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Differential Adjustment Outcomes of International Students at U.S. Universities: Examining the Intersections of Region of Origin, Gender, and Graduate Level

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ABSTRACT

We present an exploratory study of differences in international students' adjustment and social-emotional outcomes based on key demographic variables. Drawing on a sample of 558 international students attending 14 colleges and universities in the United States, we examined students' belonging, social support, academic stress and confidence, COVID-19-related stress, and social integration by students' gender, graduate level, and region of origin as well as by combinations of gender, graduate level, and region of origin. Key findings include that graduate and undergraduate female students as well as graduate male students reported better social-emotional experiences compared with undergraduate male students and that students' region of origin accounted for a range of differences in student outcomes. Findings are discussed both in relation to the current literature and with respect to opportunities for methodological development in the field of international student engagement and global student mobility.

Keywords: gender, graduate level, international student, region of origin.

Leaders in Critical Internationalization Studies have increased calls for researchers in the field of Global Higher Education to question and understand their role in maintaining or dismantling power structures within research and practice that produce inequity (Choudaha & de Wit, 2014; Stein & McCartney, 2021). The rise of Critical Race Theory (CRT) in education has underscored the need for research in all fields to examine social, institutional, and systemic dynamics influencing individual or group outcome differences by incorporating an understanding of race, intersectionality, and power (Crenshaw, 1991; Delgado & Stefancic, 2017). Intersectionality is the concept that various aspects of an individual's demographics and identity (e.g., age, gender, race and/or ethnicity, sexual orientation, religious affiliation) intersect to impact how others view them, how they are able to or are expected to act within their culture, and their proximal and distal life outcomes (Crenshaw, 1991; Ladson-Billings, 2020). Researchers using CRT argue that international students' identities and intersections of their multiple identities (e.g., gender, cultural, national) should be considered to understand their cross-cultural transitions (Arthur, 2018) and have elucidated understandings using qualitative approaches (e.g., Koo, Yao, et al., 2021; Mwangi et al., 2019; Yao et al., 2021).

However, researchers using quantitative approaches to international student engagement appear to need to increase their nimbleness and urgency in incorporating intersectional approaches to their inquiry, as researchers often group international students into a single sample and treat them as homogeneous in analyses (Brunsting, Zachry, et al., 2018). Further, studies exploring differences in experiences based on demographic indicators rather than solely using them as control variables are few though increasing in number (e.g., Brunsting et al., 2019; Kiang et al., 2021; Koo, Baker, et al., 2021; Zeng et al., 2022). In the current study, we take an intersectional approach to explore international students' adjustment outcomes by combinations of their demographic characteristics (i.e., region of origin, gender, and graduate level) rather than solely by each marker individually using a dataset of international students at 14 universities in the U.S. collected in 2021.

LITERATURE REVIEW

Nationality/Region of Origin

Outcomes in U.S. universities by student region of origin are relatively understudied, yet researchers have made initial explorations into differences by region of origin. Yeh and Inose (2003) revealed that, for students attending U.S. universities, European students experienced less acculturative stress than international students from other world regions. Glass et al. (2014) examined international students' college adaptation, friendships with host nationals, and recreation of 298 international students attending one research university from four regions of origin: East Asia, Europe, Middle East and North Africa, and South Asia. Findings from Glass et al. (2014) included: European students used English when socializing more than students from other regions; students from East Asia, Middle East and North Africa, and South Asia socialized more with

peers from their own country while European students were more likely to socialize with host national peers; students from Europe and South Asia reported higher social adaptation than counterparts from East Asia; and students from Europe, Middle East and North Africa, and South Asia reported higher university attachment than East Asian students. Similarly, Hansen et al. (2018) explored acculturation stress and acculturation of 243 international students at a U.S. community college, finding that students from Latin America and the Caribbean reported less acculturative stress than those from South Asia; further, students from Europe experienced higher acculturation than students from East Asia and South Asia. Given these initial findings, there is need for research to explore experiential and outcome differences of international students by region of origin intersectionally to better enhance awareness and campus supports for all international students.

Gender

Although gender is a key factor in international student identity and adjustment to U.S. campuses, research rarely has examined differences in social-emotional outcomes by gender and the extant findings are mixed (Brunsting et al., 2019). Early studies revealed that female Taiwanese international students experienced more difficulty in adjustment than their male counterparts (Dao et al., 2007); meanwhile, Lee et al. (2009) found that Korean female international students had a higher level of psychological adjustment than their male counterparts. In a larger study with a diverse sample of international students from different world regions, Yeh and Inose (2003) found that gender did not predict acculturative stress. More recently, scholars have continued to identify differences in more diverse samples, including higher female experience of social support from faculty (Brunsting et al., 2019), less acculturative stress for female students (Koo, Baker, et al., 2021), lower domestic student social support for female students (Brunsting et al., 2021), and no significant differences (Zhang & Jung, 2017). We note that the existing literature focuses primarily on the traditional gender binary and provides little focus on students who exist outside normative gender roles (e.g., transgender, non-binary, genderqueer, gender non-conforming). We preface here that while we included a range of gender options in the study, we were not able to oversample students beyond the female-male binary to allow for adequately statistically powered analyses; thus, we were only able to compare female and male.

Graduate Level

Compared to their undergraduate counterparts, international graduate students have more favorable social-emotional outcomes, such as higher psychological well-being, sense of belonging, and social integration, than undergraduate students (Brunsting et al., 2019, 2021; Han et al., 2017; Li et al., 2013). Xiong and Zhou (2018) posited from their qualitative work on graduate international students that maturity and the relationship with research colleagues and advisors may undergird these positive social-emotional outcomes. This

conclusion is augmented by another study's finding of a positive association between advisor support and sense of belonging of international graduate

students (Curtin et al., 2013). In a sample of domestic and international students, Wyatt and Oswalt (2013) revealed that graduate students were more likely to understand available campus resources and seek mental health services than undergraduate students. Given the differences in age, focus, and documented outcomes between undergraduate and graduate students, we consider graduate level to be a key demographic variable for international student adjustment.

Research Questions

The current study is designed to explore group differences based on multiple demographic characteristics of international students. We use data from a national dataset of 14 universities to investigate group differences based on gender, graduate level, and region of origin. To examine for group differences using an intersectional approach—we generated two exploratory research questions:

1. To what extent are there group differences in international students' engagement and adjustment at U.S. universities based on gender, graduate level, and region of origin?
2. To what extent are there group differences in outcomes based on intersecting demographic characteristics?

METHOD

Participants

Data for the current study are from one wave, Spring 2021, of a larger longitudinal study examining associations between malleable university factors (e.g., faculty social support) on international students' socio-emotional outcomes over time (Open Science Framework Registration: https://osf.io/ncfe5/). The sample is comprised of 558 international students (i.e., studying on an F-1 or J-1 visa) at 14 universities in the U.S. See Table 1 for sample demographic information.

Table 1. *Participants' gender, graduate level, and region of origin.*

	Undergraduate		**Graduate**		
Region of Origin	Woman	Man	Woman	Man	**Total**
East Asia	42	43	46	35	**166**
Europe and Central Asia	14	16	19	12	**61**
Latin America and Caribbean	15	10	32	19	**76**
Middle East and No. Africa	3	8	17	15	**43**
South Asia	16	9	59	84	**168**
Sub-Saharan Africa	7	5	12	20	**44**
Subtotal	97	91	185	185	-
Total	**188**		**370**		**558**

Procedure

Institutional Recruitment

We received approval from the first author's institutional review board prior to conducting the study. Seeking to generate a sample of international students at colleges and universities across the U.S., we generated a list of 236 colleges and universities ranked by the *U.S. News and World Report* as top institutions for international students, including regional institutions. We contacted international student and scholar services offices at these institutions via email and phone inviting participation in the study. Benefits to institutions included (a) report comparing average scores on study constructs of students at their institution to the national average of our sample, (b) webinar meetings with the research team to discuss the report, and (c) access to published manuscripts. We received responses from 22 institutions; 14 joined the study.

Participant Recruitment

We asked contacts at participating institutions to either (a) share names and emails of all international students at their institution or (b) share a recruitment email from us from their university account with our study information and link to the consent letter and survey to all international students at their institution. We sent a recruitment email outlining the study with link to the consent form and survey on Qualtrics to all the students for whom we had emails. All non-responders to our initial email received another email a week later, and a third email a week after that. For universities who preferred sharing a recruitment letter via institutional email, we asked them to share it with their international students three times with an anonymous link to the consent letter and Qualtrics survey.

A total of 843 students responded in Spring 2021, for a response rate of 4.58%; 558 students completed the survey, for a total participation rate of 3.03%. This response rate is lower than previous similar studies (e.g., Brunsting et al., 2021) and a previous wave of the larger study (203/1039, 19%); we believe the decrease is largely due to COVID-19, which has depressed response rates on large-scale longitudinal research (McIllece, 2020). One university's email software routed invitation emails to a quarantine folder; this university had the largest number of international students, further depressing the response rate. We retained the university for participation, as we did not want to exclude the perspective of students who located the email and participated. In order to examine for non-response bias, we tested for differences in student responses between the three universities with the lowest participation (< 4.13%) and the three universities with the highest participation (> 8.60%). Only two significant differences existed: students at universities with higher participation reported *higher* faculty social support ($t[318] = 3.01$, $p = .003$) and *higher* psychological wellbeing ($t[300] = 3.72$, $p < .001$). Although data revealed differences, data did not indicate that students at universities with lower participation had better experiences, a common form of response bias. Thus, we maintained all participants in the sample for the study.

Measures

Demographic Variables

Demographic variables include country(ies) of citizenship, gender, and degree pursued.

Region of Origin. Participants could list multiple countries of citizenship. We determined participants' region of origin by allocating individuals by the listed country(ies) of citizenship based on the regions of the World Bank (2020). If a participant listed two countries of citizenship in different regions, they were included in both regions.

Gender. Gender options included woman, man, transgender, gender non-conforming, and prefer-not to answer; participants could select multiple options. We considered a range of options and consulted with an expert on LGBTQ+ student experience. Genderqueer was considered, but gender non-conforming was selected as more encompassing. Ultimately, the number of students selecting options beyond woman and man was two. Thus, for analyses including gender, we compared women and men. For all other analyses, we included all participants.

Graduate level. Degree choices were: Associates, Bachelors, Masters (excluding Masters in Business Administration; MBA), MBA, Juris Doctorate, and PhD. We aggregated degree choices to undergraduate (i.e., Associates and Bachelors) and graduate (Masters, MBA, Juris Doctorate, and PhD). Ideally, we would further delineate Masters-level and doctoral-level graduate students, but this would have reduced group sizes for the intersectional analyses to below the minimum recommended for statistical power.

Social Support

Social support is a six-item measure adapted from Carver (2000). We examine the amount of social support students perceive from four sources (each source has the same six items; only the root changed): faculty, domestic students, other international students, and staff. An example item is: "How much do the faculty at your university give you advice or information? Response options range from: *none at all* to *a great deal*. The social support scale has demonstrated strong internal consistency across sources (e.g., α = .91-.93; Brunsting et al., 2021).

Belonging

Belonging is a four-item measure of the degree individuals feel valued and accepted by the people at their university, adapted from the original six-item university belonging measure (Dahill-Brown & Jayawickreme, unpublished). An example measure item is "people at my university make me feel included." Response options indicate agreement on a six-point Likert-type scale ranging from strongly disagree to strongly agree. This measure has demonstrated strong reliability with an international student sample (α = .89; Brunsting et al., 2021).

Academic Confidence

Academic confidence is a nine-item measure adapted from Kohn and Frazer (1986) to capture how stressful students perceive completing different academic tasks (e.g., take good class notes; manage time effectively, write course papers) to be. Students respond on an 11-point slider with anchors at 0 (not confident at

all) to 10 (extremely confident). The scale demonstrated high reliability (α = .89) with the current sample.

Academic Stress

Academic stress is a seven-item measure adapted from Kohn and Frazer (1986) to capture how stressful students perceive completing different academic tasks (e.g., take good class notes; manage time effectively, write course papers) to be. Students respond on a 11-point slider with anchors at 0 (not stressful at all) to 10 (extremely stressful). The scale demonstrated high reliability (α = .86) with the current sample.

COVID-19 Impact

We included the five-item COVID-19 Educational Impact Scale (Authors, unpublished), which captures university students' perceptions of the impact of COVID-19 on their university life and educational experience. Example items are: "COVID-19 has negatively impacted my educational trajectory," and "My stress level is higher than it was before COVID-19". Response options were on a six-point Likert-type scale from 1 = strongly disagree to 6 = strongly agree; a higher score represents greater negative impact of COVID-19. The five-item subscale had high reliability in the current study (α = .83) and demonstrated concurrent validity through correlation with Psychological Wellbeing (r = -.26, $p < .001$) in the current sample.

Integration

We included an adapted version of the 5-item Integration subscale of the East Asian Ethnic Acculturation Measure (Barry, 2001), which we adapted to be inclusive of international students from across the world. The scale is designed to capture the degree to which individuals feel they are valued and able to engage both with people of their home culture and with individuals in the U.S. An example item: "I feel comfortable around both people from the U.S. and people from my home culture." Participants responded to statements on a five-point Likert-type scale anchored at 1 (*strongly disagree*) and 5 (*strongly agree*). The measure demonstrated internal consistency (α = .74) with the current sample.

Research Team Positionality

The first author is a straight white male born and raised in the U.S. who earned a PhD in Educational Psychology. He studied abroad multiple times and was also an international student for his master's degree. He has worked directly with international students since 2014, completed four externally-funded projects on international student engagement and development, and currently leads a research center on global student mobility. The diverse research teams he leads include multiple current international students to ensure active connection to the changing reality of the experience.

The second author is a straight Asian-immigrant male, who was raised in Japan. While he had all K-12 education and a bachelor's degree in law in Japan, his training in graduate schools (M.A. in International Educational Development and Ph.D. in Higher Education and Student Affairs) was acquired in the U.S. higher education system, which is privileged in the post-colonial era and the

global economy. As a former international student, he has studied international student experiences and success.

The third author is a cisgender woman and an Asian international scholar based in the U.S. She migrated from South Korea for her graduate studies and had been an international student for over a decade in the U.S. Through the continual process of social and cultural adjustment, she has reflected on her hybrid social and cultural identities, and the experience of being a social and cultural minority motivated her research interest in understanding all students' diversity to better support their educational needs and success. She earned her PhD in Educational Policy and Leadership Studies.

The fourth author is a gay white male born in Germany and raised in the U.S., who earned a PhD in Media in the United Kingdom. He studied abroad in the Global North and the Global South, and earned his master's degree in the U.K. During his time in the U.K., he worked in the field of international education as a recruitment officer for international students to the U.K. as well as in study abroad administration and recruitment. He has assisted on one grant funded project focused on international students in the U.S.

As a team, all authors have been or currently are international students, allowing us to reduce opportunities for misconceptions of the international student experience to influence study design and interpretation. The diverse intersecting identities and expertise on student identity of our author team lessens the likelihood of unexamined bias impacting the project.

Data Analysis

We examined the data for violations of assumptions for Welch's *t*-tests and ANOVAs prior to conducting analyses. All scales demonstrated adequate reliability ($\alpha > .70$). We provide Pearson's correlations for continuous variables. We conducted Welch's independent samples *t*-tests, as they are robust to differences in group size, to examine differences in group scale scores based on gender and graduate level. We also provide Hedges' *g* effect size, which is robust to group size difference as well. We conducted an omnibus one-way ANOVA using Least Significant Difference post hoc tests to examine differences in scale scores based on participants' region of origin. A power analysis using G*Power 3.1 (Faul et al., 2009) revealed power > .99 to detect medium effect size differences in social-emotional variables by gender, region of origin, and graduate level. Finally, we conducted a series of post-hoc Welch's *t*-tests and ANOVAs to probe differences in students' scale scores by gender, graduate level, and region of origin.

RESULTS

Gender and Graduate Level Differences

Table 2 shows a mean (*M*) and standard deviation (*SD*) of each outcome variable by graduate level and gender. Welch's *t*-test results indicate that graduate students have significantly higher faculty social support ($t = 2.11$, $p = .036$, $g = .18$) and significantly lower academic stress ($t = -2.65$, $p = .008$, $g = .23$) than undergraduate students. Data revealed no significant differences in other social-

emotional outcomes by graduate level. Similarly, comparisons by gender did not yield significant differences for any outcomes.

Table 2

Differences in Social-Emotional Outcomes by Graduate Status and Gender

Measure	Undergrad (n = 193) M (SD)	Grad (n = 384) M (SD)	Hedges' g	95% CI
Belonging	4.80 (.93)	4.91 (.99)	.11	-.06 , .28
Faculty Social Support	3.49 (.81)	3.65 (.93)	.18*	.00, .35
Domestic Student Social Support	3.11 (.92)	3.08 (1.00)	-.03	-.21, .14
Int'l Student Social Support	3.42 (1.06)	3.48 (1.03)	.06	-.12, .23
Academic Confidence	7.03 (1.69)	7.24 (1.73)	.12	-.06, .29
Academic Stress	5.08 (2.00)	4.60 (2.12)	-.23**	-.41, -.06
COVID-19 Related Stress	3.65 (.93)	3.56 (.99)	-.09	-.26, .09
Integration	3.96 (.82)	3.84 (.83)	-.14	-.32, .03
Psychological Wellbeing	3.58 (.49)	3.68 (.50)	.20*	.12, .19

Measure	Female (n = 299) M (SD)	Male (n = 281) M (SD)	Hedges' g	95% CI
Belonging	4.86 (.99)	4.89 (.95)	.04	-.13, .20
Faculty Social Support	3.60 (.90)	3.60 (.89)	-.01	-.17, .16
Domestic Student Social Support	3.08 (.99)	3.12 (.96)	.04	-.13, .20
Int'l Student Social Support	3.46 (1.09)	3.46 (.97)	.01	-.16, .17
Academic Confidence	7.08 (1.84)	7.28 (1.57)	.12	-.05, .28
Academic Stress	4.76 (2.15)	4.78 (2.05)	.01	-.15, .18
COVID-19 Related Stress	3.57 (1.00)	3.62 (.94)	.04	-.12, .21
Integration	3.83 (.84)	3.93 (.81)	.13	-.04, .29
Psychological Wellbeing	3.66 (.50)	3.63 (.50)	-.05	-.11, .05

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

Region Differences

Table 3 provides mean scores of each construct by students' home regions, with darker shading representing higher mean scores. We performed an ANOVA for each outcome, using Fisher's Least Significant Difference Post Hoc comparisons of those means (see Table 4). The favorable results were likely to be found among international students from Europe and Central Asia, Sub-Saharan Africa, and South Asia rather than those from East Asia or Middle East

Table 3. *Descriptive means of students' social emotional experiences by region*

Measure	East Asia	ECA	LatCarib	MENA	South Asia	SSA
Belonging	4.78	5.08	4.79	4.73	4.94	4.98
Faculty SS	3.60	3.70	3.49	3.57	3.66	3.64
Domestic Student SS	3.01	3.41	2.98	2.98	3.11	3.11
Int'l Student SS	3.29	3.41	3.37	3.40	3.63	3.93
Academic Confidence	6.67	7.15	7.45	7.05	7.41	7.75
Academic Stress	4.95	4.78	4.93	5.33	4.61	4.13
COVID-19 Stress	3.66	3.48	3.63	3.75	3.53	3.41
Integration	3.57	4.26	3.86	3.72	4.00	4.25
Psychological Wellbeing	3.50	3.81	3.74	3.56	3.68	3.86

Note. ECA = Europe and Central Asia; LatCarib = Latin American and Caribbean; MENA = Middle East and North Africa; SS = Social Support; SSA = Sub-Saharan Africa. World regions delineated following the World Bank (2020). Darker shading represents higher mean scores on each measure.

and North Africa. Students from Europe and Central Asia reported higher belonging than East Asian students ($p < .05$) and higher psychological wellbeing than students from East Asia ($p < .001$) and the Middle East and North Africa ($p < .05$). In addition, students from Europe and Central Asia had significantly better social support from domestic students than all other groups except those from Sub-Saharan Africa and had higher integration than all other regions. Students from Sub-Saharan Africa also received more support from other international students compared to ones from East Asia ($p < .001$), Europe and Central Asia ($p < .05$), Latin America and the Caribbean ($p < .01$), and Middle East and North Africa ($p < .01$), and their psychological wellbeing was higher than students from East Asia ($p < .001$), Middle East and North Africa ($p < .01$), and South Asia ($p < .05$). In contrast, students from East Asia or the Middle East and North Africa reported the lowest or the second-lowest score for most variables. Academic confidence of East Asian students was lower than students from Latin America and the Caribbean ($p < .01$), South Asia ($p < .001$), and Sub-Saharan Africa ($p < .001$).

Gender by Graduate Level, Difference by Region

Our two-way ANOVA analysis between gender and graduate level revealed higher outcomes for all other groups compared with undergraduate males. Male undergraduates experienced less social support from both faculty ($\Delta M = -.30$, $p < .05$) and international students ($\Delta M = -.27$, $p < .05$) and expressed lower academic confidence ($p < .05$) than the average of the other three groups. Similarly, undergraduate males perceived higher academic stress than graduate females ($\Delta M = -.53$, $p < .05$).

We further examined the differences in academic stress between regions and graduate levels. Within undergraduate students, students from Sub-Saharan Africa showed significantly lower academic stress than those from East Asia ($\Delta M = -1.63$, $p < .01$) and Middle East and North Africa ($\Delta M = -1.96$, $p < .05$).

Table 4. *ANOVA results and post-hoc comparisons for outcomes by region*

Measure	Group Difference	*F*	η^2
Belonging	ECA > East Asia*	1.70	.013
Faculty Social Support	*No significant differences*	0.99	.005
Domestic Student Social Support	ECA > East Asia**, LatCarib*, MENA *, South Asia*	2.39*	.017
Int'l Student Social Support	South Asia > East Asia ** SSA > East Asia***, ECA*, LatCarib**, MENA **	4.22***	.033
Academic Confidence	LatCarib > East Asia** South Asia > East Asia*** SSA > East Asia***	12.05***	.044
Academic Stress	East Asia > SSA* LatCarib > SSA* MENA > South Asia*, SSA**	1.72	.018
COVID-19 Stress	*No significant differences*	1.31	.008
Integration	ECA > East Asia***, LatCarib**, MENA **, South Asia* LatCarib > East Asia*; South Asia > East Asia***, MENA* SSA > East Asia***, LatCarib**, MENA**	9.20***	.056
Psychological Wellbeing	ECA > East Asia***, MENA* LatCarib > East Asia** South Asia > East Asia** SSA > East Asia***, MENA**, South Asia*	5.50***	.089

Note. ECA = Europe and Central Asia; LatCarib = Latin American and Caribbean; MENA = Middle East and North Africa; SSA = Sub-Saharan Africa.
* $p < .05$ ** $p < .01$, *** $p < .001$

In contrast, such regional discrepancies were not found among international graduate students. The results of the *t*-test comparing each category of regions and graduate levels (e.g., East Asian undergraduate vs. Europe/Central Asia graduate, or South Asian graduate vs. Latin America and the Caribbean undergraduate) were mostly not significant. The only exception is Sub-Saharan African undergraduates and Middle Eastern and North African graduates. The latter group

reported significantly higher academic stress than the former (ΔM = -1.45, p < .05). However, the results should be interpreted with caution because each category tends to have a relatively low sample size, which can influence the statistical power of the *t*-test analysis.

DISCUSSION

We designed our study to provide an initial exploration of differences in social-emotional adjustment experiences for international students at U.S. universities based on participants demographic information from a large dataset. Below we review findings for gender, graduate level, region of origin, and the intersections and combinations of the three. We discuss limitations and provide considerations for future research .

Gender and Social-Emotional Experiences

Our findings revealed no significant differences for male and female students on nine focal social-emotional outcomes when gender is the only demographic factor considered. Given that prior findings have been mixed with respect to gender, and that the largest studies with the most diverse samples (e.g., Yeh & Inose, 2003; Zeng et al., 2022) also revealed no significant differences, it appears that gender alone is not a key factor in international students' adjustment experiences at this time, at least when considering women and men; further research is needed to complement qualitative research on gender non-binary, gender non-conforming, and genderqueer students. However prior research noted differences across gender for students from one country or location (e.g., Taiwan, South Korea; Dao et al., 2007; Lee et al., 2009). Thus, we encourage future researchers to continue to explore the role of gender in students' experiences.

Gender, Graduate Level, and Social-Emotional Experiences

Our findings indicated that male undergraduate students perceived less social support from faculty and had lower academic confidence than the other three groups (female undergraduates, female graduates, and male graduates) and that they reported higher academic stress than female graduate students. This finding aligns with the previous literature: graduate students had higher social support and lower academic stress than undergraduate students (Han et al., 2017; Li et al., 2013). Social support is known as a strong predictor of international students' adjustment and social-emotional outcomes (Brunsting et al., 2021; Sullivan & Kashubeck-West, 2015), and initial qualitative evidence suggests graduate international students have greater opportunity to develop strong social support from professors, advisors, and other members of their research teams (Xiong & Zhou, 2018). Given these results, our finding regarding the intersection of gender and graduate level provides additional evidence from a larger, more diverse, multi-institutional sample for the improved outcomes for graduate students and provides novel evidence for the differential outcomes by intersecting gender and graduate status.

Given our findings and those of prior studies with respect to gender, we recommend future researchers consider gender as a potential moderator in

process-outcome studies and to consider the interplay of gender and graduate level, among other potential factors. In addition, we also call for future research to explicate experiences for students of genders beyond female and male (e.g., gender non-binary, gender non-conforming, genderqueer students) and to consider more inclusive sampling methods as well.

Region of Origin and Social-Emotional Experiences

Regarding students' region of origin, our results extended prior findings and yielded novel findings. Findings aligned with prior work (e.g., Glass et al., 2014; Yeh & Inose, 2003) that European and Central Asia students report fewer challenges in acculturation and social-emotional outcomes than students from other regions. Given the consistency of these findings, research illuminating the underlying reasons and mechanisms for these differences is needed. Similarly, across the majority of the study outcomes, students from East Asia as well as the Middle East and North Africa reported less positive social-emotional outcomes than their peers from other world regions. More research is needed, but the findings appear to align with studies of students from individual countries within these regions.

We also extended the work of Yeh and Inose (2003) who examined social support by region of the world. Our findings revealed a range of differences between students from Sub-Saharan Africa and those from the Middle East and North Africa, with Sub-Saharan African international students reporting higher international student social support, integration, psychological wellbeing, and less academic stress. Given the range of differences in adjustment experiences, social support, and social-emotional outcomes, we recommend researchers consider how U.S. educational institutions' structures and cultures can differentially impact student experiences by students' identities and graduate status.

Region of Origin, Graduate Level, and Social-Emotional Experiences

As for the intersection of the region of origin and graduate level, the relationship between the region of origin and social-emotional outcomes was insignificant with the effect of graduate level; however, there were differences between undergraduate students from different regions, with students from Sub-Saharan Africa reporting less academic stress than their undergraduate counterparts from the Middle East and North Africa and from East Asia. Interestingly, when looking across graduate level, Sub-Saharan Africa undergraduate students reported less academic stress than Middle Eastern and North African graduates. This finding is the lone example of a group of undergraduate students reporting better experiences in comparison with graduate students in our sample and merits further inquiry.

Limitations and Future Directions

Although this study provides an initial exploration of international students' adjustment and wellbeing at U.S. universities based on multiple demographic characteristics, it has limitations. First, the analysis is cross-sectional, generated from only one timepoint of data; we recommend future researchers employ longitudinal analyses to provide a more nuanced understanding of trajectories of

adjustment and well-being for international students and allow researchers to examine how students with different demographics and intersecting identities change over time. Second, the data is limited in its generalizability due to the lower-than-expected response rate despite following similar protocols to prior survey research with international students that yielded response rates of 20 and 30%. We examined for response bias differences between students at universities with the highest and lowest response rates, the low overall response rate is a notable limitation. We encourage future researchers to consider alternative approaches toward collecting quantitative data from international students; perhaps more concerted recruiting efforts (e.g., personalized emails), sampling procedures, or incentives might enhance response rate and, in turn, generalizability.

A third limitation is that we grouped students pursuing different graduate degrees (e.g., masters, PhD, JD, MD) into one group in order to maintain enough statistical power to examine for medium effect size differences, despite the participants' experiences as graduate students being qualitatively different. We encourage researchers to consider differences in graduate students and examine their experiences and outcomes separately in future inquiry. Fourth, we were unsuccessful in oversampling for students whose gender identities are beyond the woman-man binary; thus, our sample did not include enough participants to examine their outcomes separately. We encourage future research to consider sampling techniques to include more transgender, genderqueer, and/or gender non-conforming students. Fifth, this study did not include sexual orientation as a key demographic variable. We recommend future research include a broader range of demographic variables to both support understanding of who is represented in the study but also to allow for additional exploration and testing of intersectional similarities and differences.

Sixth, with six regions of the world, multiple genders, and two graduate status levels representing 24 groups, we were unable to test for differences across all intersections of gender by graduate level by region of the world, even with a large sample size. We recommend quantitative researchers in the field consider how they can collaborate to include similar variables to allow for linking of databases to allow for testing of between-groups differences based on intersecting demographic variables.

Intersectional Approaches and Future Research

As researchers consider better ways to incorporate individuals' intersecting demographic characteristics into quantitative research, we encourage discussion and consideration of QuantCrit (Gillborn et al., 2018) as a methodological approach. Arising from Critical Quantitative approaches (Stage, 2007; Teranishi, 2007), QuantCrit improves exploration of the cultural diversity within each group which is essential for international student research. In spite of their diverse backgrounds (e.g., race/ethnicity, nationality, academic preparation, social class, or gender, to name a few characteristics), international students in the U.S. are often viewed as one homogeneous group (Arthur, 2018; Heng, 2019; Lee, 2014; Mamiseishvili, 2012). Thus, researchers should be careful not to overgeneralize findings from one group of international students to other groups. Rather, those

researchers should develop their analytical approaches to explore the diversity and intersectionality of international student backgrounds, and consider the ways in which students' nationality, race, or region of origin are perceived and vary within different host countries.

Furthermore, viewing international students through the lens of intersectionality and diversity, greater attention should be paid to those students that fit beyond the gender binary and to those students who self-identify as members of the LGBTQ+ community. LGBTQ+ international students may face additional struggles, balancing their national identity, maintaining their familial responsibilities (Quach et al., 2013), while adapting to a new cultural environment. By adapting support services to be more inclusive to the LGBTQ+ and international community, support resources would serve a greater purpose and the wider student body.

Also, we suggest that researchers considering race in combination with nationality consider collecting racial/ethnic information beyond common U.S. racial categories that have been used in the field of higher education. For example, Integrated Postsecondary Education Data System (IPEDS), which compiles student information from U.S. higher education institutions, uses American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, White, and Unknown. Another large-scale college student survey also utilizes the similar racial/ethnic classification (NSSE, 2021). However, this categorization may overlook within-category nuances. In our study, international students from South Asia presented distinguishable outcomes from those from East Asia. Therefore, it is critical to inquire about international students' detailed racial/ethnic backgrounds and examine how those differences are associated with their college experience and success.

Thus, we argue that approaching international student experiences intersectionally enhances researchers' intentionality in better understanding the multiple diverse characteristics of international students. This reduces the likelihood of research and practice that results in one-size-fits all policies, programming, and support for international students. Further, such approaches can complement qualitative research in identifying where the university systems, structures, norms, and cultures are maintaining unequal outcomes for international students based on their demographic characteristics and graduate level.

Implications for Practice

Given the limited generalizability of the current study and the need for replication, we tentatively offer broader implications for practice. The current study's findings align with prior findings in the field (e.g., Koo, Baker, et al., 2021; Zeng et al., 2022) in illuminating differences in international students' experiences based on demographic outcomes. While the field continues to identify potential demographic or identity factors which influence adjustment, we encourage faculty, staff, and administrators to (a) reconceptualize international students as diverse, heterogeneous individuals with intersecting identities and (b) consider approaches to information and data gathering that is informed by students' multiple intersecting identities. It may be, as illuminated by the current sample,

that a specific group (e.g., undergraduate male students) is negatively impacted by the current structure, norms, and supports across U.S. universities. And although we aggregated students by region of origin for the current analysis, we note that students from the same country may have vastly different cultural experiences based on city or region, language spoken, religion, socioeconomic status, among other factors. Thus, we recommend university personnel consider broad-based supports and universal design.

Conclusion

The current study provides an exploration of an intersectional approach to research on the experience and outcomes of international students attending U.S. universities. Examination by students' gender, graduate level, and region of origin, revealed a range of group differences and interactions of group differences on social-emotional experiences, especially by region of origin and gender-graduate level interactions. This initial exploration revealed strengths of the approach as well as areas in which more consideration by the field is needed to continue to develop its application to international student engagement and outcomes.

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