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International Graduate Students' Mental Health Diagnoses, Challenges, and Support: A Descriptive Comparison to their Non-International Graduate Student Peers

Kathleen Clarke

Wilfrid Laurier University, Ontario, Canada

ABSTRACT

Although there is a growing body of research that suggests the mental health of graduate students differs from that of their undergraduate counterparts, studies examining international students at the graduate level are scarce. This study therefore compares mental health diagnoses, challenges and stressors experienced, and use of mental health support, of international and non-international students who identified as being graduate/professional students. Data from the 2019 Canadian National College Health Assessment were used to compare the international graduate students ($n = 1,876$) to their non-international peers ($n = 4,809$). Significant differences were found on prevalence of conditions, certain specific challenges that are experienced, and help-seeking behaviours. Overall, international and non-international students may experience similar challenges, but international students are less likely to seek support. The findings suggest a need for graduate advisors and student affairs professionals to recognize the unique experiences of international graduate students particularly with their help-seeking behaviours.

Keywords: Canada, graduate students, international students, National College Health Assessment, mental health

Existing research suggests the level of stress graduate students experience may be higher or more complex in comparison to their undergraduate counterparts (Eisenberg et al., 2007; Wyatt & Oswalt, 2013). Many factors contribute to students' experiences of stress: the individualized nature of graduate education, challenges with faculty advisors, racial discrimination, financial, language, and

work-life difficulties, as well as feelings of isolation, inadequacy, and unbelonging (Baird, 1990; Bekkouche et al., 2022; Evans et al., 2018; Koo et al., 2021; Leveque et al., 2017; Morris, 2021, Posselt, 2021). These high levels of stress play a role in high rates of mental health concerns, which have been called a “crisis” in graduate education (Evans et al., 2018): Leveque (2017) found that the prevalence of having or developing a common psychiatric disorder was 2.43 times higher in PhD students than in the highly educated general population. In another study of about 2,300 graduate students worldwide, Evans et al. (2018) found that 39% of respondents scored in the moderate to severe depression range, compared to 6% in the general population. They also found that 41% of graduate students scored high enough to be categorized as having moderate to severe anxiety.

Specific subgroups of graduate students experience additional challenges that may exacerbate the already existing challenges of graduate school. For example, international students experience challenges such as loneliness, homesickness, language barriers, financial issues, acculturative stress, and loss of identity (Forbes-Mewett & Sawyer, 2016; Koo et al., 2021). These challenges may in turn impact academic performance, and jeopardize completion of the degree. With an increasing number of international students, Canadian institutions must be aware of and intervene to support the students that they are recruiting.

Figures indicate that as of December 2019, there were 498,735 postsecondary international students in Canada, an increase of 14.5% since 2018 (CBIE-BCEI, 2020). In the year prior to the pandemic, the continued increase in the number of international students in post-secondary in Canada accounted for most of the growth experienced at the postsecondary level, as there was a decrease in the number of domestic students (Statistics Canada, 2021). These students are critical to postsecondary institutions and the Canadian labour force as many will stay in Canada upon graduation. While much of the Canadian international student population consists of undergraduate students, these international students are also prevalent at the graduate level.

Even though it is evident that mental health concerns are prevalent within graduate education, there is a limited understanding of the specific subgroup of international graduate students’ mental health. For this reason, the purpose of this study is to extend the limited understanding of international graduate students mental health using a large, national sample. The research question guiding the study is:

What similarities and differences exist when comparing international and non-international graduate students on mental health diagnoses, stressors, and mental health support?

PREVALENCE OF INTERNATIONAL STUDENTS’ MENTAL HEALTH

Several studies have compared the prevalence of mental health conditions between international and non-international students (Hamamura & Laird, 2014; Hamamura & Mearns, 2019). These studies have indicated similar rates of mental health challenges in international and non-international students. Hamamura and

Laird (2014), for example, found that the levels of depression in East Asian international students and domestic (North American) students were not statistically different. The sample for this study consisted of 52 East Asian international students and 126 domestic students, and graduate students comprised about 2% of the sample. Differences between levels of education were not examined. While this literature indicates that there are similarities in terms of prevalence of different mental health conditions and challenges, these studies do not focus on graduate students.

In their examination of acculturative and perceived stress in relation to health-related quality of life, Ogunsaynua et al. (2018) found that the mental health scores of the 89 international graduate students located in the United States (U.S) were significantly lower than the general U.S population. Studies focused on international graduate students' mental health are scarce and only a few articles could be identified. In their sample of 551 international graduate students participants, Hyun et al. (2007) found that 44% of the sample experienced a stress-related event that seriously impacted their emotional well-being or academic performance within the year. This was similar to the proportion of domestic (U.S.) students, with 46% of the 2,493 domestic students responding in the same way. In another comparative study, Mitchell et al. (2007) similarly found no statistically significant differences on mean scores for depression and anxiety. Their sample was comprised of 218 international students and 222 students domestic (U.S) students, of which 53% were graduate students and 47% undergraduates. While Hyun et al. included those who responded to an e-mail invitation that was sent to all registered graduate students at one large institution in the United States, Mitchell, conversely, examined students who used counselling services at one large university in the United States. Both studies focused on one university and the findings can therefore not be generalized to the larger population of international graduate students.

INTERNATIONAL STUDENTS' STRESSORS

There is an abundance of literature that highlights the unique experiences of international students' and the challenges they may experience such as language difficulties (Forbes-Mewett & Sawyer, 2016; Mori, 2000; Shadowen et al., 2019; Yeh & Inose, 2010), acculturative stress (Mori, 2000; Shadowen et al., 2019; Yeh & Inose, 2010;), and a lack of social support (Mallinckrodt & Leong, 1992; Poyrazli et al., Al-Timimi, 2004). The stress international students experience may differ from that of their peers, particularly when discussing the types of stressors that are experienced. Misra and Castillo (2004) identified differences in the types of stressors international and domestic students experience according to five categories: change, conflicts, frustrations, pressures, and self-imposed stress. In comparison to American students, international students reported lower self-imposed stressors and lower behavioural reactions to stressors. Though graduate students consisted of about 3% of this sample, differences between undergraduate and graduate students were not examined.

Quaye and Harper (2015) point out that graduate students may experience a host of issues in their graduate education, including “budgeting the final costs of their education, balancing work, family, and school, managing stress, and dealing with day-to-day experiences” (p. 351). Literature focusing on international graduate students’ experiences suggests the stressors experienced by this subgroup of students may differ from that of their non-international student peers. Shen and Herr (2004) examined international graduate students’ career placement concerns and highlighted how these students must consider whether they are going to return to their home countries after graduation, and if not, how they will manage immigration and visa requirements—both of which are stressors that differ from the concerns of domestic students.

Similar to the prevalence literature, research comparing stressors experienced by international and domestic graduate students is scarce. Hyun et al. (2007)’s work is again, one of few studies that not only focuses on the types of stressors or challenges graduate international students might experience and but also, how they compare to domestic students. They found that international students were significantly more likely to report having financial problems, and less likely to report having emotional or relationship challenges in comparison to their domestic peers.

INTERNATIONAL STUDENTS’ USE OF SUPPORT

While there is evidence that the prevalence of mental health challenges may be similar across international and non-international students, there is also research indicating that mental health help-seeking behaviours may differ. One study found that international students underutilize counselling services when considering the percentage of students enrolled (Nilsson et al., 2004). Compared to domestic students, international students are often less likely to use mental health services both on-campus (Golberstein et al., 2008; Hyun et al., 2007) as well as off-campus (Yoon & Jepsen, 2008). Barriers to international students’ seeking support may consist of lack of awareness of services (Kilinc & Granello, 2003), language barriers (Prieto-Welch, 2016), and lack of culturally appropriate services (Lee et al., 2014). Gan and Forbes-Mewett (2018) also found that even though students inquired about counselling services, they typically did not follow-through with services because of a perception that the services would not be useful.

Though there is a growing literature that examines international students’ support seeking behaviours, literature focused on international graduate students’ behaviours is lacking. Yet, there is research indicating the help-seeking behaviours of graduate students differs from that of undergraduates. For example, Hyun et al. (2006) found that in comparison to undergraduates, graduate students were more likely to report they would seek mental health care in the future if they were experiencing challenges. Hyun et al.’s (2007) subsequent analysis compared international and non-international students’ help-seeking behaviours, and is one of few studies to do so. Hyun et al. found that although 33% of international graduate students had considered seeking support, only 17% had used on or off-

campus counselling. Furthermore, while 17% of international students had use counselling, this was significantly different from non-international students, where 36% of respondents reported that they had (Hyun et al., 2007). These differences underscore the need to consider how mental health information, programs, and services at different institutions are customized to meet the different needs of international students, particularly at the graduate level.

This study contributes to these areas of literature by comparing international and non-international students' mental health concerns, types of challenges they experience, and the supports that are used, with a focus on graduate education. Furthermore, the context of the study is a national, Canadian scale rather than one institution.

METHODS

The National College Health Assessment (NCHA)

The NCHA was developed by a team of postsecondary health professionals and is a comprehensive assessment of college¹ student health. Since 2000, 728 unique institutions have used the NCHA and the average response rate is 19-20% (ACHA-NCHA, 2014). The instrument has undergone reliability and validity testing (ACHA-NCHA, 2014). The ACHA (2013b) reported that they used data from the 2009 and 2010 administrations of the NCHA survey to determine the internal consistency of the survey. The coefficient alpha for most sets in the survey and within the mental health sets specifically were above .7, which is usually considered acceptable.

Variables

The instrument has 70 questions covering these topics: (a) alcohol, tobacco, and drug use; (b) sexual health; (c) weight, nutrition, and exercise; (d) mental health; and (e) personal safety and violence (ACHA-NCHA, 2014). For this study, the focus was on the mental health section.

Diagnoses

Three questions were used to obtain an understanding of prevalence and how prevalence of conditions compared across international and non-international graduate students. One question asked if participants had a range of disabilities. Another asked if participants had been diagnosed or treated by a professional within the last year for 15 different mental health conditions. The response options for each item were: No; Yes, diagnosed but not treated; Yes, treated with medication; Yes, treated with psychotherapy; Yes, treated with medication and psychotherapy; and Yes, other treatment. A new variable was created with only

¹ "college" as used here is equivalent to either college or university in Canada.

two response options: No; Yes, diagnosed and/or treated. The final question asked whether participants had ever been diagnosed with depression and response options were *yes* and *no*.

Challenges

Several questions were grouped as challenges students experience. One question asked if a range of items had been traumatic or very difficult to handle within the last 12 months. Items were: academics; career-related issues; death of a family member or friend; family problems; intimate relationships; other social relationships; finances; health problem of a family member or partner; personal appearance; personal health issue; and sleep difficulties. The response options were *yes* or *no*.

Another question inquired about respondents' stress level within the past 12 months. Response options were: (a) no stress; (b) less than average stress; (c) average stress; (d) more than average stress; and (e) tremendous stress.

Another section of the NCHA inquired about impediments to academic performance within the last 12 months. The question asks about 31 impediments and the response options were:

- 1) This did not happen to me/not applicable;
- 2) I have experienced this issue but my academics have not been affected;
- 3) Received a lower grade on an exam or important project;
- 4) Received a lower grade in the course; received an incomplete or dropped the course;
- 5) Significant disruption in thesis, dissertation, research, or practicum work.

For the purposes of data analysis, a new variable was created with three categories:

- 1) Those who reported that the item did not happen to them or it was not applicable.
- 2) Those whose academics have not been affected.
- 3) Those whose academics have been affected.

Support

Several questions asked about use of psychological or mental health services. One question asked: "Have you ever received psychological or mental health services from any of the following?" The list of providers was: (a) a counselor/therapist/psychologist; (b) a psychiatrist; (c) other medical provider (e.g., physician); and (d) a minister/priest/rabbi/other clergy. Response options were *yes* or *no*. Another question inquired about use of on-campus counselling or health services, and the response options were *yes* and *no*. Lastly, a question inquired about future use: "If in the future you were having a personal problem that was really bothering you, would you consider seeking help from a mental health professional?" Response options were *yes* and *no*.

Participants

In 2019, the data collection in Canada occurred in the spring. Fifty-eight institutions self-selected to participate. The aggregate dataset includes 55,284 surveys that were collected using the web survey and there was a mean response rate of 20%. A total of 6,873 participants reported that they were a graduate/professional student, representing 13.9% of the total sample (ACHA, 2019). Participants from private institutions ($n= 165$) and those who did not respond to the international student status question ($n= 23$) were removed, leaving a sample of 6,685 participants.

Of the 6,685 participants, 28.06% ($n = 1,876$) reported they were an international student. Most were from institutions that were considered 4-year or more, had 20,000 or more students, and were in large urban centers with populations equal to or greater than 500,000. Comparative demographic data for the two groups are presented in Table 1.

Table 1: Demographic Characteristics of International and Non-International Graduate/Professional Students

Characteristic	% of participants		χ^2	<i>p</i>	<i>V</i>
	Internatio- nal (<i>n</i> = 1,876)	Non- Internation al (<i>n</i> = 4,809)			
Age					
18-24	35.56	35.55	63.948	.000	0.098
25-29	34.60	38.33			
30-34	13.20	14.87			
35-39	6.67	6.50			
40-44	3.76	2.24			
45-49	2.81	0.80			
50-54	1.54	0.53			
55+	1.31	0.37			
Gender identity					
Woman	48.88	70.01	283.37 6	.000	0.206
Man	49.89	28.22			
Another identity ^a	1.01	1.71			
Sexual orientation					

Characteristic	% of participants		χ^2	<i>p</i>	<i>V</i>
	International (<i>n</i> = 1,876)	Non-International (<i>n</i> = 4,809)			
Asexual	0.05	0.62	58.878	.000	0.094
Bisexual	3.04	7.11			
Straight/heterosexual	89.39	83.76			
Another identity ^b	6.18	8.13			
Enrolment status					
Full-time	96.43	88.56	103.765	.000	0.125
Part-time	2.56	9.23			
Other	0.80	2.08			
Marital status					
Single	72.49	62.86	63.906	.000	0.098
Married/partnered	24.52	31.63			
Separated	0.80	1.31			
Divorced	0.64	1.19			
Other	1.23	2.85			
Place of residence					
Campus residence hall	5.81	1.98	412.498	.000	0.249
Fraternity or sorority house	0.37	0.12			
Other college/university housing	3.94	1.98			
Parent/guardian's home	3.20	17.05			
Other off-campus housing	75.69	58.87			
Other	10.77	19.94			

Characteristic	% of participants		χ^2	<i>p</i>	<i>V</i>
	International (<i>n</i> = 1,876)	Non-International (<i>n</i> = 4,809)			
Weekly hours of paid employment					
0	26.81	32.13	103.47 4	.000	0.125
1-19	49.68	36.39			
20 or more	22.76	30.94			
Race/Ethnicity ^c					
Aboriginal	1.33	3.85	28.040	.000	0.065
Arab	3.41	2.39	5.390	.020	0.028
Black	6.50	2.45	63.937	.000	0.098
Chinese	12.63	7.30	47.871	.000	0.085
Filipino	1.44	1.31	0.170	.680	0.005
Japanese	0.21	0.29	0.305	.581	0.007
Korean	1.01	0.83	0.506	.477	0.009
Latin American	10.71	1.81	259.60 0	.000	0.197
Multiracial	1.17	3.22	22.012	.000	0.057
South Asian	40.35	7.26	1070.5 12	.000	0.400
Southeast Asian	2.24	1.37	6.373	.012	0.031
West Asian	7.09	1.98	107.14 2	.000	0.127
White	12.79	69.58	1749.9 27	.000	0.512

Note. Total of percentages by row is not 100 because of nonresponse.

^aThis category had respondents who identified as: trans woman, trans man, genderqueer, and other.

^bThis category had respondents who identified as: gay, lesbian, pansexual, queer, questioning, same gender loving, or other.

^cRespondents were asked to select all that apply. Response option 'Other' was excluded.

International students tended to be older, more likely to identify as straight/heterosexual, be enrolled full-time, single, and living in off-campus

housing that was not a parent/guardian's home. For gender identity, while 49% of international students identified as a woman and 50% identified as a man, this proportion significantly differed for non-international students, with 70% identifying as a woman and 28% identifying as a man. For weekly hours of paid employment, a higher proportion of international students reported they worked between 1 and 19 hours per week, while more non-international reported that they either did not work or that they worked more than 20 hours.

Similar proportions of non-international and international students reported being Arab, Filipino, Japanese, Korean, or Southeast Asian. A higher proportion of non-international students reported they were Aboriginal, white, or multiracial while a higher proportion of international students identified as Black, Chinese, Latin American, South Asian, and West Asian.

Data Analysis

The purpose of this study was to compare international and non-international students on the prevalence of mental health conditions, the challenges they experience, and the supports they use. The quantitative data analysis was therefore limited to mostly descriptive statistics with some inferential statistics. StataCorp's (2013) *STATA* statistical software was used to complete these analyses. Chi-square tests were used to determine whether there were significant differences between international and non-international graduate students. Because of the large sample size and the numerous statistical significance tests, a somewhat conservative requirement of $p < .001$ was used. Cramer's V was used to determine the effect size of the differences. Following Cohen's (1988) recommendation, the effect sizes were interpreted as follows: $V < .1$ is negligible, $.10 \leq V < .30$ is small, $.30 \leq V < .50$ is medium, and $.50 \leq V$ is large.

RESULTS

Prevalence

The prevalence of disability across the two groups was significantly different ($\chi^2(1) = 146.984$, $p < .001$, $V = 0.148$). While 25.62% of non-international students were identified as having one or more disabilities, only 11.99% of international students were. Regarding responses to the question that asked whether participants had a psychiatric condition, a significant difference was found ($\chi^2(1) = 88.500$, $p < .001$, $V = 0.115$). While 9.65% of non-international students reported that they had a psychiatric condition, only 2.77% of international students responded in the same way. The effect sizes for both of these tests were small.

Another series of questions inquired about whether respondents had been diagnosed with or treated for one or more mental health conditions in the past 12 months. Of the 15 conditions, significant differences were found on only five: anxiety ($\chi^2(1) = 105.634$, $p < .001$, $V = 0.126$); depression ($\chi^2(1) = 37.012$, $p < .001$, $V = 0.075$); panic attacks ($\chi^2(1) = 45.529$, $p < .001$, $V = 0.083$); other

addiction ($\chi^2(1) = 18.845, p < .001, V = 0.053$); and other mental health condition ($\chi^2(1) = 15.150, p < .001, V = 0.048$). For each of these items, more non-international students responded that they had been diagnosed and/or treated within the past 12 months, in comparison to international students. However, of the five items for which a significant difference was found, four had negligible effect sizes. Anxiety had a small effect size ($V = 0.126$), and this condition was also the most frequently reported condition. While 22.60% of non-international students reported that they had been diagnosed with or treated for anxiety in the past 12 months, only 11.51% of international students responded in the same way.

Significantly more non-international graduate students reported that they had been diagnosed with depression before ($\chi^2(1) = 66.210, p < .001, V = 0.100$). While 22.89% of the non-international students said they had, only 13.86% of international students did. The effect size for this test was small.

Challenges

A significant difference was found between international and non-international students ($\chi^2(4) = 508.291, p < .001, V = 0.276$) with level of stress they experienced in the last 12 months. While 66.99% of non-international students rated their level of stress as more than average or tremendous, only 43.95% of international students rated their stress this high. The effect size for this considered small.

Another question asked participants if a range of items had been traumatic or difficult to handle at some point in the past 12 months. Results for this question are presented in Table 2. A significant difference was found on six of the 11 stressors, and the effect sizes were negligible. For five of the items (academics; personal appearance; health problem of a family member of partner; death of a family member or friend; and family problems) where there was a significant difference, more non-international students reported that the stressor had been traumatic or difficult to handle in the past 12 months, in comparison to international students. Career-related issue was the only item for which more international students (43.87%) reported that it had been traumatic or difficult to handle in the past 12 months in comparison to non-international students (39.16%).

Table 2: Responses to “Within the Last 12 Months, Have Any of the Following Been Traumatic or Very Difficult for You to Handle?” Non-

International and International Students and Non-International Students

Potential Stressor	% of participants				$\chi^2(1)$	<i>p</i>	<i>V</i>
	International Students (<i>n</i> = 1,876)		Non-International Students (<i>n</i> = 4,809)				
	Yes	No	Yes	No			
Academics	42.54	56.34	52.09	47.56	45.829.000	0.083	
Personal appearance	19.78	79.32	26.62	73.13	32.499.000	0.070	
Health problem of a family member or partner	17.59	81.13	23.75	75.77	28.252.000	0.065	
Death of a family member or friend	10.98	87.69	15.76	83.86	23.693.000	0.060	
Career-related issue	43.87	55.28	39.16	60.51	13.666.000	0.045	
Family problems	25.53	73.51	30.09	69.41	12.931.000	0.044	
Intimate relationships	26.49	72.39	30.96	68.81	11.492.001	0.042	
Personal health issue	20.95	78.30	24.20	75.46	7.562.006	0.034	
Sleep difficulties	30.17	68.76	33.83	65.79	7.260.007	0.033	
Finances	38.22	60.66	36.70	62.78	1.766.184	0.016	
Other social relationships	23.83	75.27	23.81	75.90	0.020.887	0.002	

Note. Total of percentages by row is not 100 because of nonresponse.

Another question asked participants if they had experienced a series of potential stressors and if they impeded their academic performance in the past 12 months. Results of these chi-square tests are detailed in Table 3. No significant differences were found for 9 items (depression, finances, assault (sexual), relationship difficulties, discrimination, internet use/computer games, ADHD,

injury, and learning disability). Conversely, significant differences were found on 17 stressors. The typical pattern for these items was that a higher proportion of non-international students reported they experienced the items and a higher proportion also reported that their academics were impeded by them in comparison to international students. However, there were a few exceptions. For example, for three of stressors (homesickness, roommate difficulties, eating disorder/problem) for which there was a significant difference, a higher proportion of international students reported that they experienced the item. The significant difference on homesickness had the greatest effect size ($V = .225$) and a higher proportion of international students reported that they experienced it (30.60% international versus 15.87% non-international) and that their academics were impacted (9.59% international versus 3.37% non-international).

Table 3: Responses to “Within the Last 12 Months, Have Any of the Following Affected Your Academic Performance?” for Non-International and International Students

Item	I have experienced this and my academics were affected		I have experienced this but my academics have not been affected		This did not happen to me/not applicable		$\chi^2(2)$	p	V
	I ^a	NI ^b	I	NI	I	NI			
Homesickness	9.59	3.37	30.60	15.97	58.10	79.95	334.734	.000	0.225
Anxiety	18.39	25.45	20.31	32.56	59.70	41.32	197.091	.000	0.173
Stress	23.77	30.28	35.07	45.93	39.82	23.14	192.554	.000	0.170
Participation in extracurriculars	2.67	5.26	12.74	22.81	83.53	71.41	115.301	.000	0.132
Sleep difficulties	15.09	18.88	25.53	35.29	57.84	45.31	94.013	.000	0.119
Cold/Flu/Sore throat	8.80	12.44	27.67	37.76	62.37	49.45	97.750	.000	0.121

Item	I have experienced this and my academics were affected		I have experienced this but my academics have not been affected		This did not happen to me/ not applicable		$\chi^2(2)$	<i>p</i>	<i>V</i>
	I ^a	NI ^b	I	NI	I	NI			
Concern for troubled friend/ family member	8.85	12.00	18.28	27.66	71.96	60.01	90.013	.000	0.116
Chronic health problem/ illness	1.97	5.36	3.94	8.05	93.12	86.17	75.686	.000	0.107
Roommate difficulties	6.45	3.51	17.43	12.16	73.88	83.41	69.582	.000	0.103
Death of a friend/family member	3.14	5.59	7.14	12.77	88.43	81.04	63.667	.000	0.098
Alcohol use	0.80	2.02	13.43	20.54	84.28	77.13	57.568	.000	0.093
Allergies	1.97	1.29	8.42	13.64	88.22	84.53	36.627	.000	0.074
Work	11.41	14.33	23.61	29.05	63.43	55.94	36.108	.000	0.074
Drug use	0.96	1.25	1.65	4.55	95.90	93.60	32.118	.000	0.070
Eating disorder/problem	2.24	1.00	6.50	4.70	90.14	93.84	25.878	.000	0.062
Chronic pain	3.20	4.64	6.34	9.50	89.07	85.19	24.598	.000	0.061

Item	I have experienced this and my academics were affected		I have experienced this but my academics have not been affected		This did not happen to me/not applicable		$\chi^2(2)$	<i>p</i>	<i>V</i>
	I ^a	NI ^b	I	NI	I	NI			
Sinus infection/Ear infection/Bronchitis/Strep throat	2.51	3.39	7.73	11.3 3	88.5	84.7 4 8	22.563	.000	0.058
Depression	14.18	16.5 9	14.34	16.7 4	69.9	65.9 4 4	12.956	.002	0.044
Finances	9.81	8.05	22.12	25.7 8	66.4	65.6 7 7	12.241	.002	0.043
Assault (sexual)	0.69	0.96	1.01	2.22	96.9	96.1 1 1	11.645	.003	0.042
Relationship difficulties	8.16	9.63	18.23	20.7 5	72.4	68.9 9 7	9.838	.007	0.039
Discrimination	2.99	2.14	5.54	6.97	90.4	90.3 1 5	8.174	.017	0.035
Internet use/computer games	8.80	8.78	20.52	17.6 3	69.6	73.0 7 9	8.281	.016	0.035
ADHD	3.30	4.43	2.61	3.16	92.9	91.8 1 3	5.638	.060	0.029
Injury	2.35	2.27	6.88	8.59	89.7	88.6 7 0	5.100	.078	0.028
Learning disability	3.04	2.47	3.04	2.56	92.6	94.1 4 8	3.101	.212	0.022

Note. I = international students; NI = non-international students. Values represent percentage of respondents. Total of percentages by row is not 100

because of nonresponse. 'Other' was excluded. Stressors with under 2% (gambling, pregnancy, assault (physical), and STD/I) were excluded.

^a $n = 1,876$. ^b $n = 4,809$.

For both non-international and international students, the item that had the highest proportion of participants report that they experienced the item but that it did not impact their academics was stress, with 45.9% of non-international and 35.07% of international students. Stress and anxiety were the two most frequently reported impediments to academic performance, with : 30.28% of non-international and 23.77% of international students reporting stress and 25.45% of non-international and 18.39% of international students reporting anxiety. The differences between non-international and international students were significant.

Support

Participants were asked if they had ever received psychological or mental health services from four categories of service providers. Non-international students were significantly more likely to report that they had received psychological or mental health services from a *counselor/therapist/psychologist* ($\chi^2(1) = 431.822, p < .001, V = 0.255$), *psychiatrist* ($\chi^2(1) = 59.032, p < .001, V = 0.094$), and *other medical provider (e.g. physician, nurse practitioner)* ($\chi^2(1) = 154.642, p < .001, V = 0.153$). *Counselor/Therapist/Psychologist* was the most frequently reported source of support for both samples of students, but while 48.97% of non-international students responded that they had accessed this support, only 21.00% of international students did. *Counselor/Therapist/Psychologist* had the greatest effect size ($V = 0.255$) in comparison to the others.

Participants were also asked if they had received mental health support from offices at their current institution. There was a significant difference between the groups ($\chi^2(1) = 46.502, p < .001, V = 0.084$), and a small effect size. While 22.79% of non-international students indicated they had received psychological support from services at their current institution, only 15.25% of international students responded in the same way.

For the question concerning future use of mental health services, there was a significant difference between international and non-international students ($\chi^2(1) = 92.032, p < .001, V = 0.118$), and a small effect size. While 86.48% of non-international students indicated they would seek mental health support in the future if needed, 76.65% of international students responded in the same way.

DISCUSSION

There were several noteworthy differences between international and non-international graduate students regarding the prevalence of psychiatric disability and specific mental health conditions. More non-international students reported having a psychiatric disability, been diagnosed with depression at some point, and been diagnosed with or treated for anxiety in the past year. For each of these, effect sizes were small. One rationale for such differences is cultural

understandings of disability and mental health-related concepts, as well as mental health literacy. Research has indicated that international students have different perceptions of topics concerning mental health. For example, Lu et al. (2013) found that international students lacked knowledge about symptoms of psychological distress. Clough et al. (2018) found that international students had lower mental health literacy in comparison to non-international students. Clough et al. draw on Jorm et al.'s (1997) definition of mental health literacy: "knowledge and beliefs about mental disorders which aid their recognition, management or prevention" (p. 182). Varied levels of mental health literacy may also be a rationale for why international students rated their stress lower than non-international students. Findings from the current study therefore indicate that the development of mental health literacy amongst international graduate students warrants further attention.

For questions about whether items had been traumatic or very difficult to handle, significant differences were found on most items. However, the effect sizes for the items were negligible. This may indicate that both international and non-international students experience similar stressors, but their comfort with reporting of such experiences differs. Career-related issue was the only item that more international students reported as traumatic or difficult to handle in comparison to non-international students. Though the effect size for this difference was negligible, it points to the concerns that international students have about their post-graduation plans. Such concerns are well-documented in the literature about international graduate students (Bryce Loo, 2016; Poyrazli, 2015; Zhou et al., 2018). Zhou et al. (2018) reported that the Chinese international graduate students they interviewed experienced long-term citizenship and career stress as they began searching for work. Specifically, their stress was largely due to difficulties with networking with recruiters as a result of language difficulties, and, their stress was exacerbated by comparisons to non-international student peers who were viewed as better prepared for entering the workforce. Given some research has found international students' acculturative stress might distract some international students from focusing on career development (Reynolds & Constantine, 2007), it is necessary to consider the ways in which graduate students who are also international students require supports from a variety of student affairs units, including mental health and career counseling. As Briggs and Ammigan (2017) point out, offering culturally sensitive programming and interventions can be effective in supporting the unique needs of international students specifically. Redekopp and Huston (2020) point out that there is a close connection between career development activities and mental health, and that such activities can contribute to positive mental health in a variety of ways. This is an important area for future research: How might career development interventions be used as mental health interventions for international graduate students? Given career wellness is only one dimension of many dimensions of wellness, this is an important area to address if institutions are committed to focusing on students' mental health.

The series of questions about impediments to academic performance revealed some similarities between international and non-international students.

For example, there was no significant difference on depression when comparing the two groups, which is interesting in light of the earlier discussion about non-international students being more likely to report mental health conditions. Furthermore, no significant differences were found on finances and their impact on academic performance, which is interesting considering Myers-Walls et al. (2011) found that financial issues caused stress especially related to the cost of child care, insurance, and medical students for international graduate student parents and spouses. Also, international students' pay higher tuition fees in comparison to non-international students, which one might assume has an impact on academic performance. Tuition rates for international graduate students in Canada increased from \$14,520 in the 2015/16 academic year to \$19,252 in 2020/21 (Statistics Canada, 2020b). Conversely, tuition for Canadian graduate students increased from \$6,537 to only \$7,304 in the same period (Statistics Canada, 2020a). However, it is possible that international graduate students receive financial support from various sources which in turn decreases the impact of finances on academics, or, that they experience financial stress and do not let it impact their academic performance.

Significantly fewer international students reported accessing mental health-related supports. Furthermore, fewer international students reported that they would seek mental health support if they needed it at some point in the future. This reluctance to seek mental health support and limited use of services in comparison to non-international students is consistent with existing literature (Clough et al., 2019; Hwang et al., 2014; Lu et al., 2013; Nilsson et al., 2004). Lu et al. (2013) found that even though 54% of Chinese international student respondents reported high psychological distress, only 9% utilized a mental health service, indicating that there is a high need for such services and there are significant barriers to accessing them. Nilsson et al. (2004) also found that of those international students who did engage in an intake interview for counseling, 38% did not return for a subsequent appointment. International students report barriers to mental health support such as treatment costs, transportation difficulties, lack of knowledge of treatment services, time constraints, difficulties and lack of knowledge of symptoms of low mood, anxiety and stress, as well as cultural barriers (Clough et al., 2019; Lu et al., 2013). Findings from this study add to this existing research base because of its focus on graduate international students, thereby indicating that international students at the graduate level remain hesitant to access support. Given the research that suggests graduate students may be more willing to access mental health support in comparison to undergraduate students (Wyatt & Oswalt, 2013), this means that international graduate students may be more willing to seek mental health support in comparison to international undergraduate students, but not more than non-international graduate students. Not only is there a need for tailored support for graduate students, but culturally responsive counseling for graduate students who have international student status. There is a need for a more complete understanding of how the experiences of international graduate students differ from than of their undergraduate counterparts in terms of the challenges experiences and supports that are used, so that support can be customized to their unique needs.

LIMITATIONS

This study followed a descriptive approach to data analysis. Due to the limited research on international graduate students' and their mental health, particularly in the Canadian context, this descriptive research is required to begin developing an understanding of their experiences. This study is viewed as the first step to a larger program of research in which the current findings are used to inform more complex analytical approaches.

Several limitations of the NCHA have been noted in existing research (See Rahn, Pruitt, & Goodson, 2016) and a few pertain to this study. First, items on the instrument are not defined and as such, interpretation of terms is left to the participants. For example, participants are asked if they have been diagnosed with depression or other mental health condition, and if they have been diagnosed with a psychiatric condition. There may be different understandings of what is perceived as a diagnosis, a disability, or a psychiatric condition. This limitation speaks to the challenge of using self-report instruments – it is not possible to determine if the participants meet criteria for clinical diagnoses. Future work should also incorporate clinically validated instruments to determine such diagnoses, to obtain a more complete understanding of prevalence. Additionally, instruments that are specifically designed for use with international students would strengthen the suitability of collecting these data. International students may have different understandings of mental health-related concepts, for example. Findings from this study therefore need to be interpreted with caution, because the instrument may be more suited to non-international students. However, the findings still make a contribution to the literature because of the limited literature on international graduate students' mental health and how it compares to non-international graduate students. No other existing dataset in Canada exists to make such comparisons, nor does a bigger dataset exist.

One of the most noticeable limitations the NCHA is the demographic question regarding year of study on which only one response option, graduate/professional student, encompasses the graduate level. With a response option that is all-encompassing of graduate level students, it is not possible to examine differences based on master's versus doctoral level, and year of study within each of these levels of education. However, there is evidence that mental health and well-being does differ based master's versus doctoral level (Eisenberg et al., 2013), and on stage of doctoral program (Barreira et al., 2018; Sverdlik & Hall, 2020). For this reason, future quantitative work should utilize quantitative instruments with more comprehensive demographic questions that allow for further analysis of subgroups of students within the graduate level.

CONCLUSION

Despite increasing discussion of graduate students' mental health, there has been limited focus on differences based on international student status. Findings from the International Student Survey by the Canadian Bureau of International Education indicate that upwards of 73% of international students plan to apply for

a post-graduate work permit, and 60% of international students plan to apply for permanent residence in Canada (CBIE, 2021). With the number of graduate students in Canada continuing to increase (The Canadian Association of Graduate Studies, 2018), Canadian institutions can expect to see the number of international students enrolling in graduate studies to also increase. The implications of failing to support the specific needs of international graduate students are vast, as attrition continues to be a significant concern in graduate education. Identifying strategies to support international graduate students is therefore essential to ensuring positive academic and career outcomes. This study is viewed as a preliminary investigation into how international and non-international graduate students compare in terms of mental health diagnoses, challenges experienced, and supports used. Future work will delve into what differences exist within subgroups of these subpopulations such as differences based on gender, discipline, and sexual orientation so that a greater understanding of international graduate students is developed. In turn, institutions, student affairs departments, and academic programs, can consider how they will support the unique needs of these different student groups.

Note

The opinions, findings, and conclusions presented/reported in this article are those of the author and are in no way meant to represent the corporate opinions, views, or policies of the American College Health Association (ACHA). ACHA does not warrant nor assume any liability or responsibility for the accuracy, completeness, or usefulness of any information presented in this article.

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Author bios

KATHLEEN CLARKE, PhD, is an Assistant Professor in the Faculty of Education at Wilfrid Laurier University. She teaches in the Student Affairs Field of Study in the Master of Education program. Her research focuses on understanding the unique challenges experienced by specific populations of postsecondary students, and how these different groups can be further supported. To date, her work has focused on graduate students, students with disabilities, international students, and students with mental health conditions. Email: kclarke@wlu.ca
