EXAMINING RELATIONSHIPS BETWEEN ACCULTURATIVE AND LIFE STRESS OF INTERNATIONAL STUDENTS IN THE UNITED STATES

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International students in the United States face unique challenges of adjusting to college life in a foreign country due to additional stressors of language, differing academic and study habits, and being socially isolated from their home environment. Therefore, the purpose of this study was to examine the levels of acculturative stress of international students enrolled at a Southern U.S. university. We used logistic regression to examine the relationships between life stress, time spent in the U.S. and acculturative stress controlling for socio-demographic differences between students. Our regression model was statistically significant and explained 37.5% of the variance. Overall, we found that country of origin and academic stress, an attribute of life stress contributed to overall acculturative stress. Implications for higher education, college campus staff and service providers are discussed.

Keywords: international students, acculturative stress, life stress, acculturation, higher education

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Universities and colleges in the United States (U.S.) are hosting large numbers of international students, and the enrollment continues to increase. Between 2007 and 2012, undergraduate and graduate international students studying at U.S. campuses increased by 30% according to research published by the Institute of International Education (IIE) (Hirai et al., 2015). The latest report published by the IIE suggests that the numbers will continue to grow, as will the demand for opportunities for higher education internationally (IIE, 2017). The IIE report indicated that approximately 975,000 international students across all levels were studying in the U.S. at the time of publication in the 2017 report.

International students migrate to the U.S. from a variety of locations. According to the IIE, the most frequently represented countries include China (304,000), India (133,000), South Korea (64,000), Saudi Arabia (60,000), and Canada (27,000). International students also have diverse study interests including STEM fields, business and the social sciences to name a few. Location of study is less diverse among international students in the U.S. According to the Brookings Institute, most international students pursuing a bachelor's degree or above in the U.S. study in metropolitan areas (Ruiz, 2014). The highest concentrations of international students are in New York/New Jersey metro area, Los Angeles, Boston and Chicago respectively (Ruiz, 2014).

International students contribute to the rich academic and cultural diversity of U.S. campuses. They also frequently conduct innovative research that improves the lives of Americans. Their presence introduces new ideas to faculty and students, promoting a global perspective that benefits the United States as it participates in the international economy. Additionally, international students make large financial contributions at both local and institutional levels. In the New York/New Jersey area alone, bachelors, masters and doctoral level international students contributed a total of $2,618,789,263 in tuition costs and $1,660,880,736 in living costs during a 12-year study period (Ruiz, 2014). According to the Brookings Institute, a total number of 1,970 F-1 visa holding students paid $26,790,920 in tuition and $19,590,137 in living costs between 2008 and 2012. These numbers have gone up over the years including $44,700,000 in 2018.

Despite the overall growth pattern of increasing international students in the U.S., some colleges in the Southeastern U.S. are experiencing a slight decline in international student enrollment. According to one university's Office of International Education (OIE), the university reported enrollment of 2,282 international students at all levels in the Fall of 2016. This most recent report available to us represented 6.24% of the total student body at the university. This number indicates a decline from the previous Fall when 2,391 international students were enrolled at the university (Personal Correspondence, Office of International Education at study site). In 2020, the COVID-19 pandemic caused declines in enrollment of bachelors, masters and doctoral international students at U.S. universities, which is described in a report published by the IIE (Martel, 2020). According to the survey results the IIE collected from 302 institution, approximately 52% of campuses saw a decline in enrollment of all international students between 2019 and 2020. Difficulties cited in the report included reduced on campus housing options, reduced access to campus buildings including research labs, cancelled classes, lack of access to virtual classes and enrollments canceled by the university. The barriers of a pandemic response that includes rapidly shifting instructional methods could increase stress for international students who have remained on campus and may have contributed to the recent decline in enrollment for this population. Further, travel bans, and difficulties may have also led to a decrease in international student enrollment.

Despite the decline in numbers, given the substantial academic and economic contributions of international students in the U.S., it is imperative that academic affairs departments and members of the larger university community be concerned with the wellbeing of these students. The transition to college life can be stressful for all students given the process of adapting to new social and educational environments. International students often face additional stressors during their transition to university life including language differences, differing academic and study habits, and being socially isolated from their home environment (Sandhu & Asrabadi, 1994). While a large number of students in the study by Sandhu and Asrabadi (1994) included undergraduate students, the findings can be applicable to international students at all levels. Therefore, international students may be experiencing more challenges to adjustment than American students with the addition of their unique acculturative stressors. Furthermore, it has been noted that although graduate and undergraduate international students are not adjusting as well as American students (Bhochhibhoya et al., 2017; Hechanova-Alampay et al., 2002; Kaczmarek et al., 1994), they are less likely to use campus resources to address stress and adjustment concerns (Nilsson et al., 2004). Hence, it becomes important to understand the stress that arises from acculturating to a new country for international students and adequately respond to it.

Acculturative Stress and International Students

According to Sandhu and Asrabadi (1994), traveling to a new country to study can be both a joyous adventure and a stressful acculturation experience for a student. Undergraduate students in one study reported lower levels of stress and positive affect while studying abroad (Maultsby & Stutts, 2019). In another study, researchers found that international students with certain psychological traits that included self-acceptance, help-seeking behavior and not avoiding work, adjusted better to academic situations (Pyburn et al., 2016). Acculturative stress is defined as the tension experienced by people migrating to a new country as they learn to adapt to a new environment. It also includes experiencing racial or cultural isolation or discrimination (Sandhu & Asrabadi, 1994). For international students, being in a new location in addition to their responsibilities as a student may lead to several changes and layers of stress. Because the contributions of students from other countries are vital to the academic community in the U.S., attention to international student well-being is necessary. However, there is evidence that international students have high levels of stress, yet they are not likely to access mental health services on campus (Sandhu & Asrabadi, 1994). It is of value to understand the stress and adjustment that this vulnerable population experiences, particularly as it relates to the process of acculturation. This information has the potential to inform academic affairs departments serving international students in ways that will enhance their success and wellbeing.

Previous research indicates a relationship between acculturative stress and international student adjustment on college campuses. Mahmood & Burke (2018) conducted an analysis of acculturative stress and sociocultural adaptation with a sample of international 880 international students at the undergraduate and graduate level, in a non-metropolitan university. The authors found that those students with higher acculturative stress showed lower scores related to cultural adaptation skills. In their study of alcohol consumption and alcohol use consequences among international college student populations, Hunt et al. (2017) found a direct association between the acculturative stress experienced by international students and the consequences from alcohol abuse. A high proportion of students (77.1%) in this study were enrolled in graduate programs.

Life Stress and International Students

Life stress refers to general types of stress experienced by students that may not be related to the acculturation or academic process. It can include factors such as financial concerns and family responsibilities. In their study of stress and support among undergraduate international students, Misra et al. (2003) examined the relationships among four constructs: life stress (primary stressor), academic stressors (secondary stressor), perceived social support (stress mediator), and reactions to stressors (stress outcome) among 143 international students. The authors found that gender had a significant effect on reactions to stressors ($ß = 0.267$, $p < .05$), indicating that female students had higher behavioral, emotional, and physiological reactions to stressors than male students. Some studies have indicated that financial and academic pressure are correlated with negative adjustment among international students (Baba & Hosoda, 2014). Lack of important resources including transportation, food and housing can be factors in the development of anxiety and depression among international students at all levels (Sümer et al., 2008). Furthermore, Watson, et al. (2017) demonstrated that food insecurity is a growing problem on U.S. college campuses. This study was conducted with 68% undergraduate and 32% graduate international students.

Another factor that affects life stress for international students is immigration status. Our survey was distributed following the inauguration of a new president who proposed drastic, sweeping changes to immigration policies in the U.S. (Migration Policy Institute, 2017). Therefore, we felt it was important to include immigration status as a variable in our study. We chose the following categories to reflect our conceptualization of life stress as it differs from acculturative stress: financial circumstances, housing affordability, academic process, immigration status, access to transportation, having enough food and family responsibilities.

Though acculturative stress has been examined in several studies with international students in the U.S., to our knowledge, no study to date has examined the link between life stress and acculturative stress. We explore the level of acculturative stress of international college students at a large public institution located in the Southeastern U.S. We explore how this population is adjusting to life on our campus. It is our hope that this study will provide valuable information to university support services including International Student Life and Student Affairs programs. Our study site defines an international student as any student not showing documentation as a U.S. citizen or permanent resident. This group of students could be on all temporary visa types and also have the status of an asylee (personal correspondence, Immigration Services at study site, 2017).

The purpose of our study was to examine the levels of acculturative stress of international students enrolled at a large Southern university. We also aimed to examine the effects of participants' sociodemographic characteristics and life stress such as financial circumstances, housing affordability, academic progress, immigration status, and family responsibilities on international students' acculturative stress. The research questions of our study were:

1. What are the relationships between the international students' levels of life stress and their acculturative stress?
2. What is the relationship between time spent in the United States and acculturative stress?
3. What is the relationship between the international students' sociodemographic characteristics and their acculturative stress?

The research hypotheses are:

1. There is a statistically significant relationship between international students' levels of life stress and acculturative stress.
2. There is a statistically significant relationship between time spent in the

United States and acculturative stress.
3. There is a statistically significant relationship between international students' sociodemographic characteristics and acculturative stress.

Methodology

Data Collection

Before collecting data, we performed a statistical power analysis using G*Power 3.1 (Faul et al., 2009). Based on the power analysis, our minimum sample size was 74. We employed non-probability convenience sampling to recruit our study participants (Trochim & Donnelly, 2008). To collect data, we administered a one-time online survey via Qualtrics to a sample of international students at a large Southern university during spring of 2018. We collaborated with administrators from the department of International Student Life (ISL) who shared the survey with students through Facebook, the ISL newsletter, and invited us to student coffee hours to recruit participants. International students, 18 and above were invited to participate in the study. An invitation to participate was part of the survey link sent to participants in January 2018 (see Appendix 1). To decrease respondent burden and increase the likelihood of participation, the survey instrument was designed parsimoniously, taking approximately 15 minutes to complete (Dillman et al., 2014).

Sample

The characteristics of our sample are displayed in Table 1. The overall sample size was 98. The age range of the students

Table 1

Participants Characteristics (n= 98)

		Frequency	%
Age	<20	3	3.1
	20-29	62	63.3
	30-39	30	30.6
	≥40	2	2.0
	Prefer not to answer	1	1.0
Gender	Female	50	51.0
	Male	46	46.9
	Prefer not to answer	2	2.0
Country of origin	China	13	13.3
	India	22	22.4
	South Korea	27	27.6
	Latin America/Caribbean	5	5.1
	Middle East	8	8.2
	Europe	8	8.2
	Other	15	15.3
Level of study	Undergraduate	17	17.3
	Graduate	77	78.6
	Other	3	3.1
	Prefer not to answer	1	1.0
Time in the U.S. (year)	<1	30	30.6
	1-3	36	36.7
	4-6	20	20.4
	7-9	8	8.2
	≥10	3	3.1
	Prefer not to answer	1	1.0

was between 18-43 years (Mean = 27.95, SD = 5.233). In terms of country of origin, 27.6% of the students were from South Korea, 22.4% from India, 13.3% from China, 8.2% from Middle East, 8.2% from Europe, 5.1% from Latin America/Caribbean and 15.3% who belonged to other countries. Study level indicated that the majority (78.6%) of students were enrolled in a graduate program. With regards to time spent in the U.S., the range was between 1 and 264 months (Mean = 38.18, SD = 41.093).

Measurement

The dependent variable (DV) in our study was acculturative stress, and the independent variables (IV) were time spent in the United States, life stress and country of origin. The sociodemographic control variables were gender, age and level of study (undergraduate or graduate).

Acculturative Stress (DV). We measured acculturative stress using the ASSIS, a 36-item scale assessing acculturative stress on a five-point Likert scale (1 = strongly disagree and 5 = strongly agree). Higher scores reflected higher levels of acculturative stress. The scale used seven constructs including perceived discrimination, homesickness, perceived hate, fear, stress due to change, guilt and miscellaneous. The scale was validated with a Chronbach's Alpha value of .76-.95 in previous studies (Han et al., 2017; Hunt et al., 2017; Sandhu & Asrabadi, 1994). The internal consistency of ASSIS in our study was 0.945.

Life stress (IV). We created a questionnaire to ask participants about seven kinds of life stress including financial circumstances, housing affordability, family responsibility, food insecurity, access to transportation, immigration status and academic progress. These were measured on a four-point Likert scale (1 = never and 4 = often).

Demographic questionnaire. We also created a demographic questionnaire that gathered information from participants regarding their age, gender identity, country of origin, time spent in the U.S (in months) and level of study (undergraduate versus graduate). We used these variables as controls in our study.

Study Procedures

This study implemented a cross-sectional study design to analyze variables associated with the levels of acculturative stress among international students. A cross-sectional design is a single instance observational study in which exposure and outcome are determined simultaneously for each subject and is a design that cannot prove causality (Engel & Schutt, 2013). Therefore, conclusions drawn from this study cannot be used to substantiate causation and have limited generalizability to other points in time or populations.

In the survey design process, conducting a pilot test is very important. This process allows researchers to discover issues with the instruments and alleviate unanticipated problems (Aday & Cornelius, 2006). In this study, a pilot test was conducted to assess the clarity and face validity of the questionnaire. Along with the survey, respondents were asked to complete four additional questions to elicit their feedback on the following aspects of the survey instrument: format, length, wording, and the purpose of the study.

A total of n = 11 participants completed the pilot study. Their mean age was 29.55 (Min = 21, Max = 36, SD = 4.947). The participants included seven women and four men. In terms of country of origin, six reported India, three reported South Korea, and two were from Bangladesh. In average, the participants reported they have been in the U.S. for 32.18 months (Min = 13, Max = 84, SD = 23.047). The pilot results indicated that respondents were satisfied with the length of the survey, and that the questions were easy to understand. A few respondents indicated that some of the questions were somewhat repetitive or too long. However, these critiques primarily referred to questions on original scales to which modifica-

tions could not be made.

Survey formatting

Survey formatting was guided by protocol from existing literature, including concepts such as the total survey error method and visual design principles (Aday & Cornelius, 2006; Dillman et al., 2014). The consent letter constituted the first page of the survey, which participants saw after clicking on the link. This letter included a brief and simple introduction, a description of the survey, and an estimated time to complete it (Salant & Dillman, 1994).

The survey questionnaire contained a total of 53 items. The instrument was predominantly written in closed-ended question format. The survey included a few open-ended questions for participants to clarify their country of origin, age and time in the United States. The close-ended questions required participants to provide a response where possible to avoid response confusion (Aday & Cornelius, 2006; Dillman et al., 2014). Each of the sections indicated a simple statement to inform participants about the type of questions. In addition, clear instructions were provided regarding response options to avoid confusion. We took the following formatting style into consideration when designing the survey questions: using complete sentences, not splitting a question over two pages, aligning response codes, using a vertical response method for the closed-ended questions, and providing a thank you message at the end of the instrument (Aday & Cornelius, 2006; Jenkins & Dillman, 1995).

Ethical considerations

We received university IRB approval before administering the survey. Informed consent was voluntarily acquired after the participants read the invitation letter made available to them through Qualtrics. At the end of the consent form, participants were asked to click 'yes' or 'no' to provide their consent to participate. Participants could not enter the survey without reading the consent form and they could also skip questions or stop the survey at any time if they chose to do so. Participants were also informed that there were no known risks associated with participating in this study. The consent letter also provided the contact information of the primary investigator in case of concerns or questions about the research. This was done to help foster trust and transparency with respondents, which has been found to promote respondent participation (Dillman et al., 2014; Dillman, 2000).

To protect the identity of participants, respondents' names and identifying information were not collected. We deleted their IP addresses after downloading the data file from Qualtrics. The research team did not have access to any other potentially identifying information from the collected data. A chance to win one of eight Amazon gift cards was offered as an incentive to participate in the study. Incentives are considered good practice in survey research (Church, 1993). We created a separate link in Qualtrics where interested students could fill out their information to enter the raffle. All but two winners accepted their gift cards.

Data cleaning

Some data cleaning was necessary before beginning the analysis to recode variables, assess for missingness and check for duplicates. The data was imported into SPSS from Qualtrics. After downloading, the first step was to delete IP addresses of participants to protect their identity. Next, we changed age from a string variable to a numeric variable. For the study level variable, we decided to only retain two categories: graduate and undergraduate and removed the "other" category. There were only three participants whose response was "other", and we were unsure what "other" meant, hence the exclusion of this category from the analyses.

To deal with the country of origin of the participants, we created a new country variable by collapsing or combining the existing categories into new categories which in-

cluded: Europe, India, Korea, China, Middle East, Latin/Caribbean and others. We made the decision that Egypt would be considered a Middle Eastern country due to cultural factors rather than geographic. For similar reasons, we decided to include the Middle East as a separate category from Asia. We decided to create a new country of origin variable because of fewer number of cases under each country, hence the need to combine countries into categories for analysis.

Data Analysis

To address our research questions, we first examined demographic characteristics to understand our study sample. Next, we examined the relationships between country of origin, level of study and acculturative and life stress to look for correlations. Then we used multiple regression to examine the relationship between time spent in U.S., life stress and acculturative stress. The controls variables in our model included age, gender and academic level. We used ANOVA to examine group differences and multiple linear regression to examine the correlates of acculturative stress among international students. There were no issues with the assumptions of the multiple regression analysis or missingness. SPSS version 24 was used for data analysis (Berkman & Reise, 2012; IBM Corp, 2017).

Results

International Student Life Stresses by Acculturative Stress

Table 2 indicates level of acculturative stress, life stress and t-test results between the low and the high acculturative stress group. Among all participants, the level of stress from academic progress (Mean =

Table 2

t-test Results of International Students' Life Stresses by Level of Acculturative Stress

	Low Acc. Stress Group (n= 70)		High Acc. Stress Group (n= 21)		Total				
	Mean	SD	Mean	SD	Mean	SD	t-test	*d*	95% CI
Acculturative stress	2.19	.510	3.37	.334	2.46	.689	-12.450***	2.737	[-49.43, -35.70]
Financial circumstances	3.31	.692	3.38	.805	3.34	.717	-.373	.093	[-.42, .29]
Housing affordability	2.63	.981	3.05	1.024	2.76	.995	-1.701	.419	[-.91, .07]
Academic progress	3.39	.839	3.67	.577	3.44	.787	-1.433	.389	[-.67, .11]
Immigration status	2.60	1.134	3.24	.700	2.78	1.089	-3.123**	.679	[-1.05, -.23]
Access to transportation	2.41	1.123	2.71	1.189	2.51	1.133	-1.059	.259	[-.86, .26]
Having enough food	1.74	.988	2.11	1.049	1.80	1.012	-1.400	.363	[-.88, .15]
Family responsibilities	2.57	1.057	2.86	.854	2.64	1.018	-1.269	.302	[-.74. .17]

3.44, SD = .787) and financial circumstances (Mean = 3.34, SD = .717) were relatively high. On the other hand, the level of stress from lack of food was the lowest (Mean = 1.80, SD = 1.012). Participants whose mean score on the ASSIS were less than 3 were categorized as the low acculturative stress group (n = 70), and the other students whose mean score of the ASSIS were 3 or higher were categorized as the high acculturative stress group (n = 21). The results show the mean difference of acculturative stress between the two groups which were significantly different (t = -12.450, p < .001). Among life stress, the level of stress from immigration status was significantly different. Group wise differences through t-tests indicated that international students who had low acculturative stress were more stressed because of their immigration status (t = -3.123, p < .01).

International Students' Life Stresses by Level of Study

Table 3 indicates the level of acculturative stress, life stress and the t-test results between the undergraduate students and graduate students. Overall, graduate students had higher level of stress in comparison to undergraduate students. Particularly, graduate students' stress from financial circumstances (t = 4.746, p < .001), academic progress (t = 2.829, p < .01), and immigration status (t = 2.008, p < .05) were significantly higher. Table 4 below shows the result of correlation analysis among all variables.

Table 3

t-test Results of International Students' Life Stresses by Level of Study

	Undergraduate Students (n= 17)		Graduate Students (n= 77)		Total				
	Mean	SD	Mean	SD	Mean	SD	t-test	*d*	95% CI
Acculturative stress	2.74	.851	2.39	.653	2.46	.689	1.788	.461	[-1.41, 26.59]
Financial circumstances	3.82	.393	3.22	.737	3.34	.717	4.746***	1.016	[.35, .86]
Housing affordability	3.12	.928	2.65	.997	2.76	.995	1.774	.488	[-.06, .99]
Academic progress	3.76	.437	3.36	.826	3.44	.787	2.829**	.605	[.12, .69]
Immigration status	3.24	1.091	2.66	1.059	2.78	1.089	2.008*	.539	[.01, 1.14]
Access to transportation	2.53	1.179	2.47	1.131	2.51	1.133	.203	.052	[-.54, .67]
Having enough food	2.00	1.275	1.73	.963	1.80	1.012	.968	.239	[-.28, .81]
Family responsibilities	2.82	.951	2.55	1.020	2.64	1.018	1.029	.274	[-.26, .82]

Table 4

Correlation Matrix of Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1 Age	–																		
2 Gender	-.083	–																	
3 Study Level	.497	.021	–																
4 China	-.200	.025	-.079	–															
5 India	-.222*	-.104	.060	-.210*	–														
6 South Korea	.261**	-.052	-.059	-.241*	-.332***	–													
7 Latin/Caribbean	-.132	.042	-.030	-.091	-.125	-.143	–												
8 Middle East	.248*	.038	.101	-.117	-.160	-.184	-.069	–											
9 Europe	-.033	.160	.013	-.117	-.160	-.184	-.069	-.089	–										
10 Other country	.043	-.015	.011	-.166	-.229*	-.262**	-.099	-.127	-.127	–									
11 Time in the U.S.	.218*	-.109	-.111	-.051	-.175	.301**	.048	.001	-.087	-.082	–								
12 Financial	.070	-.294**	-.242*	-.185	.055	-.003	.151	.068	-.088	.038	.073	–							
13 Housing	.093	-.121	-.136	-.146	-.015	-.009	.057	.074	.187	-.067	.080	.507***	–						
14 Academic	-.010	-.130	-.181	-.104	-.083	.063	.107	.023	.118	-.057	.140	.247*	.217*	–					
15 Immigration	.044	-.124	-.184	.025	.157	-.020	.005	.234*	-.179	-.226*	.048	.362**	.301**	.104	–				
16 Transportation	-.068	.004	.044	-.124	.169	-.137	.183	-.102	.063	.009	-.121	.218*	.286**	.058	.161	–			
17 Food	.043	-.158	-.043	-.073	.083	.097	.196	-.016	-.090	-.172	.043	.308**	.254*	.267**	.233*	.421***	–		
18 Family responsibility	.119	-.240*	-.005	.019	.238*	-.076	.082	.032	-.152	-.158	.092	.308**	.259*	.082	.262**	.079	.294**	–	
19 Acculturative Stress	.187	-.043	-.117	.270**	-.228*	.215*	.008	-.005	-.181	-.110	.108	.160	.165	.246*	.148	.090	.161	.189	–

*: $p < .05$, **: $p < .01$, ***: $p < .001$

Multiple Regression Model

The result of the multiple regression analysis predicted that our model explained 37.5% of the variance while predicting the level of acculturative stress among international students' (R2 = .375). The effect size of our multiple regression model was .60, indicating a large effect (Cohen, 1988). According to the result, international students who were from European countries had a significantly lower level of acculturative stress in comparison to other students (B = -.746; ß = -.299; p < .05). In addition, academic stress of international students significantly affected their levels of acculturative stress (B=.200; ß= .231; p< .05). However, other variables did not significantly affect international students' acculturative stress level (See table 5). The highest value of variance inflation factor (VIF) in the regression model was 2.315, indicating no problem with multicollinearity.

Discussion

Given the impact that student and academic affairs professionals can have on the lives of international students, it is important that they are informed about the needs of this vital campus population. International students face common stressors experienced by all students. However, they experience the additional stress of adjusting to college life in a foreign country with cultural and social nuances that are unfamiliar. Our study examined the levels of acculturative stress of international students at a large public Southern university in relation to other life stressors they faced.

The factors of life stress that were the focus of our study included: financial circumstances, housing affordability, academic process, immigration status, access to transportation, having enough food and family responsibilities. Studies continue to demonstrate that financial and academic pressure are strong predictors of negative

Table 5

Result of Multiple Regression of Age, Gender, Time in the U.S., Level of Study, Country of Origin, and Life Stresses on Acculturative Stress (n= 98)

	B	SE	*ß*	*t*	*p*	VIF	95% CI
(constant)	.845	.689	-	1.227	.224	-	[-.53, 2.22]
Age	.035	.019	.267	1.844	.070	2.315	[-.00, .07]
Gender	.075	.095	.085	.797	.428	1.265	[-.11, .26]
Time in U.S.	-.001	.002	-.060	-.543	.589	1.345	[-.01, .00]
Level of Study	-.300	.202	-.192	-1.490	.141	1.824	[-.70, .10]
China	.439	.247	.215	1.776	.080	1.614	[-.05, .93]
India	-.400	.219	-.252	-1.824	.072	2.104	[-.84, .04]
Latin/Caribbean	-.562	.420	-.151	-1.338	.185	1.405	[- 1.40, .28]
Middle East	-.323	.283	-.129	-1.141	.258	1.414	[-.89, .24]
Europe	-.746	.290	-.299	-2.572	.012	1.487	[-1.33, -.17]
Other Country	-.341	.220	-.184	-1.550	.126	1.564	[-.78, .10]
Financial circumstances	-.015	.125	-.015	-.121	.904	1.706	[-.26, .23]
Housing affordability	.069	.082	.100	.838	.405	1.578	[-.10, .23]
Academic progress	.200	.089	.231	2.246	.028	1.165	[.02, .38]
Immigration status	-.009	.077	-.014	-.113	.910	1.613	[-.16, .15]
Access to transportation	.116	.071	.193	1.623	.109	1.556	[-.03, .26]
Having enough food to eat	-.021	.081	-.031	-.259	.796	1.602	[-.18, .14]
Family responsibilities	.097	.075	.144	1.286	.203	1.377	[-.05, .25]

R^2= .375, Adjusted R^2= .221

adjustment among international students (Baba & Hosoda, 2014). Our study was conducted amidst a U.S. sociopolitical climate that was not friendly toward immigrants. Rapidly shifting U.S. immigration policies following presidential campaign promises may have created additional barriers for student immigrants (Migration Policy Institute, 2017). Therefore, we chose to examine relationships between stress related to immigration status and acculturative stress. Our study was conducted at the flagship university in a conservative State, which may have affected the experiences of this diverse group of students. Access to transportation and family responsibilities were included as factors of life stress due to their unique effect on the circumstances of international students. Finally, food insecurity on college campuses has been a growing problem since 2008 (Watson et al., 2017). Since nutrition is a basic survival need and may be related to other financial stressors, we decided to include access to food as an additional factor of life stress. All the factors included in the study, whether acculturative or life stress related are of significant importance to student engagement and academic affairs professionals who are tasked with assisting international students with their adjustment to campus life.

The average age of the international students surveyed was 28 years. Our sample was comprised of 80% graduate students who had been living in the U.S. for less than three years, and 63.3% of students migrated from Asian nations. The experience of students' financial stress in our sample is

not surprising when considering that older students may be supporting families with children (Ra, 2016). Students' higher levels of academic stress were predictive of greater levels of acculturative stress. This is consistent with previous literature, which indicated that international students from Asian countries are particularly vulnerable to acculturative stress (Baba & Hososda, 2014; Hamamura & Laird, 2014; Han et al., 2017; Hirai et al., 2015; Misra et al., 2003).

The graduate students in our sample reported significantly more life stress than the undergraduate students, including stress regarding their immigration status. However, as stress from immigration status increased, acculturative stress decreased. We question whether concerns regarding immigration status are likely related to students who intend to remain in the U.S. post-graduation. Additional investigation is warranted to determine what factors are included in stress related to immigration status that could result in less acculturative stress.

Although food insecurity among college students has become a persistent problem in the U.S. (Watson et al., 2017), our participants did not report it as a major stressor. In fact, it was the lowest reported stressor. This may indicate that access to food resources has not become a major stressor for this particular community of international students.

Not surprisingly, international students originating from European countries reported less acculturative stress. These students were more likely to originate from westernized cultures similar to the U.S. with larger numbers of English-speaking citizens in contrast to other countries included in our sample. The majority of our sample originated from Asia where English is not the dominant language. Understanding that distinction may be helpful in considering the extent of comfort with English (Bai, 2016) proficiency as a potential concern for international students.

Limitations

As with all research endeavors, our study should be considered in light of some limitations. The small sample size limits generalizability. A larger sample of international students might offer greater opportunity to examine differences between demographics. The participants were self-selected using a self-reported survey circulated within one university. Two members of our research team were international students who represented the highest reporting countries of origin in the study. Their recruitment efforts might have biased students' willingness to participate. Furthermore, our recruitment efforts at the International Student Life sponsored coffee hours were culturally specific. Due to time constraints, only two events were attended: one was facilitated by the Chinese student association and the other by the Brazilian student association. The survey was written in English and self-administered without any assistance regarding cultural context. Future studies of international students would benefit from a larger sample that includes more diversity regarding countries of origin. Notwithstanding the limitations, our small sample was reflective of the larger population of international students at the university.

Implications

Our study contributes to the body of knowledge related to international students in the U.S. We found similar acculturative stress experiences previously reported in studies conducted at other large public universities (Bai, 2016; Poyrazli et al., 2004). This implies that there is a strong need for attention to the unique stressors of international students on college campuses in the U.S. Appropriate and timely response by student engagement staff can be beneficial as they can intervene and connect international students to counseling services, financial resources, student peer learning opportunities or other cultural exchange programs on campus to alleviate stress among international students. Further, be-

cause international students enrich the culture of American colleges and universities, it is imperative that they are provided with resources that attend to their concerns and support their success (Ra & Trusty, 2015; Sumer et al., 2008). The evidence that academic and financial stress are high among international students indicates a need for further investigation about which academic and financial resources could be enhanced to meet student needs. Future research aims may include understanding how academic support services, social and emotional supports and the type of financial assistance programs that could be specifically designed for international students to reduce their stress and address their unique needs. Researchers are encouraged to collaborate with student and academic affairs professionals and practitioners to conduct research to assess the needs of international students. At the same time, new interventions such as check-in's via text, weekly meet and greet or self-care meetings with international students can be helpful. Student affairs practitioners and staff can be frontrunners in planning such interventions. These efforts can also lead to higher student retention of international students across campuses.

Our survey was distributed in 2018, which was two years prior to the COVID-19 pandemic of 2020. Given that enrollment of international students drastically decreased between 2019 and 2020 (Martel, 2020), updated research that specifically examines the stress that international students have experienced in the context of the pandemic is warranted. New research questions have emerged quickly since the survey was conducted and analyzed include "Has acculturative stress increased in this population since the pandemic began?" and "Are recent decreases in enrollment related to acculturative stress factors like racism and immigration issues?" Constant changes in immigrant laws and the mode of offering classes as well as general unrest in the American immigration climate under the administration of President Trump may have discouraged international students from staying or enrolling in U.S. universities (Tareen, 2020).

International students are a vulnerable population, and therefore should be a significant focus for higher education and student affairs related research. Furthermore, institutions of higher education could benefit from increased knowledge in this area to continue successful recruitment of international students and create a supportive environment on campus for current students from foreign countries. It is also important for educators to understand the students they are teaching and mentoring. Previous research has found that acculturative stress is associated with depressive symptoms and poor coping (Hamamura & Laird, 2014; Hunt et al., 2017; Ra & Trusty, 2015). Therefore, it is also vital for campus mental health professionals to implement culturally responsive interventions by understanding these diverse populations.

International students enhance the academic and cultural diversity of American campuses. Their innovative research activities promote a global perspective on American campuses and communities benefitting everyone. These students also contribute to the local and regional economy by choosing to study in our country and at American universities. Given the myriad contributions, it is a matter of social justice to improve the university-level efforts to help international adjust to life on our American campuses through research-informed student affairs practices. Please note: survey questions and other documents can be made available upon request.

Conclusion

Our study introduced specific life stress factors that had not been examined with international students and acculturative stress in previous studies. We found a significant relationship between increased stress regarding immigration status and lower acculturative stress. We also found that students migrating from non-European countries ex-

perienced higher levels of stress than those from European countries. This finding was significant because the largest proportion of students in our sample and on the campus of focus came from non-European countries-with Asian countries being the most commonly represented on campus. No significant relationships were found by examining access to transportation and family responsibilities. Given our findings about non-European students and graduate students experiencing higher levels of stress, we believe it is important for academic affairs professionals to design services and supports around that address the needs of these specific groups of students. In the context of COVID-19, these needs include improving access to virtual education platforms and increasing access to housing and financial resources. More broadly, student affairs services could include university wide programs aimed at reducing racial discrimination on campus and addressing the unique financial and legal concerns facing international students through support funding and programmatic assistance. Further research to have a richer description of how these groups are affected and what their needs are, could be qualitative in nature. Also, additional survey data could be collected to determine whether our findings are replicated across other campuses and regions in the U.S. Future researchers and practitioners are encouraged to collaborate and propose best practices that can be used with international students to enable their smoother transition and adjustment to American universities.

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