THE MENTAL HEALTH AND WELL-BEING OF MASTER'S AND DOCTORAL PSYCHOLOGY STUDENTS AT AN URBAN CANADIAN UNIVERSITY

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ABSTRACT

Aim/Purpose	Although the high rates of stress and psychological distress in graduate students has been well-documented, Canadian samples are underrepresented in the extant literature. The present study explores prevalence rates of burnout and psychological distress in a sample of psychology master's and doctoral students at a university in a large urban Canadian city, as well as factors relating to their well-being, social support and stress.
Background	There are economic and productivity setbacks stemming from high stress and mental health challenges. Burnout and psychological distress of graduate students are associated with hindered academic progress, mental and physical health challenges, and reduced productivity. Further, emotionally exhausted doctoral students are at heightened risk for non-completion of their degrees.
Methodology	Sixty-two psychology graduate students completed an online survey that assessed burnout, psychological distress (anxiety, depression, and stress symptoms), perceived social support, collegiate sense of community, financial strain, and rank-ordered nine domains of graduate school stressors.
Contribution	The present paper contributes to the body of knowledge that graduate students residing in an urban Canadian city experience high rates of burnout and psychological distress. High levels of social support outside the academe were not protective factors in mitigating burnout.
Findings	Participants reported high levels of perceived social support and sense of community. However, over half (60%) of respondents met criteria for burnout, and one in three students met criteria for problematic levels of stress, anxiety,

and/or depression. In a rank ordering question, "thesis, dissertation or other research", "classwork" and "finances" ranked in the top three most stressful aspects of graduate school for respondents.

Recommendations for Practitioners	Graduate students experience unique stressors related to their mental health and well-being that differ from undergraduate students and young working professionals. Mental health practitioners may be better equipped to support graduate students with knowledge of these specific factors impacting mental health and well-being.
Recommendations for Researchers	Based on these findings, four areas of recommendations for psychology graduate institutions and training programs are discussed. These recommendations highlight the need for change across systemic levels and call for integrative efforts to improve wellbeing for psychology graduate students.
Impact on Society	Enhancement of doctoral student well-being could contribute to long-term benefits in academia and in higher education.
Future Research	The study took place before the emergence of COVID-19, which has undoubtably impacted graduate students globally. Research on student experiences during this unprecedented time is needed, as are additional supports (e.g., virtual programming to reduce social isolation; contingency plans for data collection).
Keywords	graduate students, mental health, burnout, job demands-resources model, well-being

INTRODUCTION

The graduate student experience has been hallmarked by high levels of stress (Brown et al., 2016; Guthrie et al., 2017). Graduate students must balance heavy workloads and multiple commitments, including coursework, research projects, teaching assistantships, funding applications, and/or practicum placements (Schramm-Possinger & Powers, 2015). A recent systematic scoping review conducted by Mackie and Bates (2019) suggests that environmental factors that contribute to heightened doctoral stress levels include role conflicts, financial insecurity, supervisor-supervisee relationship problems, lack of transparency with the university processes, high workloads, and uncertain career trajectories. Thus, graduate students experience high levels of stress and concerns for academic performance, which compound with the academic environment to create psychological distress (Oswalt & Riddock, 2007).

These multiple stressors leave graduate students at increased risk for experiencing burnout, a syndrome caused by cumulative workplace stress that has not been adequately managed (World Health Organization [WHO], 2019). Burnout is characterized by three domains: (1) energy depletion and emotional exhaustion (Maslach & Jackson, 1981); (2) depersonalization from or cynical outlook towards one's occupation, coworkers or clients; and (3) professional inefficacy or reduced perceptions of personal accomplishment (Leiter & Maslach, 2016; Maslach & Jackson, 1981). Burnout is related to a multitude of negative outcomes, such as increased risk of negative health outcomes (e.g., depression, sleep disturbances, headaches, cardiovascular diseases) and negative impacts on job performance and work absenteeism (Bakker et al., 2014). Existing research has illustrated that graduate students report high levels of burnout, and that the impacts are wide-ranging and deleterious, including mental distress, decreased life satisfaction, and reduced empathy and professionalism (Allen et al., 2021; Bullock et al., 2017).

In addition to burnout and its subcomponents, doctoral graduate students are also at heightened risk for developing mental health disorders, including anxiety and depression, compared to similarly educated general populations and working professionals (Levecque et al., 2017). Rates of anxiety and depression in particular are alarmingly high in this population (41% and 39%, respectively, in one study

by Evans et al., 2018), leading to estimations that graduate students are six times likelier than the general population to present with these disorders. High program demands and competitive atmospheres experienced by graduate students have also been linked to unhealthy coping strategies, including illicit prescription drug use (15.8% of graduate students in Varga and Varga, 2015) and procrastination/avoidance techniques (Barry et al., 2018). The most devastating outcome of mental health challenges in graduate school is the heightened risk of suicide (Substance Abuse and Mental Health Services Administration [SAMHSA], 2019). Approximately 7.3% to 15% of graduate students have reported thoughts of suicide (Drum et al., 2009; Garcia-Williams et al., 2014), and various media outlets have confirmed deaths by suicide within this population (e.g., Kemsley, 2017).

Despite these alarming statistics, discussions of mental health are often taboo in higher education (Mousavi et al., 2018). Furthermore, approximately half of graduate students often do not seek treatment when experiencing mental health problems (SAMHSA, 2019). Graduate students may not access counselling services for fear of stigmatization, lack of knowledge about the university services offered to them, or perceptions that campus counselling services are geared towards an undergraduate population (Krause & Harris, 2019; Rudick & Dannels, 2018).

LITERATURE REVIEW

IMPORTANCE OF GRADUATE STUDENT WELL-BEING

While genuine concern for the well-being of students is the predominant reason as to why graduate student mental health is imperative to understand and advocate for, there are additional economic and productivity setbacks stemming from high stress and mental health challenges (Levecque et al., 2017). A mixed-method study of doctoral candidates found that a majority of students perceived high stress to directly impede or hinder their academic progress. Within this sample, doctoral candidates reported stress as a contributing factor for loss of motivation and focus, procrastination, diminished capacity for complex thinking and problem-solving, and reduced feelings of competency at work (Barry et al., 2018). Schmidt and Hansson (2018) argue that the well-being of doctoral students is integral to productivity and efficiency, as has been demonstrated in other workplace settings. The authors propose that enhancement of doctoral student well-being could contribute to long-term benefits in academia (as some doctoral students will in turn be employed in higher education), and increased productivity and efficiency in both research and teaching endeavours (Schmidt & Hansson, 2018).

Attrition from graduate school is another adverse economic consequence of poor graduate student well-being. Approximately 57% of American graduate students across various disciplines do not complete their doctoral degrees (Council of Graduate Schools, 2008). High attrition rates have costly impacts on institutions and departments who invest funds into supporting students, and faculty who invest time and mentorship (Gardner, 2008). Importantly, the departing graduate student also experiences economic loss if they fail to complete their degree(s), as they have financially invested in tuition and experienced wage loss from time spent outside of the job market. Emotional exhaustion has been identified as a key factor in doctoral students' intentions to leave academia (Hunter & Devine, 2016).

JOB DEMANDS-RESOURCES (JD-R) MODEL OF BURNOUT

The JD-R model posits that work-related burnout can be understood through two competing mechanisms: (1) *job demands,* which require sustained mental and/or physical effort and are accompanied by physiological and psychological costs (e.g., work pressures, emotionally-taxing interactions with clients at work); and (2) *job resources*, which refer to the resources available to employees to facilitate the achievement of work goals and mitigate physiological and psychological burdens (e.g., support from coworkers; Bakker & Demerouti, 2008; Demerouti et al., 2001). The JD-R model of burnout

suggests that high job demands lead to physical and emotional fatigue, whereas low job resources cause disengagement and low motivation in the workplace (Demerouti et al., 2001).

There are several strategies that can be implemented to mitigate burnout. Spending time with family, limiting time spent working, implementing tools to encourage a positive outlook, incorporating self-care, and providing employees resources through books or conferences may promote work-life balance (Gundersen, 2001; Thimmapuram et al., 2019). An important buffer against burnout is job autonomy, as it may allow workers to decide how (and when) to best tackle job demands (Bakker & Demerouti, 2007). Social support from colleagues may also provide instrumental support (e.g., tangible assistance on a task) and emotional support to complete job demands (Bakker & Demerouti, 2007).

CANADIAN PSYCHOLOGY GRADUATE STUDENTS

Currently, most of the research examining the mental health and well-being of graduate students has employed American samples (e.g., Eisenberg et al., 2007; Evans et al., 2018; Garcia-Williams et al., 2014; Lipson & Eisenberg, 2018; Oswalt & Riddock, 2007). A handful of studies have examined the mental health of graduate students within Canadian psychology programs specifically (e.g., Peluso et al., 2011; Rouse et al., 2014). For example, Peluso and colleagues (2011) found that approximately one third of student reported clinically significant symptoms of depression in a national sample of Canadian graduate students. For students in experimental psychology programs, supervisory relationship satisfaction and greater number of hours worked were predictive of depressive symptoms (Peluso et al., 2011). A 2014 study by Rouse and colleagues employed a wide variety of well-being measures within a sample of psychology graduate students in an urban Canadian city. This descriptive study found that graduate students reported poor sleep and eating habits, high levels of financial worries, problematic levels of stress, and a desire for increased access to mental health services.

While these studies provide a promising starting point, our understanding of the mental health and well-being of Canadian graduate students is still incomplete. Research is needed that examines a wider array of mental health issues, as well as more deeply examines which aspects of graduate school life act as risk factors for such issues. In addition, the development of institutional recommendations that are informed by these data are a priority.

THE PRESENT STUDY

The objectives of the current study are to: (1) explore the current prevalence rates of burnout and psychological distress in a Canadian psychology graduate student population in a large urban city; (2) identify which areas of graduate school are the most stressful (e.g., research, teaching, relationship with supervisor); and (3) determine how perceived social support, sense of community within program, and available finances (i.e., job resources) can be predictive of burnout. These job resources will allow us to better understand the factors that promote burnout in an urban Canadian city for psychology graduate students, using the perspective of the JD-R model. Based on the available literature, we hypothesized that graduate students in our sample would experience high levels of burnout and psychological distress. Further, we predicted that levels of burnout would be related to increased financial strain, lower social support, and decreased sense of community within the program.

METHODS

PARTICIPANTS

Graduate students enrolled in a psychology program at a Canadian university in a large, urban city were recruited via an internally circulated email. In October 2019, all 102 psychology graduate students in the program were emailed an invitation to partake in a 20-minute online survey investigating

the mental health and well-being of graduate students in the department. A reminder email was sent one month later, for a total of two recruitment notifications.

Program requirements and milestones for graduate students can vary widely across disciplines, programs and institutions. To provide context for the graduate students in the present sample, the authors note that the program requirements of both the MA and PhD students entail coursework, practicum/internship placements, and completion of an independent research project (i.e., thesis or dissertation).

PROCEDURE

All procedures and measures were approved by Ryerson University's Research Ethics Board (file number 2019-302). To accommodate students' individual schedules, the survey was available online for 30 days. Individuals interested in participating were directed to a survey accessible via a secure online platform, QualtricsXM. Participants were informed that their participation was voluntary and anonymous. As requested by the Research Ethics Board, a separate Qualtrics link was provided to gather demographic information. Since authors had existing relationships with the study population, collecting demographic information separately from survey responses mitigated dual-relationship risks and maintained participant confidentiality. However, special permission was given to collect relationship status information concurrently with survey data in order to perform analyses related to relationship status and financial strain. Data was stored securely via the QualtricsXM online platform and downloaded in SPSS and Excel formats to permit statistical analysis.

MEASURES

Demographic questionnaire

Students completed a brief demographic questionnaire asking about age, gender, racial/ethnic identity, relationship status, program level (MA or PhD) and program stream (Clinical or Experimental Psychology).

Maslach Burnout Inventory – Student Survey (MBI-SS)

The MBI-SS (Schaufeli et al., 2002) is a 15-item questionnaire that assesses symptoms of burnout and engagement in university studies. The scale comprises three subscales: exhaustion (e.g., "I feel emotionally drained by my studies"), cynicism (e.g., "I doubt the significance of my studies") and professional efficacy (e.g., "I can effectively solve the problems that arise in my studies" [reverse coded]). All items are scored on a 7-point Likert scale ranging from 0 (*never*) to 6 (*always*). Cronbach's alpha in the current sample was .88.

To contextualize participant scores on the MBI-SS, Wickramasinghe and colleagues (2018) proposed clinically validated cut-off scores to dichotomize students as having burnout or not having burnout. Researchers proposed validated cut-off scores of 12.5 for exhaustion, 7.5 for cynicism, and 10.5 for professional efficacy (reversed scored). Students are categorized as having burnout if they meet the "exhaustion +1" criterion. In other words, students were identified as having burnout if they met the cut-off score for exhaustion in combination with meeting the cut off-score for *either* cynicism or professional efficacy. Students who did not meet the "exhaustion +1" criterion were categorized as not having burnout.

The Depression Anxiety Stress Scales–21 (DASS-21)

The DASS-21 (Lovibond & Lovibond, 1995). is a 21-item questionnaire designed to measure emotional states of depression, anxiety, and stress within the past week. As evident in the name of the scale, subscales are comprised of items related to depression (e.g., "I felt down-hearted and blue"), anxiety (e.g., "I felt I was close to panic"), and stress (e.g., "I found it difficult to relax"). Items are

scored are a 4-point Likert scale ranging from 0 (*did not apply to me at all*) and 3 (*applied to me very much or most of the time*). The DASS-21 is considered a reliable and valid measure of unpleasant emotional states in a student sample (Jovanovic et al., 2014). Cronbach's alpha in the current sample was .91.

The DASS-21 is not designed as a tool for clinical diagnosis, but rather to examine the severity and frequency of symptoms (Lovibond & Lovibond, 1995). However, previous research has categorized participants as "psychologically distressed" if they meet cut-off scores that range between "moderate" to "extremely severe" (e.g., Al Saadi et al., 2017). As advised by Lovibond and Lovibond (1995), subscale scores were summed and then multiplied by two. The DASS-21 thresholds for depression, anxiety and stress were scores above the "moderate" level, which is set at greater than 14, 10, and 15, respectively.

Rank order: What is most stressful about graduate school?

Students were presented with the question "Which aspect of graduate school do you find the most stressful?" and were provided with a list of nine graduate school domains. Participants ranked each of the nine domains from 1 (*most stressful*) to 9 (*least stressful*) or indicated if the domain did not apply to them (*not applicable*). Since *lower mean scores* indicated a *more stressful domain*, each of the nine domains were organized from smallest to largest mean. The domains were derived and slightly modified from Rummell (2015) and are reported in Table 4.

Multidimensional Scale of Perceived Social Support (MSPSS)

The MSPSS (Zimet et al., 1988) is a 12-item questionnaire developed to measure perceived social support from three domains: family, friends, and a significant other. To get an overall score of perceived social support, each of the scores from the twelve items are summed and divided by twelve. According to Zimet (2016), mean scores can be trichotomized into low support (1 to 2.9), moderate support (3 to 5) and high support (5.1 to 7). Sample items include "I can talk about my problems with my family" and "I have a special person who is a real source of comfort to me." Items are scored on a 7-point Likert scale ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). The MSPSS has good psychometric properties and has been positively correlated with similar measures of social support (Zimet et al, 1990). Cronbach's alpha in the current sample was .89.

Collegiate Psychological Sense of Community (CPSC)

The CPSC (Lounsbury & DeNeui, 1996) is a 14-item questionnaire that assesses the belongingness, commitment, attachment, fulfilment of needs, and overall psychological sense of community within a college or university environment. Following similar protocols as Clark and colleagues (2008), the CPSC was slightly modified to capture sense of community within our specific psychology program (i.e., all mentions of "this college" were replaced with "this school/program"). Sample items include "I really feel like I belong in this school/program" and "If I am/were attending a psychology graduate program next year I would continue to go here." Items are scored on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's alpha for the CPSC was .86.

Financial Strain Scale

The financial strain scale (as cited in Ullah, 1990) is a 4-item scale that has been used in several studies, including unemployed populations (e.g., Creed & MacIntyre, 2001; Ullah, 1990) and psychology doctoral trainees (e.g. Swords & Ellis, 2017). The four items include "Do you have serious financial worries?", "Are you often not able to do the things you like to do because of shortages of money?", "Are you often not able to do the things you need to do because of shortages of money?", and "Are you often not able to manage on the money you have?". Students were asked to consider their financial experiences over the past four weeks and respond on a 5-point Likert scale ranging from 1 (*never*) to 5 (*all the time*). Final scores were calculated by item summation, yielding a possible total score that

ranged between 4 and 20. Internal consistency for the financial scale was good with a Cronbach's alpha of .87.

DATA PREPARATION AND ANALYTICAL APPROACH

Analyses were conducted using SPSS. All participant responses were assessed visually and statistically for the presence of outliers and out-of-range data. Descriptive statistics for each of the measures were computed, with cut-off values applied as appropriate. One-way ANOVAs and chi-square tests were used to evaluate whether MA and PhD students differed in their total and subscale responses on relevant measures. Further, one-sample T-tests were used to compare the present community belonging and financial strain results to comparable samples in the literature. Finally, a binary logistic regression was performed to determine the effects of perceived social support, sense of community, and financial strain on the likelihood of participants being classified as "burnt out" (*coded as 1*) and "not burnt out" (*coded as 2*).

RESULTS

SAMPLE CHARACTERISTICS

A total of 62 participants completed the survey (22.6% master's [MA] and 77.4% doctoral [PhD] students), yielding a 60.8% response rate. The sample was predominantly female (84.2%) and in a married/common-law relationship (40.3%). Participant ethnic identities were reported as 71.9% White, 7.0% South Asian, 7.0% Multiracial, 3.5% Arabic/West Asian, 1.8% Southeast Asian, and 3.5% preferred not to disclose. Participant ages ranged from 22 to 45 years ($M = 27.84$, $SD = 3.71$). The sample included participants from both a clinical psychology stream (62.9%) and an experimental psychology stream (37.1%; see Table 1).

Table 1: Demographic Characteristics

CHARACTERISTIC	PERCENTAGE
Gender ($n = 57$)	
Women	84.2%
Men	15.8%
Not listed above	0%
Prefer not to disclose	0%
Ethnicity ($n = 57$)	
White	71.9%
South Asian	7.0%
Multiracial	7.0%
East Asian	5.3%
Arab/West Asian	3.5%
Prefer not to disclose	3.5%
Southeast Asian	1.8%
Relationship Status ($n = 62$)	
Married/common law	40.3%
Single	37.1%
Other	19.4%
Prefer not to disclose	3.2%

BURNOUT

Based on the cut off criteria proposed by Wickramasinghe and colleagues (2018), 79.03% of students met the clinically validated cut-off for the exhaustion subscale, 51.61% met the cut-off for the cynicism subscale, and 37.10% met the cut-off for the professional inefficacy scale. Further, based upon the aforementioned "exhaustion +1" criterion, 59.67% of psychology graduate student in this sample reported experiencing clinically significant burnout.

Burnout scores were further analyzed by parsing apart master's and doctoral students. A one-way ANOVA did not find statistically significant differences between master's and doctoral students on any of the three burnout subscales (exhaustion, $F(1, 61) = .496$, $p = .484$, cynicism, $F(1, 61) = .003$, $p = .958$, or professional inefficacy, $F(1, 61) = .360$, $p = .551$. A chi-square test of independence determined that the number of students who were classified as burnt out also did not differ by degree program, $X^2 (1, N = 62) = .048$, $p = .826$. Thus, a majority of graduate students were categorized as having burnout and this finding did not differ between master's or doctoral students in the present sample (see Table 2).

Table 2: Descriptive statistics of MBI-SS subscales and burnout classification

	MA STUDENTS		PHD STUDENTS		TOTAL SAMPLE	
MBI-SS SUBSCALE	*M (SD)*	%	*M(SD)*	%	M(*SD*)	%
Exhaustion	17.07 (*8.16*)		18.50		18.18 (*6.65*)	
scores < 12.5		35.71%	(*6.21*)	16.67%		20.97%
scores ≥ 12.5		64.29%		83.33%		79.03%
Cynicism	8.29 (*7.21*)		8.40(*6.79*)		8.37 (*6.82*)	
scores < 7.5		42.86%		50.0%		48.39%
scores ≥ 7.5		57.14%		50.0%		51.61%
Professional Inefficacy	8.29 (*6.28*)		9.44(*6.33*)		9.18 (*6.29*)	
scores < 10.5		64.29%		62.50%		62.90%
scores ≥ 10.5		35.71%		37.50%		37.10%
Do not have burnout		42.86%		39.6%		40.32%
Have burnout		57.14%		60.4%		59.67%

DEPRESSION, ANXIETY AND STRESS

Using cut-off criteria proposed by Lovibond and Lovibond (1995), 32.26% of students reported problematic levels of depression, 37.10% reported problematic levels of anxiety, and 33.87% reported problematic levels of stress. In summary, approximately 1 in 3 students experience psychological distress related to depression, anxiety, and stress. The scores on the three subscales were positively correlated. Stress and anxiety scores ($r = .565$, $p < .001$), stress and depression scores ($r = .543$, $p < .001$) and anxiety and depression scores ($r = .567$, $p < .001$) were moderately correlated. In other words, students who scored high on anxiety were also more likely to score high on depression and stress subscales. The distribution of DASS-21 scores is summarized in Table 3.

Table 3: Classification of DASS-21 Scores

DASS-21 CLASSIFICATION	% OF SAMPLE CLASSIFIED IN EACH SUBSCALE		
	DEPRESSION	ANXIETY	STRESS
No Psychological Distress	**67.74**	**62.90**	**66.13**
Normal	56.45	55.23	48.39
Mild	11.29	9.68	17.74
Psychological Distress	**32.26**	**37.10**	**33.87**
Moderate	24.19	17.74	11.29
Severe	4.84	6.45	19.35
Extremely Severe	3.24	12.90	3.24

Note: The categories "no psychological distress" and "psychological distress" are mutually exclusive within each subscale. Categorical breakdowns within these classifications represent the percentage of individuals (of the total sample) meeting the relevant cut-off criteria within that subscale.

Master's and doctoral students scores on the DASS-21 were also analyzed separately. The percentage of master's students reporting psychological distress with respect to depression, anxiety, and stress were 35.7%, 42.9% and 7.1%, respectively. Similarly, 31.3% of doctoral students reported psychological distress related to depression, 35.4% for anxiety, and 41.7% for stress. A one-way ANOVA was conducted to identify if there were mean differences on depression, anxiety and stress subscale scores between the two programs. There were no significant differences between mean scores on subscales of depression, $F(1, 61) = .56$, $p = .459$, and anxiety, $F(1, 61) = .23$, $p = .633$ between MA and PhD students. However, PhD students did report significantly higher mean scores on the stress subscale ($M = 17.54$, $SD = 9.80$) compared to MA students ($M = 11.43$, $SD = 7.04$), $F(1, 61) = 4.71$, $p = .034$.

STRESSFUL ASPECTS OF GRADUATE SCHOOL

The mean rank and cumulative percentage of students who ranked each domain as the *number one* most stressful aspect of graduate school is displayed in Table 4. The majority of students (58.1%) ranked "thesis, dissertation or other research" as their most stressful domain. Further, "classwork" and "finances" also ranked in the top three most stressful aspects of graduate school. Within this sample, most participants ranked relationships with supervisors and relationships with peers as the least stressful aspects of graduate school. However, 19.35% of participants ranked "relationship with supervisors" within their top three most stressful aspects of graduate school. While relationships with supervisors are overall reasonably positive, there is a small subset of students who perceive this relationship to be a higher source of stress in graduate school compared to other domains.

Table 4: Rank Ordering Stressful Aspects of Graduate School

DOMAIN	Mean Rank (*SD*)[a]	% ranked as most stressful domain[b]
1. Thesis, dissertation or other research	2.37 (*2.15*)	58.1%
2. Class work	3.98 (*1.80*)	6.5%
3. Finances	4.38 (*2.41*)	12.9%
4. Balancing work and family	4.52 (*2.23*)	11.3%
5. Balancing work and other social roles	4.53 (*1.99*)	1.6%
6. Clinical work or training	4.66 (*2.47*)	3.2%
7. Teaching or research assistantships	5.17 (*2.36*)	3.2%

DOMAIN	Mean Rank (*SD*)[a]	% ranked as most stressful domain[b]
8. Relationships with supervisors	5.59 (*2.22*)	4.8%
9. Relationships with peers	7.47 (*1.64*)	1.6%

[a] Participants ranked each of the nine domains from 1 (*most stressful*) to 9 (*least stressful*), or indicated if the domain did not apply to them (*not applicable*). "Not applicable" scores are not included in the computation of mean rank.
[b] Percentage of students who ranked the domain as number 1 (the most stressful aspect of graduate school)

PERCEIVED SOCIAL SUPPORT

The total mean score of perceived social support was 5.92 (*SD* = .93). Based upon the aforementioned cut-off scores proposed by Zimet (2016), 1.64% of sample had perceived low support, 13.11% had perceived moderate support, and a vast majority of the sample (85.25%) had perceived high support. Further, participants had high mean scores on each of the three social support domains. Friends (*M* = 6.02, *SD* = 1.12), family (*M* = 5.43, *SD* = 1.44), and significant others (*M* = 6.32, *SD* = 1.06) each had overall mean scores in the "high support" category. A one-way ANOVA revealed that there were no statistically significant differences between master's (M = 5.85, SD = .86) and doctoral students (*M* = 5.95, *SD* = .96) on perceived social support, $F(1, 60) = .121$, $p = .729$.

COLLEGIATE PSYCHOLOGICAL SENSE OF COMMUNITY

Summed scores on the CPSC ranged from 26 to 65, with a mean rating of 50.97 (*SD* = 7.66). To ground these results in the available literature, we compared our sample (students from a university of 30,000+ students) with students from a similarly large (20,000+ student) American campus sample (CPSC; *M* = 47.06, *SD* = 9.50; Lounsbury & DeNeui, 1996). One-sample t-tests revealed that sense of community scores reported by the current sample were significantly higher than those of students in large American colleges, $t(61) = 3.91$, $p < .001$. In sum, students in our program generally endorsed high levels of connectedness and belonging. A one-way ANOVA found no statistically significant differences between masters (*M* = 52.86, SD = 7.74) and doctoral students (*M* = 50.42, *SD* = 7.63) on collegiate sense of community, $F(1, 61) = 1.10$, $p = .298$.

FINANCIAL STRAIN

Students reported an average financial strain score of 11.58 (*SD* = 4.44). Again, to ground these results in the available literature, we ran a one-sample t-test and found that the current sample did not differ significantly from another sample of Western psychology doctoral trainees (*M* = 11.42, *SD* = 3.92; Swords & Ellis, 2017), $t(61) = .285$, $p = .78$. The present sample also did not differ significantly from unemployed populations, which presumably are a group of individuals with high financial stress (*M* 12.45, *SD* = 4.38; Creed & MacIntyre, 2001), $t(61) = -1.542$, $p = .13$. A one-way ANOVA found no statistically significant differences between master's (*M* = 13.21, *SD* = 4.17) and doctoral students (*M* = 11.10, *SD* = 4.44) on financial strain, $F(1, 61) = 2.51$, $p = .118$.

We were interested in determining whether relationship status related to financial strain. We postulated that married/common-law folks may experience less financial strain due to the ability to share costs of living. However, a one-way ANOVA revealed that there were no significant differences of financial strain between single (*M* = 11.74, *SD* = 4.74) and married/common-law (*M* = 11.36, *SD* = 4.21) participants, $F(1, 47) = .086$, $p = .771$.

LOGISTIC REGRESSION PREDICTING STUDENT BURNOUT

The logistic regression model examining the likelihood of student burnout was statistically significant, $\chi^2(3) = 17.58$, p = .001. The model explained 33.9% (Nagelkerke R^2) of the variance and correctly

classified 70.5% of cases. Table 5 presents regression results of individual predictor variables included in the model. Notably, decreasing sense of community was associated with an increased likelihood of burnout ($p = .049$). Further, increasing financial strain was associated with an increased likelihood of burnout ($p = .055$). Perceived social support was not a statistically significant individual predictor variable ($p = .194$).

Table 5: Predictors of Burnout

	B	SE	Wald	p-value	Exp(B)	95% CI for Exp(B)	
						Lower	Upper
Financial Strain	.151	.079	3.690	**.055***	1.163	.997	1.357
Sense of Community (CPSC)	-.099	.050	3.873	**.049***	.906	.821	1.000
Perceived Social Support (MSPSS)	-.476	.367	1.685	.194	.621	.303	1.275
Constant	6.684	3.599	3.449	.063	799.217		

Note: * sig. at p <.05

DISCUSSION

Results from this study reflect the state of psychology graduate student well-being in an urban Canadian program. Alarmingly, though consistent with trends in other samples (Levecque et al., 2017; Peluso et al., 2011; Rummell, 2015), over half of students met the cut-off for clinically significant levels of burnout, often through a combination of elevated exhaustion and cynicism. Further, one in three students met criteria for problematic levels of stress, anxiety, and/or depression. A binary logistic regression suggests that sense of collegiate community and financial strain significantly predict the likelihood of graduate students being classified as "burnt out." Consistent with the JD-R model, students reported greater burnout in the context of more limited financial resources (similar to findings in El-Ghoroury et al., 2012) and decreased community support within the program/institution. However, social support from outside of the academic setting (i.e., friends, family, significant others) did not significantly predict burnout. Further, research, coursework and financial burdens were cumulatively identified as the most stressful aspects of graduate school. For a small subset of our sample, relationships with supervisors emerged as a significant source of stress. Finally, students enrolled in the master's and doctoral program did not differ on outcomes relating to burnout, depression, anxiety, financial strain, collegiate sense of community or social support from outside the academe. However, doctoral students did report significantly higher scores on stress compared to master's students.

Importantly, burnout and psychological distress were pervasive in our sample despite graduate students reporting high levels of social support. Previous work has emphasized the protective role of social support in the perceived stress of psychology graduate students and its impact on domains of life satisfaction (Clark et al., 2008; Myers et al., 2012; Tompkins et al., 2016). However, results from our study suggest that the protective quality of social support is finite in the context of excessive program demands and financial stress. Discourse on self-care in graduate programs is often directed towards increasing individual uptake and use of personal strategies (e.g., exercise, mindful acceptance; Colman et al., 2016; Myers et al., 2012) when it is discussed at all (which is not often; Munsey, 2006).

Although self-care practice is essential (Barnett & Cooper, 2009), our results highlight the need for systemic change to mitigate student burdens and integrated attempts to improve well-being.

We present four areas of recommendations for psychology graduate institutions and programs (that are also applicable to graduate programs more broadly) to address mental health and wellbeing across systemic levels. These recommendations focus on moving away from siloed and often stigmatized approaches to self-care in programs (Bamonti et al., 2014), to shift the onus of improving well-being towards the institution and department rather than on the over-burdened student. Consistent with the JD-R model, we present ideas for reducing unnecessary program demands, increasing student resources, and addressing other contextual and relational factors that may be perpetuating student distress and burnout.

First, we recommend that programs conduct a critical examination of program expectations and work towards balancing professional requirements with feasibility. Graduate programs have the difficult task of ensuring that students are competitive and well-trained for their respective post-graduate careers (e.g., clinical requirements required for registration, competitive publication status for academia). For these reasons, psychology graduate programs will always be demanding. However, programs can seek creative and responsive ways to mitigate unnecessary burdens and increase flexibility within program requirements to meet the diverse needs of their students. In the department that this sample was collected, for example, a first-year master's-level course was moved from the winter semester to a spring intensive format, thereby lessening course demands in the winter semester. Departments are encouraged to review program expectations and assess the fairness, relevance, and feasibility of course assignments, evaluations, and comprehensive requirements, and to make adaptations where possible.

Our second area of recommendations pertains to increasing student resources, including but not limited to financial aid, mental health support, and research support. As mentioned, financial strain predicted burnout in our sample, which may be particularly relevant in the urban Canadian city that this data was collected, wherein costs of living exceed typical graduate stipends (LowestRates.ca, 2020). Financial strain can become a vicious cycle for graduate students, as those who are underfunded may need to take on additional employment opportunities, further adding to their demands and lessening their productivity, which in turn undermines future funding success and delays milestone completion (Doran et al., 2016). Increased funding and decreased tuition not only lessen the strain on current students but also reduce socioeconomic barriers to graduate school entry and permit greater diversity among trainees (U. S. Department of Education, 2016). Beyond financial resources, our results support the necessity of accessible and confidential mental health care for graduate students. Previous work underscores the importance of supports that are affordable, marketed towards graduate students (versus undergraduates), and endorsed by departments (Campoli & Cummings, 2019; Dearing et al., 2005; Krause & Harris, 2019; Rudick & Dannels, 2018). Clinical psychology programs must go a step further and ensure that students can access services that do not pose a conflict of interest (e.g., care options that exist outside of the university's counselling center where students may complete clinical placements). Failure to provide this type of alternative has been identified as a barrier to treatment by clinical psychology graduate students (Rouse et al., 2014). Additionally, institutions and departments are encouraged to explore and expand other types of resources that will help graduate students flourish (e.g., statistical consultation, writing support, accessible childcare).

In addition to increasing student resources and mitigating unnecessary demands, there remains significant value in fostering a 'culture of self-care' (Barnett & Cooper, 2009) and helping students internalize the value of self-care competency. Our results demonstrate that students have reached capacity with regards to their time and commitments. Lack of time has been consistently identified as a barrier to self-care, among graduate students and professional psychologists (Bearse et al., 2013; El-Ghoroury et al., 2012). Further, departmental and faculty discourse around self-care practices undermine whether students attempt to integrate these practices within their demanding schedules (Dearing et al., 2005). Taken together, elective workshops or independent urges for students to practice

self-care are likely to be undercut. Embedding self-care competencies within curriculum may be one avenue towards self-care uptake and destigmatization and has shown promise in other contexts. In psychology, for example, there has been a shift towards increasing cultural competency among trainees and inclusion of this content in curriculum is mandated by the American Psychological Association (APA) (2002). Although there is no consensus on the most effective methods for teaching cultural competency (Benuto et al., 2018) and much work remains to be done, there is evidence that inclusion of curricular methods (e.g., reading, reflective discussion, safe classroom environment to share personal experiences) has moved practice in a positive direction (Benuto et al., 2018; Lie et al., 2012). As Campoli and Cummings (2019) aptly noted, self-care teaching should be "preventative, individualized and assertive", such that students can flexibly learn and be supported to implement strategies and skills that work best for them (p. 14).

Lastly, we recommend that institutions and departments work to improve faculty well-being and enhance training and mentorship for supervisors. These efforts will also contribute to the development of a 'culture of self-care' (Barnett & Cooper, 2009). Our results indicated that most students felt supported by their supervisors, which is consistent with other studies (Clark et al., 2000). However, a subset of our sample (19%) ranked the relationship with their supervisor as one of their top three school stressors. We did not gather detailed information on the specific difficulties within supervisor-supervisee relationships in our sample, which remains an area for future investigation. Yet, other studies underscore the importance of a supportive mentorship experience (Dearing et al., 2005; Johnson, 2007). Additionally, other research in Canadian psychology programs has found that 21% of graduate students have experienced workplace bullying perpetuated by their supervisors (Yamada et al., 2014), which has been linked to diminished interest in schoolwork and greater intent in dropping out (Martin et al., 2015). Formalized training requirements that build supportive supervision skills and discuss harmful supervision practices (as discussed in Yamada et al., 2014) should occur as a part of orientation for all new faculty and in remedial situations. Further, efforts to increase faculty well-being will ensure that supervisors have the emotional capacity for mentorship and can model self-care practices, which are key to student self-care implementation (Dearing et al., 2005). Faculty burnout is an equally ubiquitous and detrimental phenomena within academic programs (Sabagh et al., 2018). Efforts to increase faculty resources and lessen job demands are likely to benefit graduate students and departmental culture.

We have focused our recommendations on systemic features of change. There is still a role for individual students in attending to their personal well-being needs and engaging in self-care practices. Several papers exist with detailed recommendations in this area (e.g., Campoli & Cummings, 2019; Colman et al., 2016; Myers et al., 2012; Rummell, 2015). Integrative efforts to increase self-care competencies are essential to personal well-being, but also to the betterment of psychology as a discipline, as ethical practice and productivity are undermined when these competencies are lacking or trivialized (APA, 2002; Smith & Moss, 2009).

LIMITATIONS

This research is not without limitations that should be addressed in future research. First, data collection for our study took place at a single time point (October 2019) and graduate student mental health and well-being ebbs and flows over the course of the school year. Longitudinal studies could further explore changes in these phenomena and better establish temporal relationships between factors in the JD-R model. Additionally, the present study collected data from one program within one institution. Consequently, the present study reports a small sample size and results may not generalize to all psychology graduate programs across Canada. There are also limitations surrounding the validity of the cut-off values of the MBI-SS. The cut-off values indicated were first proposed by Wickramasinghe and colleagues in 2018 using a clinical correlation study with Sri Lankan participants (via a Sinhala translation). These cut-off values were recently implemented again in a study among dental students residing in Mexico (Jiménez-Ortiz et al., 2019). Thus, the proposed cut-off scores have not

been validated in an English-speaking population and future research should assess the validity of these cut-off values.

Notably, our study also took place before the emergence of COVID-19, which has undoubtably impacted graduate students globally. Research on student experiences during this exceptional time (as compared to previous cohorts) is needed, as are additional supports (e.g., virtual programming to reduce social isolation; contingency plans for data collection). Further, additional predictors of burnout should be more comprehensively explored. For example, our study did not obtain detailed information on what specific aspects of the supervisor-supervisee relationship impacted stress. Relatedly, our rank ordering items allowed us to determine how each stressor ranked in relation to one another, however we did not collect information on how stressful, generally, each domain is perceived to be by the student. We also did not assess faculty or staff burnout, although we note its importance in building a 'culture of self-care'. Elaboration of these predictors in future studies will allow for a process JD-R model to be better identified. Finally, we list several systemic recommendations based on our data and a review of the literature. However, pre- and post-evaluation of these recommendations will help determine their unique and combined outcomes on graduate student mental health and well-being.

CONCLUSION

In conclusion, a majority (60%) of graduate students enrolled in a Canadian psychology graduate program report burnout. Heightened financial strain and low sense of collegiate sense of community were predictors of burnout within this sample. In addition, one in three graduate students reported psychological distress related to stress, anxiety, and depression. Consistent with other work, our findings highlight the duress of this population and affirm the need for systemic, integrated, and prioritized supports and innovations to improve graduate student mental health and well-being. We recommend that institutions mitigate unnecessary program demands, increase access to student supports (e.g., financial, research, and counselling supports), work to foster a culture of self-care, and integrate opportunities to develop self-care competencies within programming.

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