brief quality of life scale (BBQ): development and psychometric evaluation. *Cognitive Behaviour Therapy*, 45(3), 182–195. <https://doi.org/10.1080/16506073.2016.1143526>
- Liu, C., Lee, Y., Lin, Y. & Yang, S. (2021) Factors associated with anxiety and quality of life of the Wuhan populace during the COVID-19 pandemic. *Stress and Health*, 37(5), 887–897. <https://doi.org/10.1002/smi.3040>
- Majrashi, A., Khalil, A., Nagshabandi, E.A. & Majrashi, A. (2021) Stressors and coping strategies among nursing students during the COVID-19 pandemic: scoping review. *Nursing Reports*, 11, 444–459. <https://doi.org/10.3390/nursrep11020042>
- Masha'al, D., Rababa, M. & Shahrour, G. (2020) Distance learning-related stress among undergraduate nursing students during the COVID-19 pandemic. *The Journal of Nursing Education*, 59(12), 666–674. <https://doi.org/10.3928/01484834-20201118-03>
- Mejia-Lancheros, C., Woodhall-Melnik, J., Wang, R., Hwang, S.W., Stergiopoulos, V. & Durbin, A. (2021) Associations of resilience with quality of life levels in adults experiencing homelessness and mental illness: a longitudinal study. *Health and Quality of Life Outcomes*, 19(1), 74. <https://doi.org/10.1186/s12955-021-01713-z>
- Nodine, P.M., Arbet, J., Jenkins, P.A., Rosenthal, L., Carrington, S., Purcell, S.K. et al. (2021) Graduate nursing student stressors during the COVID-19 pandemic. *Journal of Professional Nursing*, 37(4), 721–728. <https://doi.org/10.1016/j.profnurs.2021.04.008>
- Ocampo, L. & Yamagishi, K. (2020) Modeling the lockdown relaxation protocols of the Philippine government in response to the COVID-19 pandemic: an intuitionistic fuzzy DEMATEL analysis. *Socio-economic Planning Sciences*, 72, 100911. <https://doi.org/10.1016/j.seps.2020.100911>
- Oducado, R.M.F., Fajardo, M.T.R., Parreño-Lachica G.M., Maniago J.D., Villanueva P.M.B., Dequilla M.A.C.V. et al. (2021) Is videoconference "Zoom" fatigue real among nursing students? *Journal of Loss and Trauma*. <https://doi.org/10.1080/15325024.2021.1950987>
- Opoku-Acheampong, A., Rosenkranz, R.R., Adhikari, K., Muturi, N., Logan, C. & Kidd, T. (2017) Perceived stress and quality of life of pharmacy students in University of Ghana. *BMC Research Notes*, 10, 115. <https://doi.org/10.1186/s13104-017-2439-6>



- Ozsaban, A., Turan, N. & Kaya, H. (2019) Resilience in nursing students: the effect of academic stress and social support. *Clinical and Experimental Health Sciences*, 9(1), 71–78. <https://doi.org/10.33808/marusbed.546903>.
- Panzeri, A., Bertamini, M., Butter, S., Levita, L., Gibson-Miller, J., Vidotto, G. et al. (2021) Factors impacting resilience as a result of exposure to COVID-19: the ecological resilience model. *PLoS One*, 16(8), e0256041. <https://doi.org/10.1371/journal.pone.0256041>
- Pardeller, S., Kemmler, G., Hoertnagl, C.M. & Hofer, A. (2020) Associations between resilience and quality of life in patients experiencing a depressive episode. *Psychiatry Research*, 292, 113353. <https://doi.org/10.1016/j.psychres.2020.113353>
- Peñacoba, C., Velasco, L., Catalá, P., Gil-Almagro, F., García-Hedra, F.J. & Carmona-Monge, F.J. (2021) Resilience and anxiety among intensive care unit professionals during the COVID-19 pandemic. *Nursing in Critical Care*, 26(6), 501–509. <https://doi.org/10.1111/nicc.12694>
- Ribeiro, Í.J.S., Pereira, R., Freire, I.V., de Oliveira, B.G., Casotti, C.A., & Boery, E.N. (2018) Stress and quality of life among university students: a systematic literature review. *Health Professions Education*, 4(2), 70–77. <https://doi.org/10.1016/j.hpe.2017.03.002>
- Rotas, E.E., & Cahapay, M.B. (2020) Difficulties in remote learning: voices of Philippine university students in the wake of COVID-19 crisis. *Asian Journal of Distance Education*, 15(2), 147–158. <https://doi.org/10.5281/zenodo.4299835>
- Setiawati, Y., Wahyuhadi, J., Joestandari, F., Maramis, M.M. & Atika, A. (2021) Anxiety and resilience of healthcare workers during COVID-19 pandemic in Indonesia. *Journal of Multidisciplinary Healthcare*, 14, 1–8. <https://doi.org/10.2147/JMDH.S276655>
- Silva, W., de Sampaio Brito, T.R. & Pereira, C.R. (2020) COVID-19 anxiety scale (CAS): development and psychometric properties. *Current Psychology (New Brunswick, NJ)*, 1–10. <https://doi.org/10.1007/s12144-020-01195-0>
- Soper, D.S. (2021) A-priori sample size calculator for multiple regression [Software]. Available from <https://www.danielsoper.com/statcalc> [Accessed 18th January 2021].
- Thapa, P., Bhandari, S.L. & Pathak, S. (2021) Nursing students' attitude on the practice of e-learning: a cross-sectional survey amid COVID-19 in Nepal. *Plos One*, 16(6), e0253651. <https://doi.org/10.1371/journal.pone.0253651>
- World Health Organization (2021) WHO coronavirus (COVID-19) dashboard. Available at: <https://covid19.who.int/table> [Accessed 16th October 2021].
- World Medical Association (2008) Declaration of Helsinki 2008. Available at: <https://www.wma.net/what-we-do/medicalethics/declaration-of-helsinki/doh-oct2008/> [Accessed 16th October 2021].
- Zeynep, T. (2020) Nursing students' anxiety levels and coping strategies during the COVID-19 pandemic. *International Archives of Nursing and Health Care*, 6(4), 150. <https://doi.org/10.23937/2469-5823/1510150>
- Zhang, J., Yang, Z., Wang, X., Li, J., Dong, L., Wang, F. et al. (2020) The relationship between resilience, anxiety and depression among patients with mild symptoms of COVID-19 in China: a cross-sectional study. *Journal of Clinical Nursing*, 29(21–22), 4020–4029. <https://doi.org/10.1111/jocn.15425>
- Zhu, Y., Wang, H. & Wang, A. (2021) An evaluation of mental health and emotion regulation experienced by undergraduate nursing students in China during the COVID-19 pandemic: a cross-sectional study. *International Journal of Mental Health Nursing*, 30(5), 1160–1169. <https://doi.org/10.1111/inm.12867>

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Berdida D.J.E., & Grande R.A.N. (2022) Academic stress, COVID-19 anxiety, and quality of life among nursing students: The mediating role of resilience. *International Nursing Review*, 1–9. <https://doi.org/10.1111/inr.12774>