

Stress, Academic Motivation, and Resilience Among International and Domestic Graduate Students During COVID-19

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Abstract

The coronavirus (COVID-19) pandemic is a global threat to mental health. University students, both domestic and international, were, and continue to be, adversely impacted by several pandemic-related factors. To quantify the impact of the pandemic on students' mental health to date, and to explore whether domestic and international students were similarly impacted, the present study investigated perceived stress, academic motivation, and resilience among Turkish domestic ($n = 56$) and international ($n = 50$) graduate students studying in the United States in April 2020. Data were collected via an online survey. International and female students were expected to report higher perceived stress levels than their counterparts. Overall, higher perceived stress was expected to correlate with lower academic motivation and resilience, and higher academic motivation was expected to correlate with higher resilience. While female students reported higher perceived stress levels than male students as predicted, no significant difference was observed between domestic and international students. A negative correlation between perceived stress and academic motivation was observed among domestic students only, but there was a significant negative correlation between perceived stress and resilience for both domestic and international students as predicted. Finally, a positive correlation between academic motivation and resilience was observed among international students only. Unexpected differences between domestic and international students are discussed in the context of the need for tailored support for Turkish graduate students studying domestically and in the U.S.

Keywords: COVID-19, mental health, perceived stress, academic motivation, resilience, international graduate students

The World Health Organization (WHO) declared the novel coronavirus (COVID-19) outbreak a global pandemic on March 11, 2020. The impact on higher education was swift and ongoing. Countries closed their borders to international travelers to mitigate the spread of COVID-19 (Salcedo & Cherelus, 2020), including to incoming international students. Universities discouraged international students from traveling, while simultaneously closing on-campus accommodation, leaving many students without secure housing in a foreign country. Students and educators alike were forced to adapt with limited notice to a new instruction style when universities closed campuses and shifted to entirely online instruction. Students without secure Internet or computer access and programs reliant on in-person

instruction suffered. Uncertainty remains as to when (or if) academia will return to traditional instruction. The impact of these and other consequences of COVID-19 have adversely impacted the mental health of university students globally.

Anxiety and a State of Limbo

Extant literature contains evidence that ambiguities associated with public health crises and academia's response to these crises have led to an increased sense of uncertainty, a state of limbo, among university students (Trout & Alsandor, 2020). Trout and Alsandor (2020) reflected on graduate students' monetary, health, and psychological challenges during the pandemic and reported students' feelings related to the outbreak. For example, one international student said, "I am really worried about the

situation we are in today (the pandemic) and feel homesick” (p. 153).

A common finding among literature related to the effects of COVID-19 is that the pandemic led to increased anxiety among graduate students. For example, in their study of 7000 Chinese medical students, Cao et al. (2020) found that one-third of their sample was anxious, experiencing mild to moderate anxiety. Moreover, their anxiety increased with economic difficulties, changes in daily routine, and academic delays related to the pandemic. One percent of participants reported severe anxiety and social support decreased anxiety at all levels of symptom severity. Furthermore, in a study conducted during the Middle East Respiratory Syndrome Corona Virus (MERS-CoV) epidemic, Al-Rabiaah & Temsah (2020) reported that 25% of their sample of 200 medical students experienced mild to moderate anxiety during the MERS-CoV outbreak.

Psychological Impact

A survey conducted during the initial stage of the COVID-19 outbreak reported that the psychological impact of COVID-19 among the majority of the Chinese student population surveyed was moderate to severe (Wang et al., 2020). Increased risk of COVID-19-related stress, anxiety, and depression was found to be related to specific risk factors, such as sex (female students are at higher risk of stress than male students), student status, distinct physical symptoms, and poor perceived health status. The unpredictable characteristics of COVID-19, uncertainty about the mode of transmission, the risk of infection, and fear of quarantine and containment were among other factors reported to contribute to increased stress among adult populations (Xu & Kraemer, 2020). In addition, adults have reported experiencing a heightened fear of death and feelings

of loneliness as a result of the pandemic (Xiang et al., 2020).

Students, in particular, may experience additional stressors such as having acquaintances infected by COVID-19, financial instability, daily habit change, delays in academic activities, and increased risk of anxiety (Cao et al., 2020). In contrast, some important protective factors against stressors include living in urban areas, family income stability, living with parents, and social support (Cao et al., 2020).

Certain COVID-19 stressors are unique to international students. Risk factors for international students include lack of social support, financial difficulties, limited English fluency, social disconnectedness, and adaptation problems in the United States (Yeh & Inose, 2003). These students may also feel a sense of loss and loneliness when they leave their families and friends (Patron, 2014). Due to the psychological burden of COVID-19 and acculturative stress that international students experience, they may be overwhelmed and at risk of developing stress-related disorders (Newsome & Cooper, 2016).

Perceived Stress

Perceived stress is a major risk factor for poor mental health (Bovier et al., 2004). Among Turkish university students, Arslan et al. (2020) reported the prevalence of perceived stress during the COVID-19 pandemic. They found that female students demonstrated higher stress levels than males and that women suffered more stress than men during the initial phase of COVID-19.

International Turkish students studying in the United States perceived acculturative stress similar to other international students (Duru & Poyrazli, 2007). Marital status, English language competency, social connectedness, adjustment difficulties, neuroticism, and openness to experience were some

predictors of acculturative stress among Turkish international students in the U.S. (Duru & Poyrazli, 2007). For instance, younger Turkish students and those with higher English proficiency showed better adjustment to the new educational environment in the U.S. (Poyrazli et al., 2001). Additionally, graduate student activities such as research, teaching, assistantships, dissertation work, and advising may lead to higher perceived stress levels among international students (Fried et al., 2019).

Academic Motivation

Research has demonstrated that academic motivation in higher education relies on several factors, including adaptation to institutional culture consistent with shared values, positive relationships enhancing intrinsic motivation, social integration with the education community, and learning environment (Nukpe, 2012). Research also implies that students may become demotivated by complex administrative processes such as challenges with course registration, assessment deferrals, and laborious payment methods (Nukpe, 2012). Deci et al. (1991) suggested that psychological factors affect international students more than domestic students. They claim that students' psychological needs must be met to develop self-determination and facilitate intrinsic motivation for academic pursuits.

People are motivated either by external rewards, including prizes, approval, and grades, known as extrinsic motivations or by internal sources, called intrinsic motivations (Ryan & Deci, 2000). Intrinsic motivation involves engaging in activities for their inherent rewards, such as interest or enjoyment (Ryan & Deci, 2000). An investigation conducted by Chue and Nie (2016) reported that international students had higher intrinsic motivation for academic achievement than domestic students. Yet, they also observed that international students'

intrinsic motivation could cause distress in the presence of external stressors. Therefore the stressors of COVID-19 may have jeopardized international students' intrinsic academic motivation. The reason for their higher intrinsic motivation might be that international students tend to have specific personal and professional goals (Li & Bray, 2007).

Atkinson's achievement theory is relevant to the experience of international students, as it supports the tendency to achieve success in achievement-oriented situations and avoidance of failure under the threat of failure (Atkinson, 1964). Motivation drives actions to meet a certain standard of excellence perceived by the individual or society. The combination of the greater need for success and avoiding failure, expectancy of success, and the incentive value of success, determines the strength of achievement behavior (Atkinson, 1964). High anxiety from the fear of failure also positively influences academic achievement in high-ability students. Chacko and Huba (1991) found that academic success was positively correlated with high academic ability, decreased life stress, and high intrinsic motivation. Thus, in the presence of increased life stress, academic success becomes more closely linked to high intrinsic motivation.

Resilience

A consensual understanding of resilience refers to a capacity to meet adversity without diminishing positive outcomes or developing negative outcomes. Past studies demonstrated the role of resilience to be positively associated with students' well-being (Lin et al., 2019). Resilience was also associated with fewer anxiety symptoms and lower levels of psychological distress in university students (Lin et al., 2019). Another investigation of college students showed that higher levels of resilience predicted lower levels of unwellness (Wu et al., 2020). Further

research revealed that, among female college students, resilience and stress were positively correlated (Ahmed & Julius, 2015). Social support can protect against low resilience in an environment of academic stress (Wilks, 2008). Hartley (2011) showed that intrapersonal resilience factors contributed to GPA, academic achievement, and mental health. Resilience helps students cope with stress, preserve their mental health, and supports academic achievement. Additionally, resilience contributes to successful adjustment among international graduate students (Wang, 2008). Wang's (2008) study provided evidence for the effect of resilience on one's ability to cope with change and found that resilience characteristics can be enhanced and can differ depending on country of origin.

The Present Study

The present study focused on stress, academic motivation, and resilience among international graduate students during the COVID-19 pandemic, with a sample of Turkish graduate students studying in Turkey and in the U.S. Based on the review of the literature, the following hypotheses were generated:

- International students would report higher perceived stress than domestic students;
- Female students would report higher perceived stress than male students;
- Higher perceived stress would be associated with lower academic motivation among both international and domestic students;
- Perceived stress would be negatively correlated with resilience among both international and domestic students; and
- Both international and domestic students reporting higher academic motivation will also report higher resilience.

Method

Participants

Out of 243 participants who completed the online survey, 137 were excluded due to missing data. One hundred and six participants were included in the analysis. The final sample consisted of international Turkish graduate students ($n = 56$) studying in the U.S. and domestic Turkish graduate students ($n = 50$) studying in Turkey. Graduate students included both masters and doctoral degree students. Participants' age ranged from 24 to 37 (M age = 28 years). The sample was composed of 34 males (36%) and 72 females (64%).

Procedure

Participants were recruited online via personal networks, social media announcements, e-mails, WhatsApp, and text messages using snowball sampling. Data were collected in April 2020, approximately one month after the WHO declared the COVID-19 outbreak a global pandemic. All respondents gave informed consent. The survey was approximately 10-15 minutes in length. Responses were collected via Qualtrics software registered to the author's university.

Measures

Sociodemographic Information

Participants completed an online questionnaire about their age, socioeconomic status, ethnicity, degree status, English fluency, length of stay in the U.S., major, GPA, marital status, annual income, infected acquaintance, and method of preventing COVID-19 (see Table 1).

Perceived Stress

The Perceived Stress Scale-10 (PSS-10; Cohen & Williamson, 1988) is a self-report questionnaire that assesses one's level of perceived stress. It consists of 10 items scored on a 5-point Likert scale ranging from 0 (*never*) to 4 (*very often*). Positively worded items

were reverse-scored, then ratings were summed. The inventory consists of six negative items and four positive items. The PSS-10 has been found to have high reliability and validity (Lee, 2012).

Respondents' scores on the PSS can range from 0 to

40. Higher scores indicate higher levels of perceived stress. Scores are categorized as low stress (0-13), moderate stress (14-26), or high stress (27-40). In this study, the average perceived stress level was moderate across international students ($M = 19.89$, $SD = 6.18$) and domestic students ($M = 21.12$, $SD = 5.03$).

Table 1

Participants' Sociodemographic Information

		<i>n</i>	%
Student status	International	56	52.8
	Domestic	50	47.2
Degree status	Masters	34	35.8
	Doctoral	72	64.2
Gender	Male	34	32.1
	Female	72	67.9
Marital status	Married	49	46.2
	In a relationship	9	8.5
	Single	48	45.3
Parents went to college	Neither	34	32.1
	Mother	2	1.9
	Father	32	30.2
	Both	38	35.8
Income	Less than \$10,000	32	30.2
	\$10,000 to \$14,999	10	9.4
	\$15,000 to \$19,999	13	12.3
	\$20,000 to \$24,999	14	13.2
	More than \$25,000	37	34.9
Live with family member	No	38	35.8
	With parents/siblings	25	23.6
	With spouse	42	39.6
	Yes (other)	1	.9

English fluency	Beginner	3	2.8
	Intermediate	12	11.3
	Advanced	38	35.8
	Fluent	53	50.0
Infected by COVID-19	Yes	1	.9
	No	105	99.1
Infected family member	Yes	8	7.5
	No	98	92.5
Precautions	No precautions	1	.9
	Only social distancing	28	26.4
	Self-isolation	74	69.8
	Mandatory quarantine	3	2.8
Habits changed	Yes	97	91.5
	No	9	8.5

Academic Motivation

The Achievement Motives Scale-Revised (AMS-R; Lang et al., 2006) was used to assess academic motivation in participants based on hope of success and fear of failure. The instrument includes 10 items that are rated on a 4-point Likert scale, ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). The total score can range from 4 to 40. The revised 10-item scale has demonstrated sufficient criterion validity with respect to typical criteria of achievement-related behavior. Internal consistency (Cronbach's α) was greater than .70 (Lang & Fries, 2006). In this study, the average achievement motivation score was 21.45 ($SD = 4.004$) among international students and 21.86 ($SD = 4.121$) among domestic students.

Resilience

The Resilience Appraisals Scale (RAS; Johnson et al., 2010a) is a 12-item self-report questionnaire that measures resilience in young and senior adults by assessing their appraisals of their ability to cope with

emotions, solve problems, and access social support. Participants rate the extent to which they agree with each statement using a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). RAS is an easy-to-use questionnaire with acceptable established psychometric properties (Johnson et al., 2010). The total score can range from 5 to 60, with higher scores indicating higher levels of resilience.

Data Analysis

Descriptive and inferential statistics were used to analyze data. Frequencies were used to describe the sociodemographic characteristics of participants (see Table 1). Independent *t*-tests were conducted to compare perceived stress between international and domestic students and between female and male students. All *t*-tests were two-tailed, with a significance level set at .05. Bivariate correlation (Pearson's correlation) was conducted to measure the strength and the direction of the relationship between perceived stress, academic motivation, and resilience.

Statistical analyses were performed using SPSS Statistics 21.0 (IBM SPSS Statistics, New York, United States).

Results

A total of 243 questionnaires were returned, of which 106 were valid (i.e., contained complete data). Hypothesis 1 predicted that international students would report significantly higher perceived stress than domestic students. An independent t -test revealed that perceived stress levels did not differ between international and domestic students as predicted ($M_{diff} = -1.22$), $t(104) = 1.11$, $p = .269$, $d = .35$, 95% CI [-3.41, 0.96]. In support of Hypothesis 2, an independent-samples t -test revealed that female students reported significantly higher perceived stress than male students ($M_{diff} = -3.72$), $t(104) = 3.30$, $p = .001$, $d = .70$, 95% CI [-5.96, 1.48].

Hypothesis 3 predicted that perceived stress would be negatively correlated with academic motivation for both international and domestic students. Pearson's correlation coefficients were computed to assess the relationship between the two variables for each of the groups (international vs. domestic students). Somewhat contrary to predictions, there was a statistically significant negative correlation between perceived stress and academic motivation for domestic students, but not for international students (see Table 2). Similarly, only partial support was found for Hypothesis 4; perceived stress was significantly negatively correlated with resilience for domestic students, but not for international students (see Table 2). Finally, partial support was found for Hypothesis 5; academic motivation was significantly positively correlated with resilience for international students, but not for domestic students (see Table 2).

Table 2

Pearson's Correlation Coefficients (r) between Perceived Stress (PSS), Academic Motivation (AMS), and Resilience (RAS) among Domestic and International Students

		AMS	RAS
International Students ($n = 56$)	PSS	-.035	-.201
	AMS	-	.357**
Domestic Students ($n = 50$)	PAS	-.398**	-.330*
	AMS	-	-.035

Note. * $p < .05$. ** $p < .01$

Discussion

The COVID-19 outbreak has had negative implications for university students globally. While the challenges faced by Turkish students studying in the U.S. were different from those faced by domestic students studying in Turkey, all students reported at least moderate perceived stress during COVID-19. However, contrary to predictions, international and domestic students did not differ significantly in their reported perceived stress levels. It is possible that international students had returned to their home country immediately following the outbreak and were receiving regular support from family and friends. Unfortunately, the present study did not require students to report their current location and thus this possibility cannot be explored statistically. However, this explanation is consistent with the results reported by Lai et al. (2020) in their study regarding the mental health impacts of COVID-19 on international university students. As measured by the PSS-10, students who returned to their home countries had lower perceived stress, while those who stayed had higher perceived stress related to personal health and lack of social support. Indeed, Tselebis et al. (2020) and Cao et al. (2020) found associations between high perceived stress and low

family support during COVID-19. It is also possible that participants who were experiencing high perceived stress levels were unable or unwilling to complete the questionnaire. This explanation is consistent with the high dropout rate in the current study; students with low-to-moderate perceived stress may have been over-represented in the current sample.

Women tended to report significantly higher perceived stress levels than men, in harmony with our second hypothesis and with past studies (e.g., Kizhakkeveettil et al., 2017). Higher stress levels among women may be due to increased stressor experiences and perspective differences (Liu, 2020). Higher academic motivation was associated with lower perceived stress among domestic students as expected. However, unexpectedly, there was no relationship between stress and academic motivation among international Turkish students. Despite their perceived stress levels, international Turkish students may have needed to overcome many obstacles and have a higher baseline level of academic motivation in order to study abroad.

A negative association was found between the perceived stress and resilience scores of domestic students during the pandemic. One factor might be that graduate students need high resilience to cope with ongoing academic demands and their stress reduces despite the transition to web-based platforms in higher education. Surprisingly, there was no significant relationship between the two variables for international students. Additional studies are needed to detect the underlying reasons for the non-significant results as there could be several factors. Furthermore, the resiliency scores for international students are slightly higher than for domestic students. Another contributing factor could be that international students may be more resilient because they have dealt with acculturative

and academic stress. Higher resiliency may mitigate the strength of the negative correlation between the two variables.

Academic motivation and resilience were positively correlated among international, but not domestic, students. It is possible that higher levels of academic motivation and resilience are necessary for international students to succeed. Moreover, in addition to acculturative stress, psychological and social challenges, hope of success, fear of failure, and uncertainties are some of the risk factors brought about by the outbreak faced by international students, which may have led to higher levels of academic motivation and resilience.

Limitations

The current study did not investigate students' coping strategies or changes in coping strategies during the pandemic. It is possible that the consequences associated with the pandemic created significant obstacles to effective coping, and led to newly acquired adaptive or maladaptive coping strategies. In this way, it is difficult to infer from the results of the current study whether any observed differences or not in perceived stress were influenced by coping. Another important limitation of the current study is the absence of baseline measures of perceived stress, academic motivation, and resilience prior to the pandemic, which would have allowed a more in-depth understanding of the effects of COVID-19 on these variables among Turkish graduate students.

Furthermore, the attrition rate was high in the current study; 137 participants provided insufficient data and were thus removed from the analysis. It is possible that, especially given that participants reported only moderate perceived stress levels, participants with higher perceived stress were unable to complete the study for this reason. In this way, it is

possible that the current sample was biased toward participants with lower levels of perceived stress, and may not accurately reflect the stress levels among Turkish graduate students during the pandemic.

Future Directions

Based on the limitations of this study, future studies should measure perceived stress, academic motivation, and resilience at the end of the pandemic. Future studies should also address the psychological needs of graduate students during and after the pandemic. Future studies should also consider investigating the effects of quarantine on graduate students who were infected with the coronavirus.

Academic motivation is key to mitigating many of the negative effects of COVID-19 based on the results of this study. More resilience in international students and less perceived stress in domestic students protected against the negative effects of the pandemic. Therefore, universities should strive to enhance student motivation, limit their stress, and build their resilience. In addition, universities should consider providing their students access to low-to-no cost counseling services.

Other ways that universities can protect students against many of the negative effects of the pandemic include extending assessment deadlines and shifting in-class exams to take-home exams. Professors should encourage their students to stay connected to their class and cohort through web-based platforms. To alleviate additional financial-related stress, universities could also offer flexible payment plans for tuition and other university fees.

International and domestic graduate students' psychological needs during the pandemic should be addressed appropriately. The results of this study highlighted the need to provide support for graduate students in these extreme and unprece-

dent circumstances.

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