



**“MULTI-SITE RELEASE OF THE POST-SECONDARY STUDENT STRESSORS INDEX (PSSI)”**

**RESEARCH PROPOSAL**

1. STUDY OVERVIEW .....	1
1.1 Abstract.....	1
1.2 Rationale .....	1
2. STUDY DESIGN AND METHODS .....	2
2.1 Study Design.....	2
2.2 Methods.....	2
2.3 Analysis Plan.....	3
2.4 Project Timeline .....	4
3. PARTICIPANTS .....	5
3.1 Sample Size .....	5
3.2 Inclusion and Exclusion Criteria .....	6
4. RECRUITMENT.....	6
5. INFORMED CONSENT .....	6
5.1 Withdrawals.....	7
6. RISKS AND BENEFITS TO PARTICIPATION .....	7
6.1 Risks .....	7
6.2 Benefits .....	7
7. CONFIDENTIALITY AND PRIVACY .....	8
7.1 Identifiable Information .....	8
7.2 Access to Data.....	8
7.3 Data Transfer.....	8
7.4 Data Management.....	9
8. COMPENSATION .....	9
9. DISSEMINATION OF RESULTS .....	9

## **1. STUDY OVERVIEW**

### **1.1 Abstract**

The purpose of this project is to conduct a longitudinal, cross-Canada, multi-site evaluation of the Post-Secondary Student Stressors Index (PSSI). The PSSI was designed to evaluate sources of post-secondary student stress, and quantify these stressors by both severity and frequency of occurrence. The PSSI is a 46-item instrument, delivered as an online survey. Results can be plotted on a simple 2x2 graph which allows for the easy determination of areas most salient for students (i.e., those highest in both severity and frequency).

This study will take the form of a cross-Canada, multi-site release of the PSSI in order to further evaluate the tool in a larger sample with broad regional representation. Applying a longitudinal research design, three data collection timepoints will take place via online survey over the course of the 2020-2021 academic year. Results from this study will provide a broad overall picture of the patterns in student stressors in different regions of Canada (i.e., Western vs. Central vs. Atlantic Canada) and may inform future research regarding stress among post-secondary students, as well as the targeting of upstream mental health services.

### **1.2 Rationale**

Concerns surrounding post-secondary students' mental health and wellbeing have increased in recent years, with rising rates of self-reported mental health issues and chronic stress [1]. Previous research has long established the link between experiencing chronic stress and increased risk for the development of mental health related challenges [2], suggesting that addressing post-secondary student stress is an important step in reducing the prevalence of mental illness and psychological distress among this population. In response to the absence of an effective tool designed to evaluate the sources of post-secondary student stress, the Post-Secondary Student Stressors Index (PSSI) was created and validated over a two-year period with extensive consultation and collaboration with post-secondary students in Ontario [3].

This tool allows post-secondary institutions to “take the temperature” of their campus in terms of current stressors among their student body by quantifying the most severe and frequent sources of stress for students. Using this tool, institutions can improve the targeting of upstream mental health services, including mental health promotion and mental illness prevention. In turn, this may alleviate some of the burden currently placed on campus treatment/counselling services, as well as improve mental health outcomes for students.

### **References**

1. American College Health Association. American College Health Association - National College Health Assessment II: Canadian Reference Group Data Report Spring 2019. Silver Spring, MD: 2019. [www.acha.org](http://www.acha.org) (accessed January 24, 2020).
2. Pearlman LI, Menaghan EG, Lieberman MA, Mullan JT. The stress process. *J Health Soc Behav*, 1981;22:337–56.
3. Linden B, Stuart H. Psychometric Assessment of the Post-Secondary Student Stressors Index (PSSI). *BMC Public Health* 2019;19:1–12. <https://doi.org/10.1186/s12889-019-7472-z>.

## **2. STUDY DESIGN AND METHODS**

### **2.1 Study Design**

The proposed research will take the form of a cross-Canada, multi-site study using the Post-Secondary Student Stressors Index (PSSI) and other brief, mental health-related measures. A total of fifteen (15) partner co-investigators (i.e., other faculty members) have been engaged at post-secondary institutions across Canada to collaborate on this project and ensure regional representation in the overall sample of students surveyed. Our goal was to engage students at a minimum of one institution per Canadian province; we have succeeded in meeting (and surpassing) this goal, in addition to securing a partner in the Northwest Territories.

This study will be longitudinal in nature, with three major data collection time points: T1 in October 2020; T2 in January 2021; and T3 in March 2021. Multiple data time points will allow us to observe changes in stressors over the course of the 2020-2021 school year. The timing of these surveys has been intentionally selected to avoid particularly stressful periods for students (i.e., the very start or end of term, exams) to maximize participation and reduce burden on students. Analysis of the data, to be completed by the project PI (Brooke Linden) will be completed during the Spring/Summer semester of 2021. To maximize participation, a small incentive will be offered to participants in the form of a raffle. Respondents will be invited to enter their e-mail into a raffle for a chance to win one of several gift cards at the close of the study (see incentives section for further detail).

Following the completion of the study, institutional partners (co-investigators) will be given the option to receive their own institution's anonymous data only (i.e., our University of Alberta partner will be eligible to receive data collected from students at the University of Alberta ONLY) for their own use. This will create a positive community impact by allowing institutions to utilize the results of the PSSI for their campus to make improvements to their Student Wellness Services based on the results of this study. Recall that all survey responses are anonymous, and therefore there are no confidentiality or privacy risks associated with transferring the data.

### **2.2 Methods**

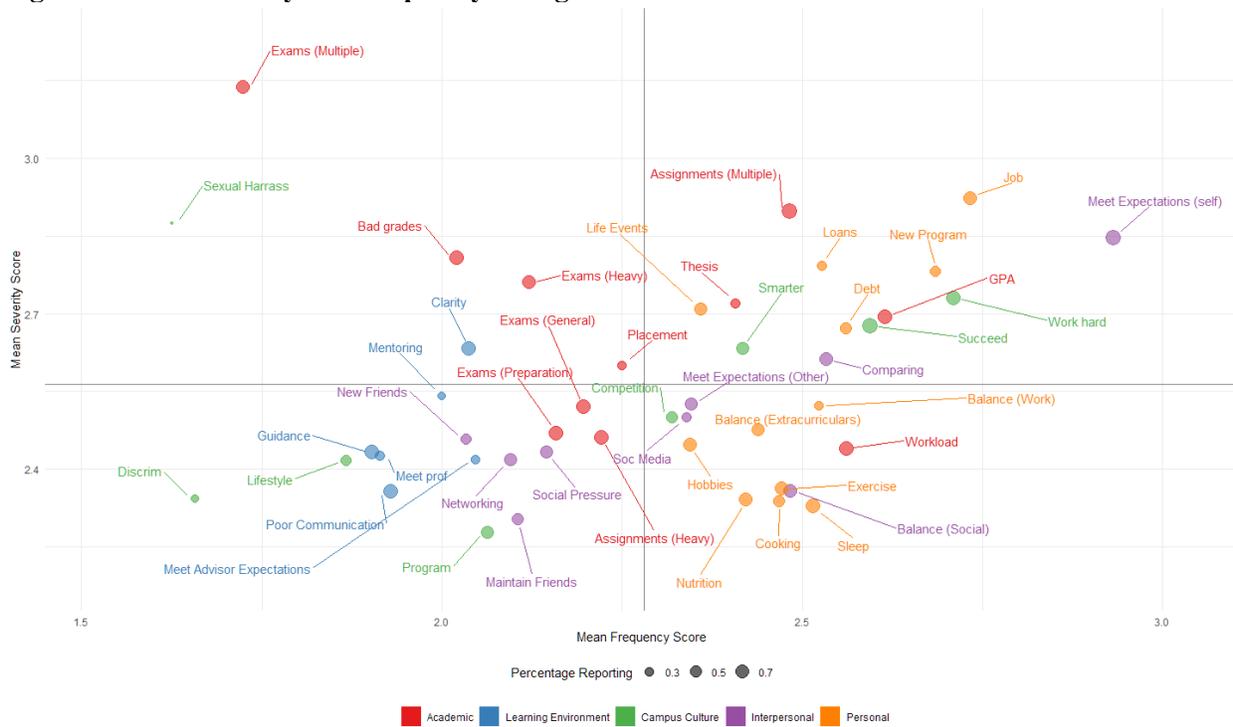
Data will be collected via online survey through the Queen's University Qualtrics platform, which is a secure system that has passed all privacy and security requirements, investigated by Queen's University's Information and Technology Services. All collected data will be anonymous through the use of a unique identifier, which will be created at the start of each survey. The use of unique IDs will allow us to link individual respondents' responses at each timepoint while still maintaining anonymity in responses. The use of anonymous data eliminates concerns associated with data privacy and confidentiality.

The survey includes the following components: three questions designed to help the participant create their unique identifier; the 46-item PSSI; the 10-item Perceived Stress Scale (PSS-10); the 10-item Kessler Psychological Distress Scale (K10) plus two questions about previous mental illness diagnoses; the 10-item Connor-Davidson Resiliency Scale (CD-RISC-10), and a number of demographic questions. An additional series of questions will also be included regarding students' experiences with COVID-19 and related stressors.

### 2.3 Analysis Plan

Descriptive statistics will be calculated for all demographic variables to evaluate the nature of the sample. Means for severity and frequency will be calculated for all stressors variables on the PSSI, with results plotted on a quadrant graph to facilitate simple data visualization (Figure 1). Results will also be plotted by individual domain of stress.

**Figure 1. Mean severity and frequency ratings of all stressors variables on the PSSI**



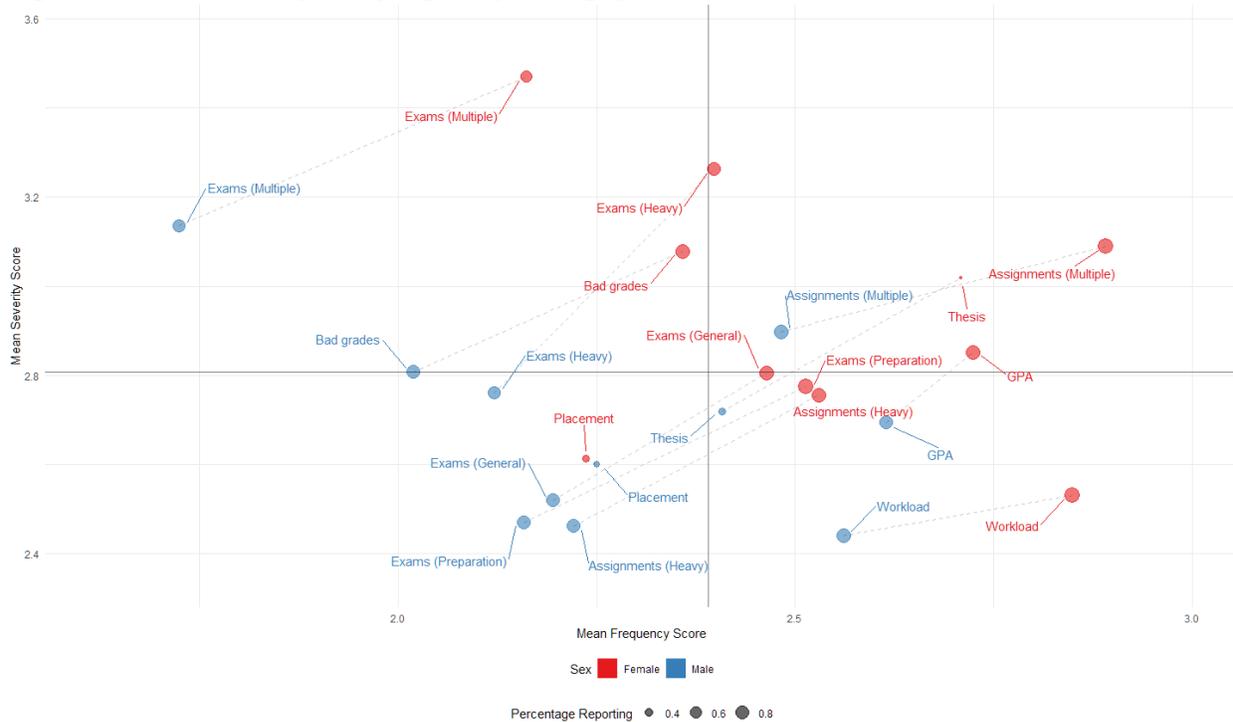
**Note.** Data shown collected from a pilot sample of post-secondary students at Queen’s University in Winter 2019.

**Objective 1:** Conduct a sex-based analysis, stratifying results by sex (Figure 2). T-tests will be conducted to determine whether mean severity and frequency ratings for stressors are statistically significantly different for male and female students.

**Objective 2:** Examine sub-sets of the overall dataset to compare and contrast differences in patterns of stressors among various groups of students. For example, one subgroup analysis will explore differences by region in Canada (i.e., results from Western vs. Central vs. Atlantic Canadian schools), while another will look at differences by level of study (undergraduate vs. graduate). Where appropriate, t-tests or ANOVAs will be conducted to determine whether there are statistically significant group differences for mean severity and frequency ratings.

**Objective 3:** An analysis of the psychometric properties of the PSSI (i.e., alpha coefficients, internal structure evaluation through factor analysis, convergent validity analysis through examining spearman's rho correlations between the PSSI and mental health scales) will also be investigated to see if they align with those determined during the 2019 pilot test of the tool.

**Figure 2. Mean severity and frequency ratings for academic stressors, by sex**



**Note.** Data shown collected from a pilot sample of post-secondary students at Queen’s University in Winter 2019.

## 2.4 Project Timeline

Fifteen institutional partners across Canada have been engaged as co-investigators for the proposed study (Table 1). REB clearance was obtained from Queen’s University on April 17, 2020 for the overall project. REB applications are currently being reviewed at partner institutions across the country, with clearance expected to be received from all partners by the end of Summer 2020. The recruitment of student participants, whether by samples of e-mails or listserv distribution, will commence after all REB approvals are obtained.

Online data collection will begin with the first survey time point in October 2020, the second in January 2021, and the third and final in March 2021. Raffle winners will be drawn and contacted at the close of the data collection period (April 2021). Data analysis will take place during the Spring/Summer semester(s) of 2021, with findings ideally submitted for academic publication by the Fall of 2021.

**Table 1. List of partner institutions and contacts for multi-site PSSI study**

<b>Institution</b>	<b>Co-Investigator</b>	<b>REB Status</b>
<i>British Columbia</i>		
University of British Columbia	Tanya Forneris, PhD	Approved
<i>Alberta</i>		
University of Calgary	Andrew Szeto, PhD	Submitted
University of Alberta	Shu-Ping Chen, PhD	Approved
<i>Saskatchewan</i>		
University of Saskatchewan	Colleen Dell, PhD	Approved
University of Regina	Rozzet Jurdi-Hage, PhD	Approved
<i>Manitoba</i>		
University of Manitoba	Alyson Mahar, PhD	Approved
<i>Ontario</i>		
Lakehead University	Amanda Maranzan, PhD	Approved
Western University	Susan Rodger, PhD	Submitted
Queen's University	Brooke Linden, PhD	Approved
<i>Quebec</i>		
McGill University	Frank Elgar, PhD	Approved
<i>Nova Scotia</i>		
St. Francis Xavier University	Margo Watt, PhD	Approved
Dalhousie University	Margo Watt, PhD	Approved
<i>New Brunswick</i>		
University of New Brunswick	Janine Olthius, PhD	Approved
<i>Prince Edward Island</i>		
University of PEI	Jason Doiron, PhD	Submitted
<i>Newfoundland &amp; Labrador</i>		
Memorial University	Lisa Moores, PhD	Submitted
<i>Northwest Territories</i>		
Aurora College	Lea Barbosa-Leclerc	Submitted

### **3. PARTICIPANTS**

#### **3.1 Sample Size**

Given the flexibility in recruitment and distribution methods for this study, there is no preconceived sample size for this project. The participation rate is expected to be approximately 10% of those initially invited to participate, based on previous online survey-based research conducted among post-secondary students.

The method of participant recruitment is left at the discretion of the partner institutions, either through providing the PI (Brooke Linden) with a sample of student e-mails, or through

*Version Date: May 2020*

*Author: Brooke Linden, PhD*

disseminating the online survey link to a student listserv. If the former option is selected, sample size is also left at the discretion of the institution, though institutions will be reminded that bigger is always better for representation purposes, with a larger sample improving the utility of the results of the research. Where the listserv option is selected, sample size will vary based on the size of student enrolment at each institution.

### **3.2 Inclusion and Exclusion Criteria**

The PSSI was intentionally developed to be a holistic tool that is widely applicable to all members of the student population. As a result, the PSSI is suitable for use among a varied sample of students including part-time/full-time students, students in all areas, levels (undergrad/graduate), and years of study. The only requirement for participation is that participants be an enrolled student at one of the participating institutions during the 2020-2021 academic year. There are no exclusion criteria applied to this study.

## **4. RECRUITMENT**

Recruitment of participants will be conducted in one of two ways, at the discretion of the partner institutions:

- 1) The Office of Institutional Research and Planning (or equivalent) will provide the PI (Brooke Linden) with a sample of student e-mails, and the PI will then send the survey link to these student e-mails via the REB-approved recruitment e-mail at each data collection time point; or
- 2) The institution will send the survey link along with the REB-approved recruitment e-mail to their own students via their listserv at each data collection time point. Note that this option is common at institutions where they prefer not to share student information with outside investigators.

For consistency, the same recruitment e-mail will be used at each participating institution. The Letter of Information for the study will be attached to the recruitment e-mail for students to review prior to participating in the survey (note that certain details on the LOI may be changed/rearranged to reflect the preferences of each institution – for example, the co-investigator names and contact information will change with each institution, an additional header may be required, etc.). Participants are notified that consent to participate will be implied through participation in the survey.

## **5. INFORMED CONSENT**

The Letter of Information for this study will be attached to the recruitment e-mail as a PDF document for students to review prior to participating in the survey. Consent to participate will be implied through participation in the survey. The first item on the survey will be “I have read the letter of information and agree to participate in this study” – the survey will not move forward until participants respond “I agree”.

The recruitment e-mail will also be sent to students at each data collection time point, with the Letter of Information attached to each invitation. This is to account for students who may have chosen not to participate in the first iteration of the survey choosing to participate in the second or third only. The second and third surveys will begin with the same “I agree” item.

### **5.1 Withdrawals**

Participants are informed of their freedom to withdraw their voluntary participation with no penalty in the LOI. Participants can withdraw from the study at any time by simply closing the survey window. Note that data entered up until the point of abandonment will be used unless otherwise requested by the participant (this can be done by contacting the PI via e-mail and requesting that data be removed). Students wishing to withdraw their survey responses after having completed the survey can do so by contacting the PI before the end of the data collection period (April 30, 2021). Those wishing to withdraw their responses will be asked to answer the three questions designed to create their unique identifier so that their survey responses can be located and permanently deleted. Participants also reserve the right to decline to answer any question on the survey that they do not want to answer.

## **6. RISKS AND BENEFITS TO PARTICIPATION**

### **6.1 Risks**

The survey that will be used to conduct this study includes measures that invite participants to reflect upon their mental and emotional health. Therefore, it is possible that by completing this survey, some participants may feel an elevated level of stress or emotional distress, although we consider this risk to be very low and minor with respect to severity.

In order to mitigate this risk, the survey will end with a thank you message, as well as a notice to participants that if they are feeling an elevated level of stress or emotional distress, they should contact their student wellness services. A link to a PDF list of student wellness services at each participating institution as well as their contact information and location will be provided.

### **6.2 Benefits**

There are no direct benefits to individual participants as a result of participating in this research. At a broader level, results from this study may provide an overall picture of the patterns in student stressors in different regions of Canada (i.e., Western vs. Central vs. Atlantic Canada) and may inform future research regarding stress among post-secondary students and thereby the targeting of upstream mental health services. A positive community impact may be observed in the event that institutions choose to adopt the PSSI for their own campus, or utilize the results of this study to make improvements to their own Student Wellness Services to better meet the mental health needs of their students. Particularly given the yet to be determined emotional impact of COVID-19 on Canadian post-secondary students, this study will provide important information to assist institutions with making evidence-informed decisions regarding service delivery.

## **7. CONFIDENTIALITY AND PRIVACY**

### **7.1 Identifiable Information**

At no point are survey responses identifiable. This study will employ the use of a unique identifier, created at the start of each survey. This unique ID is determined using answers to the following three questions, for which answers are extremely unlikely to change over the course of an academic year:

- 1) What are the first two letters of your first name?;
- 2) What are the first two letters of your last name?; and
- 3) In what year were you born?

The resulting unique ID will look like: BRLI91. This unique ID will be used to link participants' responses to each of the three surveys, allowing us to observe trends over time while maintaining participants' anonymity.

At the end of the survey, participants will be invited to leave their e-mail address in the event that they wish to enter into a raffle for a chance to win one of several gift cards (see Incentives section for more detail). These e-mails will be collected and stored separately from all other survey data using a separate Qualtrics survey (a link to the raffle entry will be provided once participants complete the survey), and will never be used to identify participants, thereby ensuring that survey responses remain anonymous.

### **7.2 Access to Data**

The project PI (Brooke Linden) will be the primary data custodian for the study, and will have access to the data from all sites in order to perform analysis and disseminate results. REBs reserve the right to access the data for quality assurance purposes.

Following the completion of the study, institutional partners (co-investigators) will be given the option to receive their own institution's anonymous data ONLY (i.e., our University of Alberta partner will be eligible to receive data collected from students at the University of Alberta ONLY) for their own use. This will create a positive community impact by allowing institutions to utilize the results of the PSSI for their campus to make improvements to their Student Wellness Services based on the results of this study. Recall that all survey responses are anonymous, and therefore there are no confidentiality or privacy risks associated with transferring data.

### **7.3 Data Transfer**

Although data is always in an anonymous form, data will be transferred via secure documents (password protected) through Queen's University's preferred Microsoft platform (OneDrive/SharePoint). Passwords will be communicated to receivers of the data via a phone call, or e-mail where a phone call is not possible. Note that e-mails collected as raffle entries will not be shared with anyone other than the project PI (Brooke Linden). E-mails will only be used to contact raffle winners following the draw, and will never be shared or used for another purpose.

#### **7.4 Data Management**

The data will be digitally stored as password protected files by the project PI (Brooke Linden) on the Queen's University's preferred Microsoft platform (OneDrive/SharePoint). Data will be stored for a minimum of seven years. There is no concern regarding confidentiality, as all survey data is anonymous. After a storage period of seven years, the data will be destroyed (i.e., permanently deleted) by the PI (Brooke Linden). Co-investigators who elect to receive their own institution's anonymous data are responsible for securely storing their subset of the data as per their institution's data storage protocols.

### **8. COMPENSATION**

In order to maximize participation, we will be offering participants the opportunity to enter their e-mail into a raffle for a chance to win one of several \$25-\$50 online gift cards (to a location to be determined). In previous survey research conducted among university students, we have seen a substantial improvement to participation by offering a chance to win gift cards (typically to a grocery store or coffee shop). Given the current COVID-19 climate in addition to the cross-Canada nature of this study, gift cards will be electronic in nature.

Participants will be given the opportunity to enter into the raffle at the end of each survey. For example, if a participant completes only one of the three surveys, they will be able to enter the raffle once. If a participant completes all three surveys, they will be able to enter the raffle a total of three times, increasing their chances of winning. The odds of winning are relative to the number of entries we receive, and are therefore not possible to estimate.

At the close of the study (April 2021), the project PI (Brooke Linden) will draw winners for the raffle, who will be notified by e-mail. In the event that an e-mail does not work (i.e., was entered or spelled incorrectly or is no longer functional for some other reason), an alternative e-mail will be drawn in its place.

### **9. DISSEMINATION OF RESULTS**

There are no plans to directly communicate the results of this study to participants. However, those who are interested are welcome to contact the project PI (Brooke Linden) to have their e-mail placed on a list to be notified when results from the study have been released (this is indicated at the close of the survey, prior to the raffle draw).

Results from this study will be published in scholarly, academic journal articles, with every effort made to publish in open access journals to improve accessibility. Results may also be presented at academic conferences (i.e., oral or poster presentations). Note that participants will never be identified in any publication arising from this study due to anonymous data collection.