

# Coping, resilience, and emotional well-being in pharmacy students during the COVID-19 pandemic

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## Abstract

**Introduction:** The purpose of this study was to investigate the significant contributions of coping, resilience, personal characteristics, and health behaviors on the emotional well-being of pharmacy students during the COVID-19 pandemic. COVID-19 was identified in December 2019 and declared a pandemic by the World Health Organization in March 2020. Pharmacy students may experience greater stress during this outbreak because of interruptions in classes or rotations, concerns regarding personal or family health, and social isolation from peers. These changes may result in behavior shifts, difficulty concentrating, and increased use of negative coping strategies. The extent to which these factors affect overall student well-being during a pandemic is largely unknown.

**Methods:** A cross-sectional study of 3 colleges of pharmacy was completed during May to July 2020 via an online, anonymous 64-item questionnaire using REDCap software. Linear regression and descriptive statistical analyses were conducted using SPSS version 26.

**Results:** Using the enter method, levels of coping strategies, personal resilience, and Hispanic ethnic identity explain 29% of the variance in emotional well-being scores in pharmacy students during the first months of the COVID-19 pandemic ( $F(2,76) = 11.785, P < .000, R^2 = 0.317, R^{2\text{adjusted}} = 0.291$ ). For this sample ( $N = 104$ ), higher levels of resilience, greater use of coping strategies, and identifying as Hispanic were significant predictors of emotional well-being.

**Discussion:** Student mental health continues to be important, especially during crises and pandemics. Therefore, pharmacy programs should cultivate an environment that supports the emotional well-being of their students. Campus-based initiatives may be needed to encourage healthy coping behaviors and bolster students' personal resilience to better prepare them for providing front-line patient care in the future.

**Keywords:** pharmacy student, COVID-19, coping, resilience, emotional well-being, mental health

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## Introduction

COVID-19 was identified in December 2019 and declared a pandemic by the World Health Organization in March 2020.<sup>1</sup> Although a large amount of research has focused on determining how COVID-19 affects the human body, there is still a lack of definitive knowledge about the virus. This lack of knowledge has deemed COVID-19 a population hazard affecting both physical and mental health. Mental health has been negatively impacted, with a recent study<sup>1</sup> suggesting approximately 25% of adults are experiencing depressive symptoms compared to 16% prior to the COVID-19 pandemic. Additionally, preliminary data<sup>2</sup> collected since the onset of COVID-19 indicate front-line health care professionals, such as physicians and nurses, have a high risk of developing negative emotional wellness outcomes. While nearly everyone has experienced some difficulties during this time, health care professional students, including those in pharmacy programs, may be experiencing new stress. In addition to concerns about one's health, difficulty sleeping, concentrating appropriately during coursework, and increased use of poor coping mechanisms, pharmacy students may have additional concerns regarding the interruption of their studies. This may include the suspension and/or rescheduling of planned introductory or advanced pharmacy practice experiences, adapting to online virtual learning, new teaching methods incorporated by faculty, varying platforms for online education, and possible social isolation from family and peers.

Previous studies<sup>3-7</sup> of pharmacy students in the United States prior to the COVID-19 pandemic have shown that stressors negatively impact pharmacy students' mental health, leading to impaired decision making and lower academic performance. The data<sup>3-7</sup> indicate the most common positive coping mechanisms were spending time with friends and family as well as exercising. Personal resources such as optimism, active coping, and social support may facilitate the ability to recover from difficult situations. Overall, exposure to stressful events such as disasters and pandemics has been associated with emotional distress. However, some individuals continue to function normally during adversity.<sup>8</sup> Factors such as coping skills and personal resilience may influence emotional well-being and together can play a role in the ability for humans to adapt positively and overcome such stressors.

Coping skills are daily strategies used to handle external situations and increase resilience and maintain emotional well-being. Poor coping skills are linked to suboptimal mental health, particularly depression in pharmacy students.<sup>4</sup> Only 1 study<sup>9</sup> to date has focused on coping strategies among pharmacy students during COVID-19, which has disrupted not only their personal lives, but

severely interrupted their already stressful pharmacy training. Personal resilience is the ability to withstand and recover from emotional stress in a positive manner.<sup>10</sup> Having resilience is theorized to serve as a protective factor that promotes emotional well-being (eg, positive emotions).<sup>11</sup> At this time, there are limited data documenting resilience among pharmacy students and even less data objectively measuring interventions to prevent emotional distress in these students.<sup>12,13</sup> Well-being is essential in preventing and reducing the severity of mental health distress.<sup>14</sup> The lack of face-to-face interactions can negatively affect students' emotional well-being. Emotional well-being is defined as the capacity to exercise stress-management techniques, resilience, and develop emotions leading to good feelings.<sup>15</sup> As such, coping skills and resilience can impact emotional well-being. Pharmacy programs need to be aware of students' experiences and implement strategies to build their resilience and improve their emotional well-being both on and off campus and throughout the pandemic.<sup>9</sup>

Although emotional well-being during COVID-19 has been studied with medical students, to our knowledge there are a limited number of studies available assessing pharmacy students' emotional well-being and potential factors influencing it during the COVID-19 pandemic.<sup>16</sup> It is important to understand that pharmacy students may individually experience the pandemic differently because of different individual stressors and personal resources.<sup>9</sup> The extent to which resilience, coping, and health behaviors impact emotional well-being in pharmacy students during the COVID-19 pandemic is unknown. It is likely pharmacy students share similar concerns to other health professional students regarding their training during the pandemic. The purpose of this study was thus to investigate the significance of coping, resilience, personal characteristics, and health behaviors on the emotional well-being of pharmacy students during the COVID-19 pandemic.

## Methods

A cross-sectional study design using a quantitative survey delivered electronically via REDCap (<http://projectredcap.org/>) collected data from a sample of pharmacy students enrolled in 3 US universities in California, Florida, and North Carolina during the months of May 2020 to July 2020. The survey was developed by the authors based on previous experience with student cohorts and published literature. The 64-item instrument consisted of validated measures that assessed levels of personal resilience, coping strategies, emotional well-being, personal characteristics (eg, ethnicity, sex), and certain health behaviors

**TABLE 1: Characteristics of the sample<sup>a</sup>**

	N = 104	%
Ethnic identity		
Hispanic	23	22.1
Non-Hispanic	71	68.3
Sex		
Women	67	64.4
Men	27	26.0
State		
California	47	45.2
Florida	30	28.8
North Carolina	17	16.3
Relationship/Living status		
Single/Live alone	13	12.5
Single/Live with family/friends	51	49.0
Married/Partnered - cohabitate	27	26.0
Other living arrangement	3	2.9

<sup>a</sup>Valid percentages are reported (reflects true number and percentage of each items answered).

(ie, healthy eating and exercise patterns). Students were not compensated for participating in the study.

Resilience was assessed by the 6-item Brief Resilience Scale. The Brief Resilience Scale estimates the ability to bounce back or recover from stress, with higher scores suggesting higher levels of resilience. Answers vary from 1 to 5 points each for a maximum score of 30 points. A sample question is *I tend to bounce back quickly after hard times*. The Brief Resilience Scale is negatively linked to anxiety, depression, negative affectivity, and physical symptoms when other resilience measures such as optimism, social support, and Type D personality (ie, high negative affect, high social inhibition) are controlled.<sup>17</sup> Coping strategies were assessed by the 28-item Brief COPE scale. Higher scores illustrated greater use of coping skills. Answers vary from 1 to 4 points each for a maximum score of 112 points. Categories include self-distraction, active coping, denial, and emotional support use. An example item is *I've been criticizing myself*.<sup>18</sup> Emotional well-being was assessed by the 14-item Higher Mental Health Continuum scale. Higher scores indicated a higher level of well-being. Answers vary from 0 to 5 points each for a maximum score of 70 points. The Higher Mental Health Continuum scale classifies individuals as flourishing (higher scores) or languishing (lower scores). An example question is *During the past month, how often did you feel happy?*<sup>19-20</sup> The remaining 16 items focused on demographic and personal characteristics (eg, sex, ethnicity, relationship status, age, exercise, eating habits).

Data were analyzed using SPSS version 26. Data were cross-checked for errors (eg, out of range values, missing

**TABLE 2: Summary statistics for the major study variables**

	n	M	SD	Minimum Score	Maximum Score
Resilience	98	3.35	0.908	1	5
Coping skills	104	2.12	0.439	1	3
Emotional well-being	95	4.08	1.03	2	6

data, outliers). Surveys with more than 33% of missing data were deemed incomplete and excluded from the analysis. Internal consistency (Cronbach alpha) for scales were computed and compared with estimates from previous studies (if available) that used the same instrumentation. The Nova Southeastern University IRB approved the study.

## Results

A total of 286 pharmacy students were invited to participate in the study across 3 states (ie, Florida, California, North Carolina). Of those, 110 surveys were returned. Of those, 6 were excluded from the analysis because of missing data, resulting in a final sample of 104 students (36.4% response rate).

Table 1 reports the characteristics of the sample. The mean age of the participants was 27.8 years (range 20-51 years; SD = 5.18). Approximately half (n = 53; 51%) of the participants were in their advanced pharmacy practice experiences. Summary statistics for the major study variables are provided in Table 2.

Table 3 reports the findings from the regression analysis. Using the enter method, it was found that levels of coping strategies, personal resilience, and Hispanic ethnic identity explain 29% of the variance in emotional well-being scores in pharmacy students during the first months of the COVID-19 pandemic in the United States ( $F(2,76) = 11.785$ ,  $P < .000$ ,  $R^2 = 0.317$ ,  $R^{2\text{adjusted}} = 0.291$ ). For this sample, higher levels of resilience, greater use of coping strategies, and identifying as Hispanic were significant predictors of

**TABLE 3: Regression model for emotional well-being<sup>a</sup>**

	B	SE	Beta	t	Sig
(Constant)	30.553	10.546		2.897	0.005
Hispanic	-8.070	3.086	-0.249	-2.615	0.011 <sup>b</sup>
Resilience	1.274	0.239	0.512	5.327	0.000 <sup>c</sup>
Level of coping skills	0.253	0.118	0.207	2.150	0.035 <sup>b</sup>

<sup>a</sup>Predicted variable: emotional well-being.

<sup>b</sup> $P < .05$

<sup>c</sup> $P < .01$

emotional well-being. Of note, there were no differences in resilience, coping strategies, emotional well-being, and any other health behaviors between those in didactic courses or those completing advanced pharmacy practice experiences.

## Discussion

This study aimed to identify personal characteristics, such as ethnicity and personal resources, and health behaviors that could impact the emotional well-being of pharmacy students. It was found that greater use of coping strategies, higher levels of resilience, and identifying as Hispanic were significant predictors of increased emotional well-being.

Hispanic ethnicity as a predictor of increased emotional well-being may be surprising; however, it is congruent with the published data.<sup>21</sup> Results suggest students identifying as Hispanic have a greater level of resilience, a factor that may assist them during the COVID-19 pandemic. For more than a decade, the phenomenon known as the Hispanic paradox has been studied.<sup>22</sup> The Hispanic paradox demonstrates that individuals identifying as Hispanic generally experience greater physical health and decreased mortality than non-Hispanic Whites despite having higher burden of chronic diseases (eg, obesity, diabetes, psychiatric) and health disparities (eg, access to health care, literacy, discrimination).<sup>22</sup> Among Hispanic emerging adults, the role of family cohesion, emotion regulation, and social support served as moderators in resilience.<sup>22</sup> We hypothesized that students identifying as Hispanic in pharmacy programs may have greater family cohesion and social support, which may explain the higher levels of resilience elucidated in our small sample. Based on these results and the published literature, future larger studies evaluating how these factors contribute to success within a pharmacy program may offer ideas that can be disseminated to the rest of the student body.

Generally, there appears to be a balance between personal resilience and health outcomes.<sup>17</sup> Students can use personal resources such as optimism, active coping, and social support to promote recovery from stress or adversity. Being able to recover can have a direct and positive relationship with mental health outcomes. It is crucial to know how to foster personal resilience and practice healthy coping behaviors to promote emotional well-being in stressful situations such as a pandemic. It might be beneficial if pharmacy curricula have an increased focus on developing and offering activities that promote greater use of coping strategies (ie, support networks, resourcefulness, teamwork).<sup>23</sup>

Strategies to help improve students' well-being during a pandemic can be supported via online remote environment. Since each student will react differently, the needs of each student will invariably differ. Data from 3 pharmacy programs provide examples on integrating virtual activities in curricula that may assist with improving students' mental health.<sup>9</sup> Activities focused on increasing support, health and wellness, interpersonal interaction, academic success, and physical and mental health.<sup>9</sup> Activities promoted throughout these categories included: exercise challenges, mindfulness sessions, trivia nights, social gatherings, virtual townhalls, virtual tutoring sessions, tele-counseling, and community volunteer events.<sup>9</sup> All the aforementioned activities may serve to increase student well-being, especially during challenging times, by providing the emerging theme of cohesion through socializing (eg, family, friends, classmates), emotion regulation, and social support. Such skills learned may also support in adapting better coping skills. However, there are no current studies in pharmacy students available supporting that such activities have objectively increased emotional well-being and further exploration is needed in this topic.

The findings of our research indicate a need to further understand the role and impact of resilience, coping, and certain health behaviors that are specific to pharmacy students in times of crisis. Potential additional health behaviors of pharmacy students used to cope during the COVID-19 pandemic that may merit exploration include: a more detailed analysis on nutrition and exercise behaviors, an evaluation of alcohol consumption, recreational drugs, and/or other potentially abusive substances, effects on academic performance, and a review of students' levels of social interaction and isolation, especially students who relocated to another location from home to study.

Schools should also take into consideration the potential trauma induced by COVID-19 as the long-term effects of trauma may lead to an inability to cope with stress, process information, and manage reactions to emotions. Pharmacy curricula should provide programs that facilitate students' recovery and strengthen their resilience and establish a trauma-informed approach by embracing the 6 guiding principles of the US Department of Health and Human Services Substance Abuse and Mental Health Services Administration.<sup>24</sup> The 6 guiding principles include: foster students' emotional, intellectual, and interpersonal safety; build trustworthiness and transparency through connection and communication; facilitate peer support; promote collaboration; empower voice and choice; and pay attention to cultural, historical, and gender issues.<sup>24</sup> These 6 principles can be incorporated into activities by training pharmacy faculty and keeping open and transparent communications between the students and faculty.



## Conclusion

Overall, this study investigated the impact of the COVID-19 pandemic on the well-being of pharmacy students. The findings show that certain indicators (ie, personal resilience, coping strategies, personal characteristics, health behaviors) significantly predicted emotional well-being in this sample. Further research is necessary to assess additional health behaviors such as use of recreational substances, nutritional status, and effects on academic performance. Pharmacy curricula should incorporate wellness programs to develop future generations of pharmacists who are resilient, maintain skillful coping strategies, and engage in positive health behaviors.

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