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Nursing students' resilience, depression, well-being, and academic distress: Testing a moderated mediation model

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Abstract

Aim: Academic distress is a leading cause of attrition among nursing students. The present study tested a positive psychology-oriented model detailing the potential links between nursing students': (a) psychological resilience; (b) depressive symptoms; (c) intrapersonal well-being; (d) interpersonal well-being; and (e) academic distress. Additionally, we tested whether the academic benefits of resilience were conditional upon nursing students' perceptions of their campus climate as supportive of mental health and well-being.

Design: A correlational, cross-sectional design was employed.

Method: Nursing students (N = 933) were selected from the national 2017–2018 Healthy Minds Study (HMS). Students completed measures of resilience, depressive symptoms, intrapersonal well-being (flourishing), interpersonal well-being (belonging), and academic distress.

Results: Conditional process modelling tested depression, belonging, and flourishing as mediators of the associations between resilience and academic distress variables. Furthermore, perceptions of campus climate were included as potential moderators of these mediation effects. Results indicated that the protective academic benefits of resilience were primarily explained by decreases in depression but that this effect was strongest for nursing students with negative perceptions of their campus climate.

Conclusion: Findings highlight the psychological and academic benefits of greater resilience and the moderated mediation results suggest that such benefits were conditional on the broader campus climate.

Impact: Nurse educators and policymakers should consider addressing contextual factors, such as campus climate, in addition to resilience training in their efforts to reduce the negative academic impacts of mental health problems and stress in nursing school.

KEYWORDS

depression, mediation, nurse education, nursing students, resilience

1 | INTRODUCTION

Despite an increase in the number of students enrolling in nursing schools, the USA continues to experience a shortage of Registered Nurses (American Association of Colleges of Nursing, 2019). Moreover, many nursing students do not complete their education (Dante, Petrucci, & Lancia, 2013; Hamshire, Jack, Forsyth, Langan, & Harris, 2019). Although there are several contributors to nursing student attrition (Hamshire et al., 2019), academic failure is central (Pitt, Powis, Levett-Jones, & Hunter, 2012). Indeed, academic distress—defined as perceptions that internal or external factors accompanied by perceptions that one is unlikely to persist to graduation has a negative impact on one's academics progress—are common foci of national public health surveys of the general college student body (Healthy Minds Network, 2020). Numerous researchers have documented a connection between mental health problems and academic distress in the general college student body (Storrie, Ahern, & Tuckett, 2010). However, comparatively few investigators have examined the academic impact of mental health among nursing students in the United States.

Identifying variables that help explain mental health-related academic distress among nursing students is an important area of inquiry for informing retention efforts in this unique population. Of the limited published research available; however, most investigators have focused exclusively on a deficit model of nursing students. Such a perspective emphasizes what is *wrong* with nursing students psychologically that may contribute to greater academic distress. By contrast, a positive psychology perspective (see Lopez, Teramoto Pedrotti and Snyder, 2019 for a review) addresses what is *right* with nursing students (e.g., why some students thrive intrapersonally, interpersonally, and academically). Drawing on a positive psychology foundation, for example, a growing body of scholarship has highlighted the importance of resilience in nursing school (Chernomas & Shapiro, 2013; Jung, 2016; Li et al., 2018). Resilience can be conceptualized as a constellation of character traits that buffer individuals from the negative impacts of stress and poor mental health (Connor & Davidson, 2003; Smith et al., 2008).

Although researchers have increased their focus on resilience in nursing school, little is known about which variables may explain (i.e., mediate) the associations between greater resilience and less academic distress in this population. Additionally, researchers have generally focused on resilience as an internal psychological factor, thus neglecting environmental factors that could influence how and for whom resilience is beneficial. To address these gaps in the literature, the present study tested a model detailing potential mediators of the links between resilience and academic distress in a large sample of nursing students from across the United States. Additionally, this investigation examined whether the protective academic benefits of resilience may be conditional on the broader campus climate where nursing students were embedded (e.g., whether nursing students perceived that their campus environment was supportive of student mental health and well-being). Prior to advancing specific hypotheses, evidence supporting this model (Figure 1) is briefly reviewed.

2 | BACKGROUND

More than a third of college freshmen report significant symptoms of anxiety, depression, or substance abuse (Auerbach et al., 2018). Similar problems are evident in nursing school. McDermott et al. (2019) recently found that approximately 20% of undergraduate nursing students across the United States screened positive for probable depression. For context, researchers at the National Center for Health Statistics estimated that the national prevalence rate of depression in the United States ranged from 5–11.5% (Brody, Pratt, & Hughes, 2018). Indeed, a growing body of research suggests that mental health problems, especially depression, are common in nursing students and may be related to the unique rigour and stress of nursing school (Galbraith & Brown, 2011; Mitchell, 2018; Sheridan, Carragher, Carragher, & Treacy, 2019; Tung, Lo, Ho, & Tam, 2018).

Helping nursing students cope with the intense demands of nursing school may be critical to reducing academic distress (Deary, Watson, & Hogston, 2003; Galbraith & Brown, 2011). Indeed, the adverse impacts of common mental health problems on academic functioning have been well-documented in several studies across the globe (Beiter et al., 2015; Haines, Norris, & Kashy, 1996; Hill, Yaroslavsky, & Pettit, 2015; Hysenbegasi, Hass, & Rowland, 2005; Othieno, Okoth, Peltzer, Pengpid, & Malla, 2014; Zheng, Wang, Yu, Yao, & Xiao, 2014). Nursing students with mental health problems report more stress, maladaptive coping (Zhang, Peters, & Chen, 2018), feelings of rejection and inadequacy (Reeve, Shumaker, Yearwood, Crowell, & Riley, 2013), and less quality sleep. Thus, nursing students struggling with poor mental health may be especially vulnerable to academic problems, possibly because poor mental health reduces many of the intrapersonal and interpersonal resources needed for academic success in nursing school (Deary et al., 2003).

2.1 | Resilience in nursing students

Given the negative impacts of poor mental health in college, investigators have attempted to identify mitigating or protective factors. Scholars have found characteristics that may protect college students from mental health problems such as being committed to one's goals, considering stress or change as an opportunity, understanding one's limits, accepting help from others, having secure relationships, making progress towards one's goals, being adaptable, having a sense of humour, and being optimistic about the future (Connor & Davidson, 2003). Collectively, such protective factors represent *resilience*, a predominately trait-like factor (i.e., stable, innate characteristic) promoting success by allowing individuals to cope and 'bounce back' from stressful events (Connor & Davidson, 2003; Smith et al., 2008). Despite its trait-like characteristics, researchers have theorized that resilience is a malleable construct that can be enhanced through targeted education (Cleary, Visentin, West, Lopez, & Kornhaber, 2018; Hurley, Hutchinson, Kozlowski, Gadd, & Vorst, 2019; Thomas & Asselin, 2018).

Resilient nursing students may be particularly equipped to manage the psychological and academic demands of nursing school. For example, numerous studies have linked greater resilience to academic

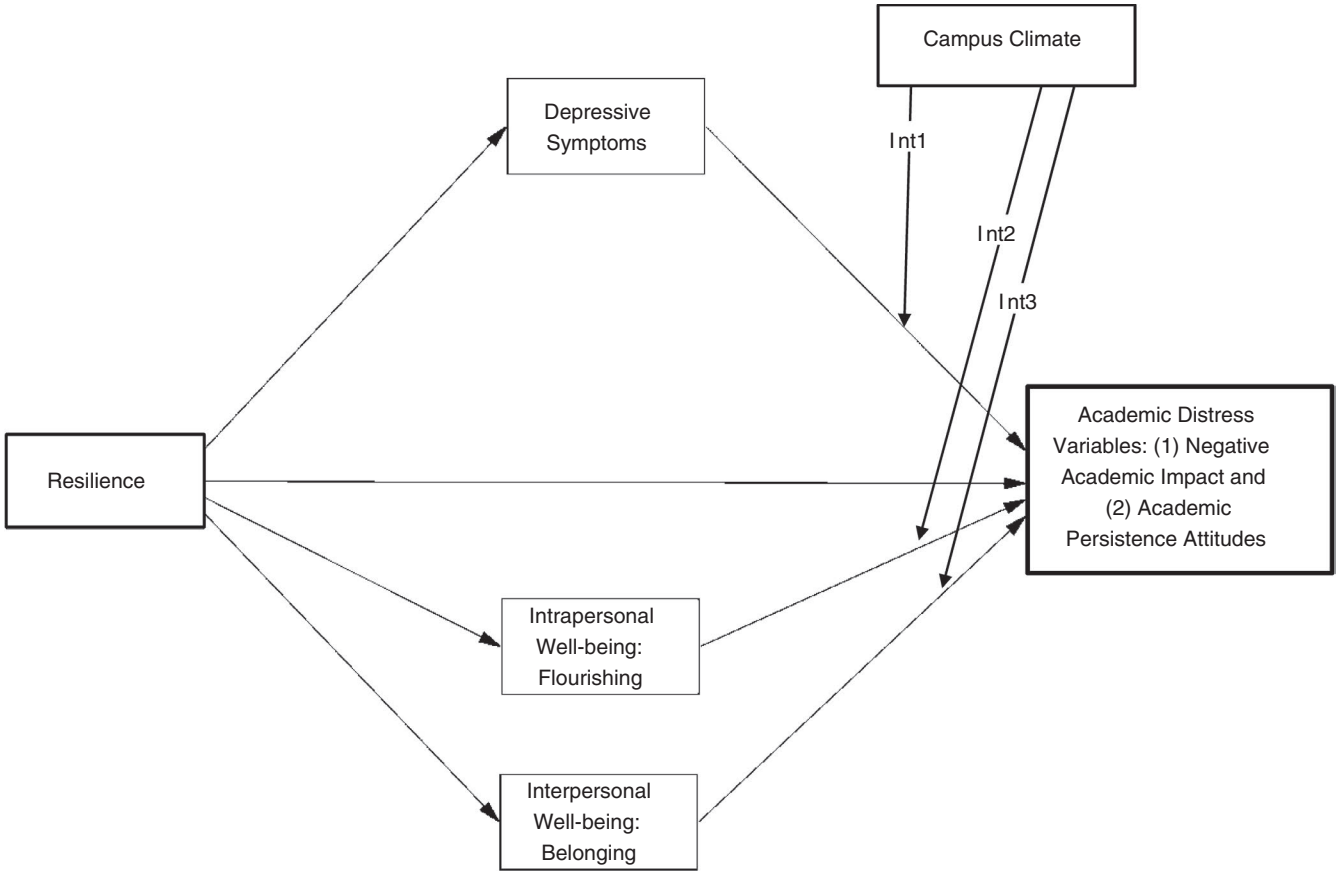

FIGURE 1 Conceptual model in which greater resilience is associated with less depressive symptoms and more positive psychology variables, which are, in turn, associated with more and less academic distress, respectively. Note: The same model was tested with two different dependent variables: negative academic impact and academic persistence. The extent to which nursing students perceived their university as being focused on student mental health and well-being (i.e., campus climate) was supported as a moderator in this model through a series of statistical interactions (Int1-Int3)

success in the general college student body (Ayala & Manzano, 2018; Azmitia, Sumabat-Estrada, Cheong, & Covarrubias, 2018; Hsu, 2010; Johnson, Taasoobshirazi, Kestler, & Cordova, 2015; Maddi, Harvey, Khoshaba, Fazel, & Resurreccion, 2009). Likewise, a growing body of researchers have begun to examine resilience among nursing students, with findings generally supporting a positive correlation between resilience and academic success in nursing schools in the United States and internationally (Cleary et al., 2018; Stephens, 2013; Thomas & Asselin, 2018; Thomas & Revell, 2016). Scholars have also argued for the inclusion of resilience training in early nursing education (Cleary et al., 2018; Hurley et al., 2019; Thomas & Asselin, 2018). Some researchers (e.g., Cleary et al., 2018; McAllister & Lowe, 2011) have even argued that resilience is an essential skill for professional nurses.

In summary, several studies have found links to support possible connections between nursing students' resilience, mental health, and academic distress. However, a review of the literature also reveals some important gaps. Notably, comparatively little research has explored *why* resilience is associated with better academic outcomes. Based on resilience theories (Connor & Davidson, 2003; Smith et al., 2008), other variables may account for or influence the academic benefits of resilience. Moreover, most research has focused on internal psychological factors in relation to resilience, thus missing how external (i.e., environmental) factors may operate to either enhance or reduce the associations between resilience and academic success. Hence, a critical understanding of how the associations between resilience and academic factors in nursing students may rely on other individual and environmental factors remains unaddressed (to the best of our knowledge). Identifying mediators and moderators of the connections between resilience and academic distress will address these gaps in the literature and potentially lead to a deeper understanding of how, for whom, and in what environment resilience may translate into better psychological and academic outcomes.

2.2 | Depression and well-being as potential mediators

Based on theories of resilience (Connor & Davidson, 2003; Smith et al., 2008), some nursing students may be protected from academic distress through the positive correlates of resilience. Although there are numerous psychological benefits of greater resilience, specific links have been made between increased resilience and fewer depressive symptoms. Given the high rates of depression among nursing students (McDermott et al., 2019; Tung et al., 2018) and the established

coexistence of depressive symptoms and poor academic outcomes, it is logical that the association between resilience and academic outcomes may be explained (i.e., mediated) by depressive symptomology. Said another way, one academic benefit for resilient students is that they may be buffered from the negative academic impacts of depression.

Greater levels of resilience may also help boost or enhance positive intrapersonal and interpersonal strengths. Psychologically, greater resilience may facilitate a sense of intrapersonal well-being (Hu, Zhang, & Wang, 2015). Resilient nurses have also been shown to report increased indicators of interpersonal well-being, such as perceptions of greater social support, which, in turn, may help them avoid burning out (Yu, Raphael, Mackay, Smith, & King, 2019). Extrapolating these findings to nursing school, therefore, it is feasible that the relationship between resilience and less academic distress may be mediated by greater levels of intrapersonal and interpersonal well-being. Indeed, although researchers have yet to explicitly test these mediation pathways, several investigators have linked greater resilience to fewer depressive symptoms, less anxiety, greater satisfaction with life, and less negative affect (Hu et al., 2015). In turn, researchers have associated better intrapersonal and interpersonal well-being to academic success in college (Ayala & Manzano, 2018; Beauvais, Stewart, DeNisco, & Beauvais, 2014; O'Keeffe, 2013).

2.3 | Campus climate as a potential moderator

In addition to examining whether the protective and positive academic impacts of resilience could be explained by reductions in depression and increases in well-being, the present study evaluated nursing students' perceptions of their campus climate. Could these direct and indirect (mediating) effects be moderated by the broader campus context where nursing students were embedded (i.e., campus climate)? To date, we are unaware of any studies examining such a moderated mediation model directly. However, researchers have linked a campus climate that is more supportive of student mental health and well-being to greater personal and academic success (Stein et al., 2016). Additionally, limited research connects nursing student resilience to greater perceptions of institutional support (Thomas & Revell, 2016). Therefore, although the extant literature is meagre to date, the available evidence suggests that the effects of resilience could be moderated by (i.e., conditional upon) campus climate. For example, one possibility is that nursing students in a supportive campus climate may not need to be as resilient as students in a less supportive climate.

3 | THE STUDY

3.1 | Aims

Taken together, our review of the literature supports the possibility that greater resilience should be associated with mental health-related academic distress and that this negative association may be explained by variation in three common correlates of resilience: (a) reductions in depression and enhancements in; (b) intrapersonal well-being; and (c) interpersonal well-being. Accordingly, the present study tested a model specifying these mediation pathways (Figure 1). Additionally, a key issue addressed in the present study was whether these mediation pathways were moderated by nursing students' perceptions of their campus climate (i.e., how much they felt their mental health and well-being were supported by their institution at the time of the study). Several hypotheses guided our analyses.

3.2 | Design

The present cross-sectional study used a correlational/descriptive design. Three hypotheses were advanced (H1–H3). First, (H1) nursing students' resilience would be negatively associated with depressive symptoms and positively associated with intrapersonal and interpersonal well-being. In turn, reductions in depression and increases in well-being would be associated with less mental health-related academic distress. Next, (H2) the associations between resilience and mental health-related academic distress would be mediated by less depression and more intrapersonal and interpersonal well-being. Finally, (H3) the mediation effects specified in H2 would be moderated by campus climate perceptions. However, given the dearth of literature related to campus climate perceptions in this population, we did not specify the directionality of any potential moderation effects.

4 | METHOD

4.1 | Data collection

Data were gathered through the National Healthy Minds Study (HMS; Healthy Minds Network, 2020), which constitutes a random sample of college students from approximately 100 US colleges and universities each year. The HMS has been operating and growing since 2005. Like all HMS administrations, students were invited to complete an anonymous online survey at their respective institutions during the 2017–2018 academic year.

4.2 | Sample

A total of 933 nursing students were selected from the 2017–2018 HMS data because they completed measures of interest. Table 1 presents the full demographics of the sample. Students from 23 nursing schools in the United States were represented–though the exact name of each school is kept confidential by the HMS organizers.

4.3 | Ethical considerations

Data were used by permission of the HMS organizers after IRB approval for archival data analysis from the authors' institution was

obtained. All universities that participated in the 2017–2018 HMS had approval from their respective registrars and no student identifying information was collected (see Healthy Mind Network, 2020 for a review of the HMS procedures and data/student safeguards).

4.4 | Validity, reliability, and rigour

The HMS was designed through consultation of public health and psychology experts. Each of the instruments selected for the present study was derived from published, validated measures or have received extensive content and construct validity support from previous iterations of the HMS (Healthy Minds Network, 2020).

4.5 | Measures

4.5.1 | Resilience

Resilience was assessed via the Brief Resilience Scale (BRS; Smith et al., 2008). The BRS, as adapted by the HMS, consists of six items measured on a 1 (strongly disagree)—5 (strongly agree) scale. A sample item is, 'I have a hard time making it through stressful events' (reverse scored). Items are summed and then averaged, and higher scores indicate greater resilience. Internal consistency coefficient alpha for the BRS was acceptable (0.86) in the present study.

TABLE 1 Demographic characteristics of the sample

Gender Identity	*N* = 933
Man	10%
Woman	89.4%
Transgender	0.2%
Gender Queer/non-conforming	0.3%
Other/Self-identify	0.1%
Sexual Orientation	
Heterosexual	93.1%
Lesbian	0.5%
Gay	1%
Bisexual	4.6%
Other/Self-identify	0.8%
Race/Ethnicity	
African American/Black	8.5%
American Indian/native	3.2%
Asian American/Asian	4.9%
Hispanic/Latino(a)	9.9%
Native Hawaiian or Islander	1.0%
Middle Eastern	1.4%
White non-Hispanic	78.7%
Academic Level	
Bachelor	88.9%
Masters	7.2%
Doctoral	1.9%
Not Reported	2.%

Note: Racial categories may not add up to 100% due to participants selecting multiple membership categories.

4.5.2 | Depressive symptoms

Depressive symptoms were measured using the Patient Health Questionnaire-9 (Kroenke, Spitzer, & Williams, 2001), a nine-item screening instrument. Participants were asked to specify the frequency of depressive symptoms (e.g., 'feeling down, depressed, or hopeless') over the past 2 weeks using a 0 (not at all)—3 (nearly every day) scale. Items were summed, with higher scores indicating greater depression symptomology. Internal consistency coefficient alpha for the PHQ-9 was acceptable in the present study (0.89). A score of 10 or greater indicates probable clinical depression (Kroenke et al., 2001). In the present sample, 26% of the participants screened positive for probable clinical depression based on a PHQ-9 score of 10 or greater, and 13.3% of the sample also endorsed item-9 of the PHQ-9 indicating that they have had some degree of suicidal ideation in the last 2 weeks.

4.5.3 | Intrapersonal well-being: Flourishing

Intrapersonal well-being was measured via the Brief Inventory of Thriving (BIT; Su, Tay, & Diener, 2014), an eight-item measure of self-perceived flourishing focusing on areas such as self-esteem, purpose, and optimism. Participants were asked to indicate their agreement with each of the eight items (e.g., 'I am optimistic about my future') using a 1 (*strongly disagree*) -7 (*strongly agree*) scale. Items were summed to range from 8-56 and then averaged; higher scores are indicative of a greater sense of thriving. Internal consistency coefficient alpha for BIT scores was acceptable (0.92) in the present study.

4.5.4 | Interpersonal well-being: Sense of belonging

Students' interpersonal well-being was assessed by three interrelated items developed by the HMS but adapted from the Sense of Social and Academic Fit scale (Walton & Cohen, 2007). Participants were asked to rate items (e.g., 'I fit in well at my school') on a 1 (strongly disagree)—6 (strongly agree) scale. Thus, higher scores indicated more sense of belonging with their peers. Items were summed and then averaged to have a range of 1-6. Internal consistency coefficient alpha was marginally acceptable in the present study (0.74).

4.5.5 | Academic distress

Two indicators of subjective academic distress were available in the HMS. First, to identify the potential negative academic impact of

the stress of school, students were asked to indicate the number of days in the past 4 weeks that, 'emotional or mental health difficulties have hurt your academic performance' ranging from 1 (none)—4 (6 or more days). Thus, higher scores indicated greater perceived negative academic impact due to psychological distress. Second, participants provided information about their perceived ability to persist to graduation by responding to the question: 'I am confident that I will be able to finish my degree no matter what challenges I may face' on a Likert-type scale ranging from 1 (strongly disagree)—6 (strongly agree). Higher scores indicated more perceptions that one can persist to graduation, thus assessing *less* academic distress (Healthy Minds Network, 2020).

4.5.6 | Perceptions of campus climate

Six items assessing school climate developed and validated by the HMS were used to measure perceptions of a supportive campus climate (e.g., 'At my school, I feel that students' mental and emotional well-being is a priority', 'At my school, the administration is listening to the concerns of students when it comes to health and wellness', and 'At my school, I feel that the campus environment has a negative impact on students' mental health and emotional health' [reverse scored]). Students indicated how much they agreed with these statements using a 1 (strongly disagree)—6 (strongly agree) scale. Items were summed, with higher scores indicating greater perceptions of an environment focused on and supportive of student mental health and well-being. Internal consistency coefficient alpha for campus climate was acceptable in the present study (0.81).

4.6 | Data analysis

Hayes' (2018) PROCESS macro for SPSS was used to test the hypothesized moderated mediation model. PROCESS examines direct, indirect (i.e., mediation), and interaction (i.e., moderation) effects by using bias-corrected bootstrapping in a regression framework. Specifically, PROCESS uses random sampling with replacement to produce average indirect effects based on 5,000 bootstrap samples. Additionally, PROCESS computes and probes interactions to determine whether the direct or indirect effects are conditional on different levels of the moderator (i.e., campus climate perceptions in this study). A statistically significant interaction term suggested that campus climate emerged as a moderator of the indirect effects.

Moreover, PROCESS provides a specific index of moderated mediation. A statistically significant index of moderated mediation signalled the presence of a true moderated mediation effect (i.e., where the indirect effects of resilience through the mediating variables were conditional on campus climate perceptions). Because PROCESS is a form of linear regression, we performed the analysis two times (i.e., one for each of the two academic distress-dependent variables).

5 | RESULTS

Prior to our primary analyses, we performed several data cleaning procedures. Of the 933 nursing students, none had missing data and the number of univariate outliers was less than 0.05% of the total sample. The number of multivariate outliers was also less than 2% of the sample. However, some variables evidenced moderate deviations from normality (e.g., absolute skew values greater than 1 but less than 2). Table 2 displays the means, standard deviations, and bivariate correlations for all variables of interest. Of note, all variables were significantly and moderately to strongly associated with each other, as well as with each of the academic distress variables in the expected directions (see Table 2).

Figures 2 and 3 display the standardized regression coefficients from our primary analyses for a model predicting negative academic impact (Figure 2) and a model predicting academic persistence attitudes (Figure 3). In the model predicting negative

TABLE 2 Bivariate correlations, means, and standard deviations for all variables of interest

	1	2	3	4	5	6	7	Mean	*SD*
1. Resilience	—	0.43***	0.26***	−0.50***	−0.42***	0.33***	0.30***	3.44	0.77
2. Flourishing		—	0.37***	−0.54***	−0.36***	0.40***	0.35***	46.72	7.47
3. Belonging			—	−0.35***	−0.21***	0.21***	0.36***	3.75	1.00
4. Depression				—	0.62***	−0.34***	−0.34***	6.94	5.57
5. Academic Impact					—	−0.31***	−0.24***	2.27	0.98
6. Academic Persistence						—	0.25***	1.61	0.86
7. Campus Climate							—	4.17	0.86

Note: $N = 933$. With the exception of Flourishing, which was scored by summing items, all instruments were scored by summing items together and dividing by the total number of items.

***$p < .001$.

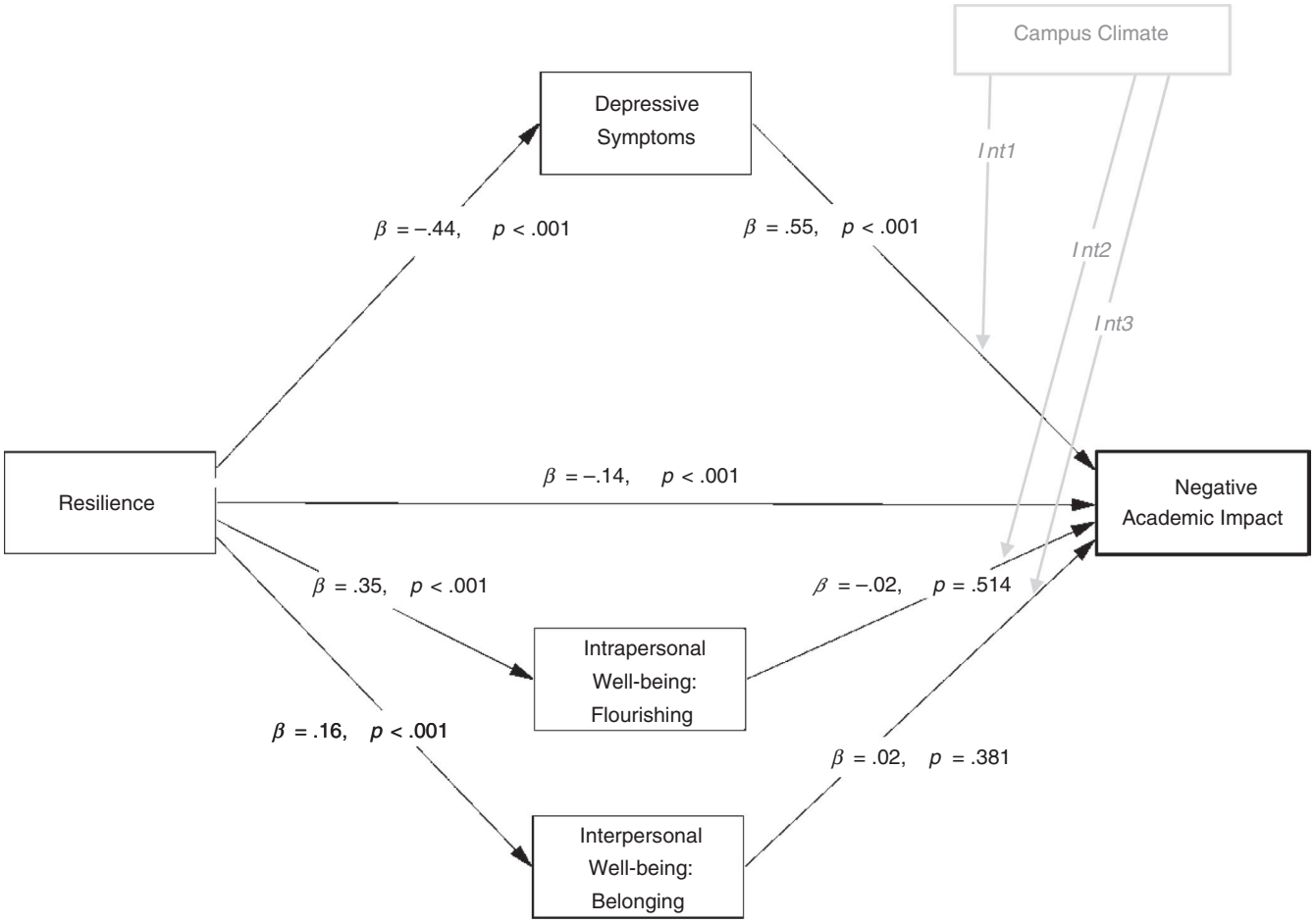

FIGURE 2 Standardized (β) direct effects, standard errors (*SE*) and 95% confidence interval (CI) of the standardized regression coefficients for the moderated mediation model predicting subjective negative academic impact. Interaction coefficients (moderation effects; Int1-3) and indirect (mediation) effect coefficients are not displayed here for readability but are displayed in Table 3. Significant results are in bold

academic impact, greater resilience was associated with more flourishing and belonging, less depression, and less negative academic impact. However, depression emerged as the sole predictor of negative academic impact when controlling for resilience and the other mediating variables. Mediation analyses further indicated that depression emerged as the sole mediator of the association between resilience and negative academic impact. Specifically, the indirect effect of resilience on negative academic impact suggested that resilience was associated with less negative academic impact conditional on reductions in depression (see Table 3 for all regression coefficients). These results provided full support for our first hypothesis (H1) but only partial support for our second hypothesis (H2).

With respect to academic persistence, a similar pattern emerged. Greater resilience was associated with less depression, more flourishing, greater belonging, and more academic persistence attitudes. However, when controlling for resilience and the other mediators, depression and flourishing emerged as the only significant negative and positive predictors of academic persistence respectively. Additionally, both depression and flourishing emerged as mediating variables. Thus, greater resilience evidenced a positive association with academic persistence through reductions in depression and increases in flourishing (Table 3). These results provided partial support for our first and second hypotheses respectively.

PROCESS further revealed that some of these mediation effects were moderated by campus climate, thus supporting our third hypothesis (H3). Specifically, the indirect effect of resilience on negative academic impact through reductions in depression was *strongest* for nursing students who perceived their campus climate to be highly *unsupportive* of mental health and well-being. The same pattern emerged when predicting academic persistence attitudes. The final models with moderation, mediation, and moderated mediation effects explained 16% of the variation in belonging, 24% in flourishing, 30% in depression, 41% in negative academic impact, and 20% in academic persistence.

6 | DISCUSSION

Resilience is believed to be a critical characteristic of nursing students (Cleary et al., 2018). However, there is a dearth of research

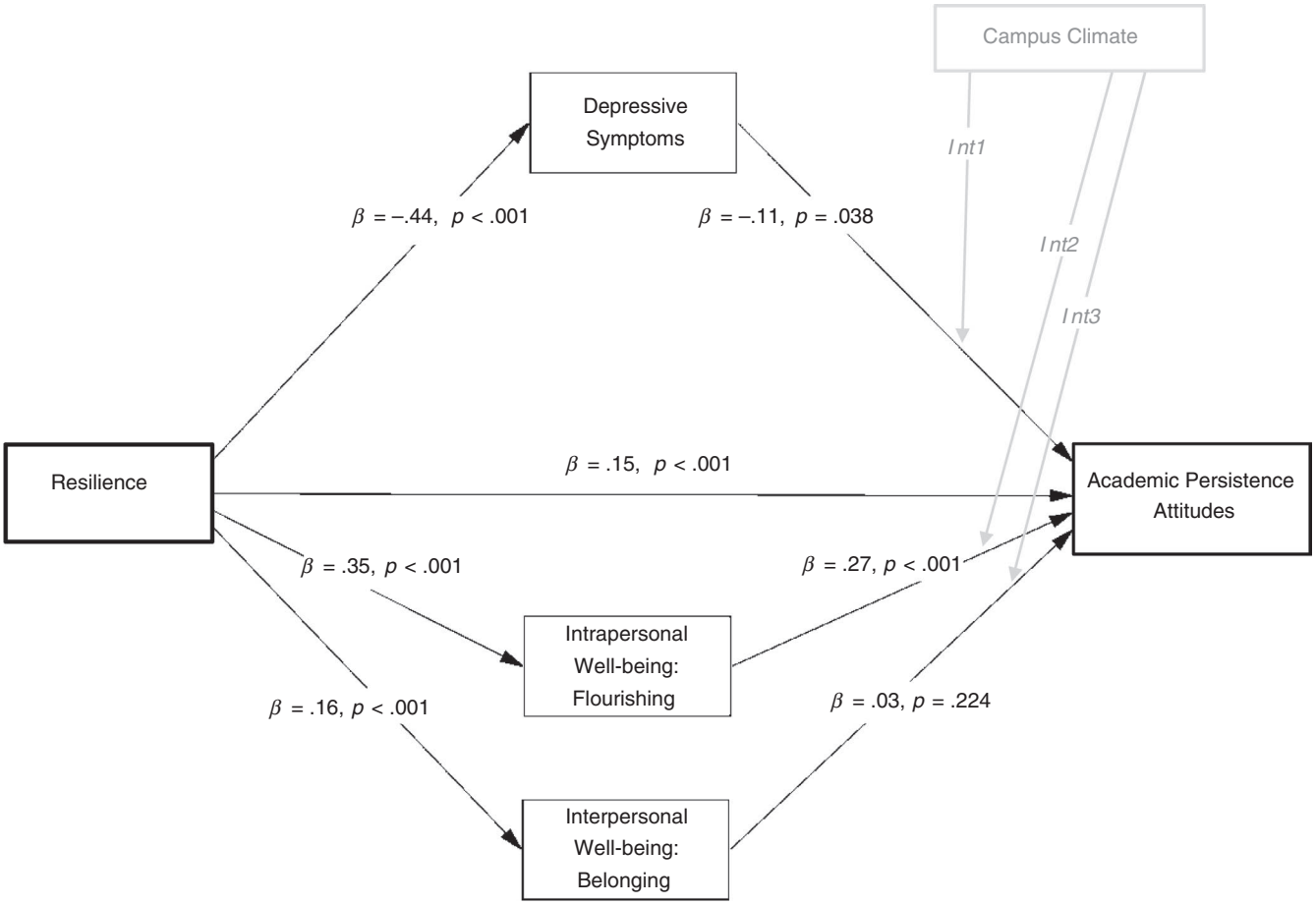

FIGURE 3 Standardized direct effects regression coefficients for the moderated mediation model predicting subjective academic persistence. Paths from resilience to depression, flourishing, and belonging are not displayed because they were estimated in both models (Figure 2 for those coefficients). Interaction coefficients (moderation effects, int1-3) and indirect (mediation) coefficients of resilience are not displayed here for readability but are displayed in Table 3

addressing the possible mediators and moderators that might explain the academic benefits of resilience. To address these issues, the present study tested a model where the academic benefits of resilience in nursing students might be explained by reductions in depression and increases in intrapersonal well-being (i.e., greater flourishing) and interpersonal well-being (i.e., greater sense of belonging in college). Moreover, the present model tested whether these effects may be conditional on the campus climate.

Consistent with numerous studies detailing the positive mental health, intrapersonal, and interpersonal benefits of resilience (Hu et al., 2015), our findings identified correlates of less depression, more flourishing, and a greater sense of belonging. At the same time, the present results extended the positive benefits of greater resilience to include less academic distress in nursing school as measured by the self-reported negative academic impact of poor mental health, as well as more academic persistence attitudes. Thus, our results generally supported our first hypothesis and imply that resilient nursing students may be uniquely equipped to deal with the demands of nursing school. Resilient nursing students, for example, may be protected from the negative academic impacts of psychological distress, as evidenced by the negative associations between resilience and reports of negative academic impact at the time of the study. Likewise, resilient nursing students may be less deterred as they persist towards graduation, as evidenced by the positive association between resilience and academic persistence attitudes. The latter findings may be particularly relevant to the continuing national shortage of nurses, considering that numerous researchers have linked positive beliefs about one's ability to persist to graduation to less academic attrition (Davidson, Beck, & Grisaffe, 2015; Woosley & Miller, 2009).

Although the results generally supported our first hypothesis, the model only partially supported our second hypothesis. Specifically, depressive symptoms emerged as the only consistent mediating variable for both indicators of academic distress. These findings indicate that the protective academic aspects of resilience may be, in part, explained by reductions in depressive symptoms. By contrast, although greater flourishing and belonging were robustly related to resilience and academic distress at the bivariate level (see Table 2), neither flourishing nor belonging were associated with negative academic impact when controlling for resilience or depression. Thus, our findings are consistent with numerous studies indicating that depression is *particularly* salient to academic well-being

TABLE 3 Unstandardized and standardized regression coefficients predicting Negative Academic Impact (NAI) and Persistence

Predictor	Mediator	Criterion	*B*	*SEB*	*β*	*SEβ*	95% CI
Resilience	—	NAI	−0.18	0.04	−0.14***	0.03	[−0.30, −0.08]
Resilience	—	Depression	−6.28	0.92	−0.44***	0.03	[−0.49, −0.38]
Resilience	—	Flourishing	5.94	1.28	0.35***	0.03	[.29, 0.41]
Resilience	—	Belonging	−0.17	0.18	0.16***	0.03	[.25, 0.37]
Resilience	Depression	NAI	−0.31	0.03	−0.24*	0.03	[−0.29, −0.19]
Resilience	Flourishing	NAI	0.01	0.02	−0.01	0.01	[−0.03, 0.02]
Resilience	Belonging	NAI	0.01	0.01	0.00	0.01	[−0.00, 0.02]
Depression	—	NAI	0.10	0.01	0.55***	0.03	[.49, 0.62]
Flourishing	—	NAI	−0.00	0.00	−0.02	0.03	[−0.08, 0.04]
Belonging	—	NAI	−0.02	0.02	0.02	0.03	[−0.03, 0.08]
Depression	Int1	NAI	0.07	0.02	0.05*	0.02	[.02, 0.08]
Flourishing	Int2	NAI	0.00	0.00	0.00	0.00	[−0.00, 0.01]
Belonging	Int3	NAI	0.00	0.00	0.00	0.00	[−0.00, 0.00]
Resilience	—	Persistence	0.16	0.04	0.15***	0.03	[.08, 0.22]
Resilience	Depression	Persistence	0.05	0.02	0.04*	0.02	[.00, 0.08]
Resilience	Flourishing	Persistence	0.10	0.02	0.10*	0.02	[.05, 0.14]
Resilience	Belonging	Persistence	0.00	0.01	0.00	0.01	[−0.01, 0.02]
Depression	—	Persistence	−0.02	0.01	−0.11*	0.04	[−0.18, −0.04]
Flourishing	—	Persistence	0.03	0.00	0.27***	0.03	[.20, 0.34]
Belonging	—	Persistence	−0.03	0.03	0.04	0.03	[−0.02, 0.10]
Depression	Int1	Persistence	−0.01	0.01	−0.01*	0.00	[−0.02, −0.00]
Flourishing	Int2	Persistence	−0.02	0.01	−0.01	0.01	[−0.04, 0.00]
Belonging	Int3	Persistence	−0.00	0.00	0.00	0.00	[−0.00, 0.00]

Note: $N = 933$. NAI = Negative Academic Impact. B = Unstandardized regression coefficient, SEB = unstandardized standard error, β = Standardized regression coefficient, SEβ = Standardized standard error, and CI = 95% confidence interval of the standardized regression coefficient. For each interaction (Int), regression coefficients represent the value of the Index of Moderated Mediation.

***$p < .001$,

**$p < .01$,

*$p < .05$.

(Beiter et al., 2015; Eisenberg, Hunt, & Speer, 2013; Hysenbegasi et al., 2005) and common among nursing students (McDermott et al., 2019; Tung et al., 2018).

Depression may be especially damaging to nursing students' academic functioning due to its well-documented negative cognitive impacts (MacQueen & Memedovich, 2017; Marazziti, Consoli, Picchetti, Carlini, & Faravelli, 2010). Indeed, although researchers have yet to examine depression in relation to error rates in nursing school, greater depression dramatically increased the risk of medical errors in practicing nurses (Melnyk et al., 2018). Thus, the present findings suggest an urgent need to screen for, identify, and reduce depression among nursing students. Fortunately, consistent with theories of resilience (Smith et al., 2008), our findings indicate that resilient nursing students may be protected against depression, particularly the negative academic impacts of depression. These findings are consistent with research highlighting the positive personal and academic benefits of reducing depression in college students (Hart Abney et al., 2019; Melnyk et al., 2020).

In addition to highlighting the relevance of depression in the connections between resilience and academic distress, our results supported our third hypothesis and emphasized the importance of the broader context where nursing students are embedded. Specifically, depression not only mediated the associations between resilience and academic distress, but this mediation effect was *moderated* by perceptions of the campus climate. Nursing students who perceived their campus environment to be highly unresponsive to and unsupportive of student mental health and well-being evidenced the strongest academic benefits of greater resilience. Therefore, one possibility is that resilience is *most* important to the academic well-being of nursing students in contexts that may be toxic to or unsupportive of their mental health. In these unsupportive contexts, for instance, nursing students may need to rely on their trait resilience to succeed.

The flip side of this moderated mediation effect is that resilience may not be as critical to nursing students' academic well-being in systems that support their mental health and general well-being. This latter finding is important because resilience

in the present study was operationalized as a trait (i.e., a stable, innate characteristic). Indeed, most theories of resilience focus on trait-like characteristics that may or may not be present in every nursing student (Stephens, 2013; Thomas & Revell, 2016). Therefore, the present results highlight a need to ensure that nursing students are embedded in campus communities that support their mental health, because students in a supportive context may not need to rely on their natural resilience. Said another way, a supportive campus environment may level the playing field and thus increase the chances that everyone—not just those with naturally hardy or resilient personality characteristics – can succeed in nursing school. Given that the present study was (to the best of our knowledge) the first to explore the intersections of resilience and campus climate, these findings also highlight a need for continued research to understand the role of campus climate on nursing student resilience and well-being.

6.1 | Limitations

Our findings should be interpreted with respect to some inherent limitations. First, the study design was correlational and cross-sectional and thus causality cannot be confirmed and the temporal order of variables, although consistent with resilience theories, is purely theoretical. Future researchers should consider examining these variables in longitudinal designs to confirm these theory-based assertions. Second, although the present study makes a unique contribution through the use of a national sample spanning across numerous institutions, the HMS data are limited in scope. Most notably, our measure of campus climate did not specifically ask about nursing school experiences. Additional research is needed using measures more specific to perceptions of the climate of a nursing school. Third, the present study lacked diversity with respect to race and gender. Although our sample demographics were representative with respect to gender, nursing students of colour were likely underrepresented. Testing the present model in more diverse populations is essential, considering that experiences of discrimination could easily be confounded with campus climate perceptions or academic experiences.

6.2 | Conclusions

Despite the aforementioned limitations, this study leads to several conclusions relevant to nursing education. Specifically, this study highlights three characteristics for nursing student success that nursing educators may need to consider: building/enhancing resilience; creating a positive, supportive academic environment; and identifying and reducing depression. Most importantly, the present findings suggest that nursing students may especially benefit from the combined effects of attending to these issues. First, evidence suggests that resilience training may lead to positive outcomes for nursing students. For example, a study by Boardman (2016) found that building resilience through the concepts of self-efficacy and self-regulation over 13 weeks revealed an overall increase in resilience scores in nursing students. Resilience allows individuals to cope with stressful situations and bounce back in the face of adversity. In consideration of our findings, increasing resilience in nursing students may protect them from negative academic pressures and help them persist in potentially toxic academic cultures. It seems that the most logical next step for nursing programs would be to incorporate training programs into the curriculum that builds resilience. Nurse educators have the potential to deliver content related to resilience by providing resources to help students overcome challenging situations (Hodges, Keeley, & Grier, 2005), being supportive during stressful situations (Thomas & Revell, 2016), and engaging students in cognitive restructuring to encourage them to reflect on mistakes in a positive and constructive way (Stephens, 2013).

While literature suggests that resilience can be taught, the findings regarding the effectiveness of resilience training are mixed (Joyce et al., 2018; Stoffel & Cain, 2018). Thus, in line with the present finding, educators and administrators are encouraged to not rely on resilience training alone. For example, it is important to assess the environment from a student perspective and identify how it contributes to (or detracts from) nursing student mental health and well-being. Such campus climate assessments could be helpful in guiding nursing school administrators and faculty to be intentional in the creation of a supportive environment, something that may be especially critical for students with lower levels of trait resilience. Although additional research is needed to identify specific ways of improving the campus climate for nursing students, educators may consider ways of emphasizing the importance of psychological health and well-being through targeted outreach programs designed to educate nursing students about these topics. Likewise, nursing students may benefit from the inclusion of wellness-oriented classes or the development of mental health student-led groups. For example, many universities and colleges have Active Minds chapters, a program specifically designed to promote student mental health and well-being through student activities and activism.

In addition to increasing the resilience of nursing students and improving the overall campus climate of nursing school, our findings highlight the importance of addressing depression in this population. Indeed, depression was the most salient predictor of academic distress. Preparing nursing students for the demands and rigour of nursing programs may need to include a strong emphasis on self-care (healthy diet, adequate sleep, exercise, and positive relationships) and highlighting the potential risk of depression with students. Early detection screenings, strategies to prevent depression, and resources for treatment (i.e., counselling, student support, and medical treatment) should also be encouraged in nursing programs as a way to holistically approach student health.

CONFLICT OF INTEREST

Ryon C. McDermott and all co-authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

RM, SF, SW, CH and RG made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data. RM, SF SW, CH, RG, BM and HH were involved in drafting the manuscript or revising it critically for important intellectual content, gave final approval of the version to be published and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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