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Abstract

Introduction: The shift to online learning owing to the coronavirus disease 2019 pandemic is posing an additional challenge to academic success, particularly for students who speak English as a Second Language (ESL). This study aimed to examine the factors that contribute to academic self-efficacy among ESL nursing students. **Method:** This was a cross-sectional study using path analysis with 113 undergraduate ESL nursing students in New York City. Data were collected online using self-report measures of the study variables: academic self-efficacy, perfectionistic concerns, acculturative stress, and e-learning stress. A hypothetical path model was tested using AMOS 26.0. **Results:** Perfectionistic concerns and acculturative stress directly affected academic self-efficacy. Furthermore, perfectionistic concerns and e-learning stress indirectly affected academic self-efficacy via the acculturative stress path. **Discussion:** Results indicate the importance of developing a multifaceted intervention that considers diverse cultural and psychological factors to help ESL nursing students enhance their academic self-efficacy in e-learning environments.

Keywords

academic self-efficacy, perfectionism, acculturative stress, e-learning stress, nursing students, COVID-19

Introduction

The coronavirus disease 2019 (COVID-19) pandemic has exacerbated the numerous stresses of students in nursing education (Fitzgerald & Konrad, 2021; Gallego-Gómez et al., 2020), especially those who speak English as a Second Language (ESL), who experience significant anxiety and remote learning-related challenges (Masha'al et al., 2020). Studies have reported that ESL nursing students tend to show poorer academic performance in traditional face-to-face learning modalities and greater attrition rates, in addition to experiencing feelings of marginalization in their education than their native English-speaking counterparts (Eden et al., 2021; Englund, 2018; Lewis & Bell, 2020; Sailsman, 2021). Reduced nonverbal communication, a common characteristic in most e-learning courses (Arbour et al., 2015), could create additional challenges and amplify feelings of marginalization for ESL students from cultures and backgrounds where communication relies heavily on nonverbal cues (Kang & Chang, 2016).

Academic self-efficacy affects overall academic achievement and outcomes (Guo et al., 2019; Honicke & Broadbent, 2016; Zhang et al., 2018) and functions as a critical predictor of students' success in the science field. In previous studies involving health care students, those who exhibited higher levels of academic self-efficacy

generally achieved higher grade point averages (Hayat et al., 2020; Mafla et al., 2019) than those with lower academic self-efficacy levels. In addition, unexpected stressful situations related to the COVID-19 pandemic have reduced academic self-efficacy among college students (Alemany-Arrebola et al., 2020).

Among ESL students, certain personality characteristics like perfectionism could influence emotional reactions to nursing program challenges (e.g., academic pressure) and academic self-efficacy. Perfectionistic concerns represent a maladaptive dimension of perfectionism, characterized by excessive self-criticism for not meeting standards and/or making mistakes (Stoeber, 2018). A recent meta-analytic review revealed that perfectionistic concerns are positively correlated with various factors that could interfere with academic performance and lead to poor academic outcomes (Osenk et al., 2020). In addition, perfectionistic concerns have been shown to be a predictor of stress among college

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students with demanding majors (Rice et al., 2015). This finding supports the view that perfectionistic concerns could operate as a predisposing factor for subsequent stress resulting from life experiences (Rice et al., 2015). Thus, ESL students with higher perfectionistic concerns in competitive and rigorous academic disciplines (e.g., nursing) may be more likely to be affected by stressors and experience lower academic self-efficacy levels.

Acculturative stress is defined as a stress response to experiences of acculturation. The level of acculturative stress may vary based on the person's attitude and cognitive appraisal of acculturation experiences (Williams & Berry, 1991). In addition, English proficiency is known to be an acculturative stressor among international medical students (Iorga et al., 2020). Acculturative stress has been negatively associated with academic self-efficacy, college adjustment, and academic success among racial/ethnic minority students (Aljaberi et al., 2021; Chun et al., 2016; Lee et al., 2020; Lewis & Bell, 2020). When students experience low acculturative stress, they demonstrate positive beliefs in their capabilities to grow academically.

Past empirical findings have suggested that under the COVID-19 pandemic circumstances, ESL students with higher levels of perfectionistic concerns would develop lower academic self-efficacy in highly competitive and demanding contexts and also be more prone to experiencing increased perceived stress associated with acculturation and e-learning (Fitzgerald & Konrad, 2021; Gallego-Gómez et al., 2020; Lee et al., 2020; Lewis & Bell, 2020; Osenk et al., 2020). One study reported that perfectionism had a direct effect on college adjustment, and that acculturative stress mediated the relationship between maladaptive perfectionism and college adjustment (Lee et al., 2020). However, to the best of our knowledge, no study has examined the associations of acculturative stress and perfectionistic concerns with ESL nursing students' academic self-efficacy. Furthermore, the recent COVID-19 outbreak and the forced transition to online learning have necessitated investigating whether e-learning stress could also influence academic self-efficacy in this population.

This study aimed to examine factors that contribute to academic self-efficacy among ESL nursing students. We hypothesized that e-learning stress and perfectionistic concerns (a) directly affect academic self-efficacy and (b) indirectly affect academic self-efficacy via the acculturative stress path.

Method

Design

We employed a descriptive, cross-sectional design using path analysis to examine the factors that contribute to academic self-efficacy.

Participants

This study involved 113 undergraduate nursing students recruited via convenience sampling from three campuses of the City University of New York. The participation criteria were (a) aged 18 years or older, (b) speaking ESL, and (c) registration in a nursing program for fall 2020. The participants had been exposed to e-learning in the spring 2020 semester. Previously, as nursing students had been taking exams on computers using the Blackboard platform, their experience with online learning and digital nursing education software was limited. The sample size was determined based on the recommendation that at least 100 responses would be necessary for conducting valid structural equation modeling research (Ding et al., 1995; Kline, 2005). A total of 122 participants who met the inclusion criteria were selected, but nine responses with incomplete answers were excluded.

Procedure

This study was approved by the institutional review board at the first author's college (#2019-0649). Once we received approvals from the individual campuses, flyers were distributed at the study sites and emails were sent for recruitment. Data were collected online using the SurveyMonkey website. Interested students accessed the SurveyMonkey link individually. The participants received an informed consent form with information about the study purpose, confidentiality rights, voluntary participation and withdrawal rights, and study risks and benefits. Those who agreed and provided informed consent proceeded to complete the study and demographic questionnaires. The participants received a US\$10 gift card for completing the questionnaires. The response rate was 97.6%.

Measures

Academic Self-Efficacy. Academic self-efficacy was assessed using the 13-item Self-efficacy Formative Questionnaire (Gaumer Erickson & Noonan, 2018). Each item is rated on a 5-point Likert-type scale (1 = *not very like me* to 5 = *very like me*), with higher scores indicating higher levels of academic self-efficacy. While Cronbach's alpha was .89 in Gaumer Erickson and Noonan's (2018) study, it was .92 in this study.

Perfectionistic Concerns. Perfectionistic concerns were assessed using the 12-item Discrepancy subscale of the Almost Perfect Scale-Revised (Slaney et al., 2001). Each item is rated on a 7-point Likert-type scale (1 = *strongly disagree* to 7 = *strongly agree*), with higher scores indicating higher levels of perfectionistic concerns. Cronbach's alpha was .94 in Kahn et al.'s (2021) study and .94 in this study.

Table 1. Study Variables and Correlations Between Variables (n = 113).

Variables	<i>r</i> (<i>p</i>)			<i>M</i> ± <i>SD</i>	Range
	1	2	3		
1. Academic self-efficacy	1			54.71 ± 7.32	13–65
2. Perfectionistic concerns	-.37 (.00)	1		46.42 ± 15.66	12–84
3. Acculturative stress	-.35 (.00)	.42 (.00)	1	56.33 ± 19.27	0–120
4. E-learning stress	-.20 (.03)	.15 (.11)	.36 (.00)	9.36 ± 5.22	3–21

Acculturative Stress. Acculturative stress was measured using the 24-item Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale-Short Form (Mena et al., 1987). Each item is rated on a 5-point Likert-type scale (1 = *not stressful* to 5 = *extremely stressful*). Not having experienced any events that may have caused acculturative stress was scored 0. Higher scores indicate higher levels of acculturative stress. Cronbach's alpha was .93 in Estrada et al.'s (2021) study and .95 in this study.

E-learning Stress. The investigators of the current study developed a scale for assessing perceived e-learning stress levels among ESL nursing students. The participants responded to three items on their e-learning stress as an ESL student ("Compared to in-classroom courses, I feel more stressed when taking online classes because of English"; "Compared to in-classroom courses, taking classes online is more challenging because of English"; and "Compared to in-classroom courses, I feel more anxious over taking classes online because of English"); these were assessed using a 7-point Likert-type scale (1 = *strongly disagree* to 7 = *strongly agree*), with higher scores indicating higher e-learning stress levels. Cronbach's alpha was .97.

Demographic Characteristics. Self-reported demographic information included age, gender, enrolled semester(s), race/ethnicity, duration of residence in the United States, and first language(s).

Data Analysis

The data were analyzed using SPSS Version 26.0 and AMOS Version 26.0 (IBM Corp., Armonk, NY, USA). The model was evaluated using the following indicators: chi-square mean/degree of freedom (CMIN/DF, $\chi^2/df < 3$ indicates an acceptable fit), comparative fit index (CFI), Tucker–Lewis index (TLI), standardized root mean square residual (SRMR), and root mean square error of approximation (RMSEA). Bootstrapping, a nonparametric resampling procedure, is the preferred method for testing indirect effects (Preacher & Hayes, 2008). Thus, indirect effects were tested using the bootstrapping approach considering a 95% confidence

interval (CI; bootstrap replications: 1,000). In this study, an acceptable model fit (Kline, 2005) was defined by the following criteria: SRMR (< 0.08), RMSEA (≤ 0.06), and CFI and TLI (≥ 0.95). All path coefficients are reported as standardized estimates.

Results

Participant Characteristics

The participants' mean age was 31.07 years (standard deviation [*SD*] = 6.71, range = 19–50), and 93.5% were women. Most participants (81%) were in the third to sixth semesters (39% in the third or fourth semester and 42% in the fifth or sixth semester). On average, the participants had resided in the United States for 9.64 years (*SD* = 7.49), with 62.6% residing for 1 to 10 years (44.9% for 1–5 years). Most participants (72%) were of Asian/Pacific Islander descent, followed by White, Hispanic/Latino, and African American. The primary native language was Cantonese/Mandarin, followed by Korean, Nepali, and Spanish.

Descriptive Statistics and Correlations

Table 1 shows the bivariate correlations among the study variables. Academic self-efficacy was significantly negatively correlated with perfectionistic concerns ($r = -.37, p < .001$), acculturative stress ($r = -.35, p < .001$), and e-learning stress ($r = -.20, p = .03$).

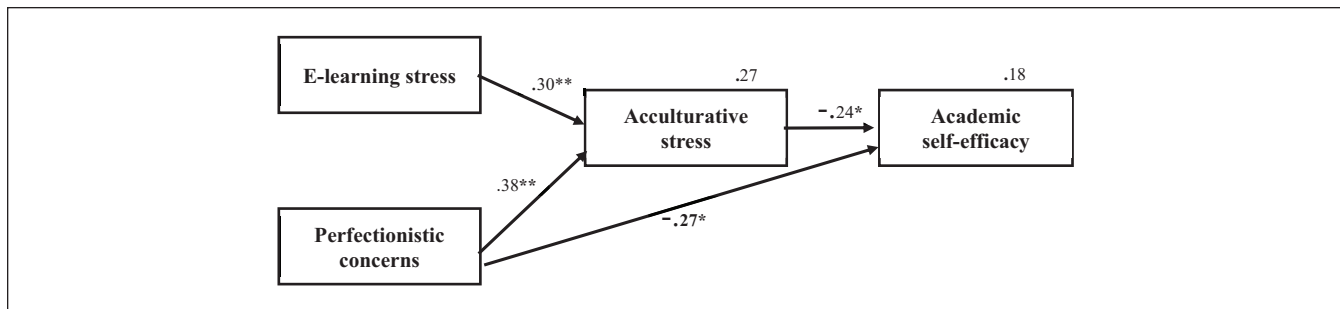
Testing the Path Model

We first tested the hypothesized model. The model fit the data well as it was fully saturated ($\chi^2 = .000, df = 0$). However, the direct effect of e-learning stress on academic self-efficacy was nonsignificant ($p = .32$). Favoring parsimony, the model was modified by removing the nonsignificant path (from e-learning stress to academic self-efficacy). Overall, the fit indices demonstrated an acceptable fit between the data and the modified model: $\chi^2 = .98, p < .05$, CMIN/DF = .98, CFI = 1.00, TLI = 1.00, RMSEA = 0.00, and SRMR = 0.03.

Table 2. Path Analysis Findings: Total, Direct, and Indirect Effects (n = 113).

Endogenous variables	Exogenous variables	SMC	Direct β (p)	Indirect β (p)	Total β (p)
Academic self-efficacy	Acculturative stress	.18	-.24 (.02)		-.24 (.02)
	Perfectionistic concerns		-.27 (.01)	-.09 (.01)	-.36 (.00)
	E-learning stress			-.07 (.02)	-.07 (.02)
Acculturative stress	Perfectionistic concerns	.27	.38 (.00)		.38 (.00)
	E-learning stress		.30 (.00)		.30 (.00)

Note. SMC = squared multiple correlations.

**Figure 1.** Path Model of Academic Self-Efficacy With Standardized Path Coefficients (β).

The results of the path analysis (Table 2) indicated that perfectionistic concerns and acculturative stress directly affect academic self-efficacy ($\beta = -.27, p = .01$; $\beta = -.24, p = .02$, respectively). Perfectionistic concerns and e-learning stress directly affect acculturative stress ($\beta = .38, p < .001$; $\beta = .30, p < .001$, respectively). Acculturative stress mediated the relationships between e-learning stress and academic self-efficacy ($\beta = -.07, 95\% \text{ CI} = [-.057, -.004]$) and between perfectionistic concerns and academic self-efficacy ($\beta = -.09, 95\% \text{ CI} = [-.086, -.010]$; Table 2 and Figure 1). Table 2 shows the total, direct, and indirect effects of the study variables on academic self-efficacy. Overall, the modified model explained 18% of the variance in academic self-efficacy and 27% of the variance in acculturative stress. A final path model with the standardized coefficients and the square root (R^2) is presented in Figure 1.

Discussion

The results revealed that e-learning stress negatively affects academic self-efficacy. This result is consistent with previous findings that the unprecedented COVID-19 pandemic has negatively affected academic self-efficacy among college students (Alemany-Arrebola et al., 2020). Previous studies have shown that the majority of college students

taking online classes have experienced negative emotions, including anxiety and stress, during the COVID-19 pandemic (Fawaz & Samaha, 2021; Fitzgerald & Konrad, 2021; Gallego-Gómez et al., 2020; Masha'al et al., 2020). In particular, the reduced nonverbal communication and decreased peer/instructor interactions within online learning environments could amplify existing feelings of marginalization among ESL students or create a new sense of isolation for them (Kang & Chang, 2016). The current findings suggest that, to facilitate students' academic success, nursing education programs must include interventions to decrease stressors related to remote learning and academic resources for all students—with a special focus on ESL students.

In the context of face-to-face learning, ESL students have previously reported that team-based learning (Randall et al., 2020) and supports such as student advising and linguistic services are beneficial (Eden et al., 2021). In addition, the provision of clear task guidelines and creating a healthy, respectful environment in teaching ESL students (Macgregor & Folinazzo, 2018), as well as the inclusion of academic support interventions (e.g., medical terminology classes, test-taking workshops) within the nursing curriculum rather than “extra-help” programs (Pumpuang et al., 2018), is recommended. This indicates that ESL students need multifaceted psychological and academic support. A study that

reviewed intervention programs for ESL students' acculturative stress showed that psychoeducational and sociocultural programs, including cultural orientation and peer pairing, effectively reduced acculturative stress (Aljaberi et al., 2021). Moreover, other types of support may have to be considered for ESL students based on the nature of the e-learning environment.

Studies focused on e-learning circumstances have reported that providing well-developed course assignments and accessible online writing labs, encouraging student participation in group activities, and creating a sense of community in the online environment will benefit ESL students' online learning (Li et al., 2021; Sailsman et al., 2018; Wilczewski et al., 2021). In addition, equipping students with information on online resources and guidelines regarding e-learning classes at virtual orientations is essential. All these forms of e-learning support are critical to enhance ESL nursing students' learning process and improve their academic self-efficacy.

The present findings support the significant role of acculturation in academic self-efficacy among ESL nursing students. Perfectionistic concerns negatively affected academic self-efficacy via the acculturative stress path. The current results corroborate those of a previous study reporting that acculturative stress had a partial mediating effect in the relationship between perfectionistic concerns and college adjustment among international college students (Lee et al., 2020). In the current study, although e-learning stress does not directly affect perceived academic self-efficacy, it indirectly resulted in lower levels of academic self-efficacy via the acculturative stress path. The current findings thus suggest the necessity of interventions addressing cultural diversity and supporting ESL nursing students in unprecedented online learning situations.

The present findings provide certain important implications for nursing education—especially with regard to supporting ESL students. Our findings indicate that psychosocial and academic support is crucial for ESL nursing students (Aljaberi et al., 2021; Choi, 2019; Doggrell & Schaffer, 2016; Pumpuang et al., 2018). Ethnic peer mentorship or peer support group programs could help ESL nursing students cope with cultural challenges and stresses and facilitate improved nursing program adjustment (Igbo & Sule, 2019). ESL nursing students would benefit from receiving free and confidential counseling in a safe environment where their individual and cultural differences are valued and respected as they cope with the unique challenges caused by the pandemic. In addition, students would benefit if the faculty received counseling training to enable them to recognize students in distress and make a referral to the counseling/wellness center.

Limitations

The findings should be considered in light of the following limitations. The study was conducted in New York City.

Although this is one of the most diverse and inclusive regions of the United States, future studies could enhance the generalizability of our findings by recruiting ESL nursing students from various regions with varying degrees of racial and ethnic diversity. Future studies might expand our findings by exploring whether group differences among ESL students such as with regard to ethnicity, socioeconomic status, scores in the Test of English as a Foreign Language, or length of experience speaking English have differential impacts on our variables of interest. In addition, all participants were recruited from three campuses of the City University of New York. Therefore, future studies might explore the relationship between nursing program complexity and academic self-efficacy. Another limitation is that the present study used a cross-sectional design and did not address causal relationships among the variables of interest. Longitudinal or experimental research could provide a clearer understanding of the variables' interrelations over time and causal implications in the future. Future studies may also include academic outcome variables such as course or semester grades.

Conclusion

This study revealed that both perfectionistic concerns and acculturative stress directly affected academic self-efficacy. In addition, e-learning stress and perfectionistic concerns had indirect effects on academic self-efficacy via the acculturative stress path. These results suggest the importance of reducing acculturative stress among ESL nursing students, especially those with high perfectionistic concerns. Educational institutions could create outreach programs to reduce acculturative stress and offer counseling services tailored to the unique challenges and stresses of acculturation; these would benefit students from diverse backgrounds. Furthermore, nursing educators could actively develop and incorporate inclusive and culturally sensitive interventions in their nursing programs to help ESL students navigate any challenges in their acculturative adjustment and academic success, in addition to providing academic support to facilitate remote learning. We suggest implementing intervention studies on the best practices for ESL students in e-learning relating to academic self-efficacy and acculturative stress.

Declaration of Conflicting Interests

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