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Student Research Report

Linking Communting Time and Well-Being Among University Students

Prepared by: Radha Bazaz, Ruoning Li, Lauren Mackenrot, Quinn Storey, Skye Zheng, Frankie Yaying Zhong

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Abstract

While extant research has established a link between time spent commuting and negative psychological outcomes, the exact nature and magnitude of the effects on the well-being of university students remain unclear. The present study aimed to investigate this relationship by hypothesizing that longer commuting time would be associated with negative well-being outcomes, operationalized as higher perceived stress, feelings of time pressure, financial stress, and lower sense of community and life satisfaction. We conducted a campus-wide survey (N = 316) at the University of British Columbia (UBC) in Vancouver and found that longer commuting time was correlated only with a decrease in life satisfaction of UBC students, but was not correlated with other well-being outcomes. Our research adds to the understanding of how commuting time affects the psychological well-being of university students and provides some insights for policymakers and university administrators who are seeking to improve the students' psychological well-being.

Linking Commuting Time and Well-Being Among University Students

The average Canadian spent approximately 60 minutes a day commuting prior to the COVID-19 pandemic (Larochelle-Côté, 2019). This statistic is alarming considering research on the impacts of commuting on psychosocial outcomes. Empirical studies on working populations found that longer commute times consistently predicted three psychosocial outcomes: greater perceived stress (Avila-Palencia et al., 2017; Mauss et al., 2016), greater time pressure or feeling short on time to perform desired activities (Chatterjee et al., 2020; Lorenz, 2018), and lower social participation (Mattisson et al., 2015; Lorenz, 2018).

In addition to these three psychosocial outcomes, commuting times also predicted life satisfaction and financial stress among working populations, though the nature of these relationships is unclear. Regarding life satisfaction, several studies found that longer commutes were correlated with lower life satisfaction (Hilbrecht et al., 2014; Sha et al., 2019). However, Ingenfield and colleagues (2019) demonstrated that this relationship followed a non-linear pattern, where commuting negatively predicted life satisfaction only after individuals traveled for more than 80 kilometers per day. In addition, life satisfaction was found to vary with mode of transport, as walking commuters had higher life satisfaction compared to car commuters (Chng et al., 2016). Regarding financial stress, one study found that public transit commuters had greater financial stress (Hansson et al., 2011), though this relationship has not been examined or replicated since.

As in working populations, commute times predicted four out of the above five psychosocial outcomes in university populations: greater perceived stress (Jamil et al., 2022), feeling short on time and finances (Forbus et al., 2011), and lower sense of community on campus (Thomas, 2020; Coutts et al., 2018; Kirk & Lewis, 2015). However, no study that we are aware of has examined the links between commute durations and life satisfaction among university students.

Despite these findings suggesting an overall negative role of commuting in individuals' wellbeing, a small subset of studies found contrasting patterns, where higher commute times were associated with positive psychosocial outcomes. For instance, an analysis of American Time Use Survey's well being data suggested that mood during commute was more positive, or not significantly different from mood during other daily activities (Morris & Guerra, 2015). Jain and Lyon (2008) proposed a mechanism for this finding, whereby transit may offer transition time between two destinations, when one can prepare for the demands of their final destination,

escape from everyday demands, and mentally decompress. Hence, it is conceivable that certain aspects of commuting may contribute to well-being.

The present study aimed to address the various inconsistencies in links between commuting time and five psychosocial outcomes related to well-being: perceived stress, time pressure, connectedness with community, life satisfaction, and financial stress in a university sample. Specifically, we examined post-secondary students at the University of British Columbia (UBC) in Vancouver. The UBC student body represents a diverse range of commuting experiences, including on-and-off campus living, and various modes and motivations for commuting. Therefore, UBC constitutes a novel and informative context for examining commuting and its links with psychosocial outcomes.

Research Question and Hypotheses

Given the extant literature, further research is required to answer the question 'how does time spent commuting to and from campus relate to student wellbeing across diverse samples?'. The present study aimed to answer this question using a large sample of Western Canadian university students. It was hypothesized that time spent commuting would be positively correlated with feelings of time pressure, financial stress, and perceived stress, and negatively correlated with a sense of community and life satisfaction.

Methods

Participants

An a priori power analysis using G*Power (Faul et al., 2009) indicated that a sample size of 356 participants would be necessary to detect an effect size of 0.3, providing a statistical power of 0.8 at an alpha level of 0.05. To achieve this sample size, we recruited 388 participants through a variety of strategies, including social media advertisements, in-class announcements, and approaching individuals in publicly accessible locations on the UBC campus. Participation in our study was voluntary, and no compensation was provided.

After data collection, we excluded 62 participants from our analyses who were not UBC students, 8 participants who reported visiting campus 0 days per week, and 2 outliers who reported commuting times of 8 and 24 hours, respectively, which were 3 standard deviations away from the mean. The resulting final sample was 316 participants (M_{age} = 20.34, SD_{age} = 2.07, age range = 18 - 30, n_{man} = 84, n_{woman} = 213, $n_{non\text{-}binary}$ = 9). The sample consisted of 28.25% international students, 69.21% domestic students, 2.22% exchange students, and 0.32% others. Regarding the year of study, the sample consisted of 27.94% first year students, 26.67% second year, 20% third year, 12.70% fourth year, 8.89% fifth year or greater, and 3.81% graduate students.

Conditions

In the present correlational study, the primary predictor variable was time spent commuting, and the primary dependent variables were perceived stress, time pressure, sense of community, life satisfaction, and financial stress. In addition, we assessed differences between naturally occurring groups, in the form of mode of transport, on the five dependent variables. These groups included walking, biking, public transit, driving and others.

Measures

Sense of Community Scale. The Sense of Community scale (SOC; Peterson et al., 2008) is an empirically validated short form measure of social connectedness to an individual's immediate community. The scale includes four items capturing participants' feelings of connectedness, interpersonal bonds, membership and belonging to their immediate community (see Figure A3). In the present study, the scale was adapted to capture participants' sense of

community at the UBC campus and with the student body (i.e. "*I feel connected to UBC*"). Participants' were asked to rate their agreement with the statements presented in the four items on a 7-point Likert scale ranging from 1(*strongly disagree*) to 7(*strongly agree*). Cronbach's alpha for the SOC was .88.

Perceived Stress Scale. The Perceived Stress Scale 4 (PSS-4; Ezzati et al., 2014) is an empirically validated short form measure of general experiences of stress in daily life. The four item-scale asks participants to rate the frequency with which they have experienced various feelings of stress in the last month on a 5-point Likert scale ranging from 1(*never*) to 5(*very often*) (see Figure A4). In the present study, Cronbach's alpha was .74.

Subjective Time Pressure. Participants' subjective time pressure was measured using Ackerman & Gross' (2003) three-item scale. This scale asks participants to rate their agreement with three time-pressure related statements, such as "*I feel a lot of time pressure in my life*", on a 5-point likert scale from 1(*strongly disagree*) to 5(*strongly agree*) (see Figure A1). In the present study, Cronbach's alpha was .66 across all items.

Cantril Ladder of Life Scale. The Cantril ladder of life scale is an empirically validated measure of life satisfaction created as an efficient and controlled means of measuring diverse samples (Bjorskov, 2010). The Cantril ladder asks participants to imagine a ladder with ten rungs (one at the bottom, ten at the top). The top of the ladder represents the best possible life and the bottom represents the worst possible life. Participants are asked to rate where they currently stand at their present stage of life (see Figure A5).

Financial Stress. Financial stress was measured using an original single item measure. Participants were asked to rate their current financial stress (i.e. "*How stressed are you about your finances*") on a 5-point likert scale ranging from 1 (*not stressed at all)* to 5 (*very stressed)* (see Figure A2). Previous research has validated the use of a single item in the measurement of financial stress, demonstrating equally representative findings as multiple item scales (Joo & Grable, 2004).

Procedure

The study was conducted using the Qualtrics survey platform (see Appendix A) and was administered online. Participants provided informed consent and completed five dependent measures presented in random order to prevent order effects (Figures A1-A5). To further explore student stressors, participants were asked an open-ended question about their top three stressors. This was followed by demographic questions (including which demographics). Participants also reported their average daily transportation time to and from campus and their most frequent mode of transportation. Data collection took place from March 14, 2023 to April 12, 2023.

Results

We hypothesized that longer commuting time would be positively correlated with time pressure, financial stress, and perceived stress, and negatively correlated with a sense of community and subjective well-being. Pearson correlation coefficients were computed to assess the relationship between commute time and other variables (see Appendix Table C2), while controlling for individual characteristics such as age, gender, years of study in university, domestic or international student status, and form of transportation.

The results of the Pearson correlation analysis (see Appendix Table C3) only indicated a significant negative relationship between commute time and subjective well-being, $r(314) = -0.16$, $p = .01$. Specifically, participants who spent more time commuting reported lower levels of subjective well-being. However, no significant relationships were found between commute time and perceived stress, $r(314) = 0.04$, $p = .49$, sense of community, $r(314) = -0.1$, $p = .09$,

perceived time pressure, $r(314) = 0.08$, $p = .14$, or financial stress, $r(314) = 0.01$, $p = .90$ (see Appendix Figure C1 for scatter plots). In other words, while longer commute times predict lower subjective well-being, they do not predict other well-being indicators examined in this study. It is important to note that the form of transportation used by UBC students, including driving, biking, walking, or taking public transit, did not predict any of the well-being outcomes in our study.

Participants ranked their top three stressors in an open-ended question. We coded the top-ranked stressors as financial, academic/career, or social/family stress (Cohen et al., 2022). Based on commuting time (Mdn=20), participants were categorized as Short Commute Time (≤20 minutes) or Long Commute Time (>20 minutes). Each top stressor category had a higher percentage of Long-time Commuters, even though chi-square analysis found no significant differences in stress levels between groups, $\chi 2$ (2, N = 239) = 2.5, $p = .3$ (see Appendix Table C4 for the contingency table).

Discussion

The present study examined the links between commuting time to campus and various aspects of well-being among university students. We found that longer commuting times were significantly associated with lower life satisfaction, but not with feelings of time pressure, financial stress, perceived stress, or a sense of community.

The present study adds to the body of literature suggesting negative associations between commuting and well-being (Gottholmseder et al., 2009; Schaeffer et al., 1988; Chatterjee et al., 2020; Lorenz, 2018; Stutzer & Frey, 2008; Blasco-Belled & Alsinet, 2022). However, the mechanisms proposed in previous studies may not align with our findings. For example, Lorenz (2018) found that time scarcity mediated the relationship between longer commutes and lower satisfaction with family life and leisure. However, in our study, students with longer commutes did not report greater time pressure, suggesting that time scarcity may not explain variations in well-being.

Contrary to prior literature, our study did not find evidence supporting the hypotheses that longer commute times would be positively correlated with feelings of subjective time pressure, financial stress, perceived stress, or negatively correlated with a sense of community. The non-significant correlations with time pressure, financial stress, and perceived stress may suggest a ceiling effect, where the majority of UBC students experience high levels of pressure and stress, regardless of their commute time. Moreover, the non-significant correlation with the sense of community at UBC may arise from sampling bias since nearly all participants were recruited from the university campus. As a result, the sample disproportionately represented students who may be more likely to spend time on campus, which may have overrepresented feelings of connectedness, regardless of their commute times.

Implications

The findings of the study may have important implications for UBC. Commuting to UBC seems to have a negative impact on students' life satisfaction, regardless of other stressors. This suggests that UBC decision makers may need to prioritize and allocate more resources towards improving the well-being of commuting students. Additionally, the lack of correlation between commuting time and other stressors (such as financial stress and perceived stress) may indicate that these factors are not as strongly influenced by commute times as previously thought. However, this does not mean that these stressors are not present in the lives of UBC students. Decision makers should still consider ways to support students who may be facing financial or other stressors. What's more, the finding that longer commutes were not associated with a sense

of community may suggest that UBC should examine the campus culture and consider ways to build a stronger sense of community among all students, regardless of their commute times.

Limitations

One limitation of this study is that, after conducting a reliability check of the SOC, PSS, and Subjective Time Pressure scales, the Subjective Time Pressure Scale showed relatively low internal consistency (*Cronbach's alpha* = .66) as consensus in social psychology (Bland & Altman, 1997). This might explain why the study did not find a significant correlation between commute times and time pressure. To ensure greater accuracy and reliability, future studies seeking to replicate our findings should consider using a more reliable scale to measure students' subjective time pressure.

Secondly, the final sample size was underpowered after excluding 62 participants who did not meet the criteria, requiring caution when drawing inferences or interpreting the final results. Additionally, as previously discussed, since all in-person recruitment was conducted on campus, there is a higher likelihood of recruiting UBC students who are more closely connected to the UBC campus and have easier access to commuting, which may introduce bias to the data. Lastly, as the participants were all UBC students, the generalizability of this study was limited.

Challenges

Recruiting a sufficient number of participants who met the study criteria within the constraints of limited time and resources was a significant challenge, as the study required a large sample size of 356 based on power analysis. To address this issue in future studies, offering HSP credits for participating in the study may be an effective way to facilitate recruitment of sufficient UBC participants. Moreover, due to time constraints, the study used short scales for each measure. If completing the survey offers HSP credits to participants in future, the study length could be increased accordingly, and the study may have more options for selecting corresponding scales and designing questions.

Recommendations for UBC client

Our study highlights the need for UBC to prioritize and allocate more resources towards improving students' life satisfaction, especially for those who spend long hours commuting. One possible solution is to extend student services with remote options to cater to commuting students' needs. For example, UBC should provide more remotely accessible mental health support to students who face the challenges of commuting. Limited options in therapy types, hours, availability, personnel, and locations of on-campus mental health services demotivates students seeking help (Cohen et al., 2022; DiPlacito-DeRango, 2016). This issue is even more pronounced for commuting students who may face additional barriers to accessing these services. Another recommendation is to create more commuter-friendly physical spaces, such as collegia, where students can rest and interact with fellow commuters during the gaps between their classes. By implementing these suggestions, UBC can improve the well-being of its commuting students and create a more supportive campus environment.

References

Ackerman, D., & Gross, B. L. (2003). So many choices, so little time: measuring the effects of free choice and enjoyment on perception of free time, time pressure and time deprivation. *Association for Consumer Research*. http://hdl.handle.net/10211.2/1797

Avila-Palencia, I., de Nazelle, A., Cole-Hunter, T., Donaire-Gonzalez, D., Jerrett, M., Rodriguez,
D. A., & Nieuwenhuijsen, M. J. (2017). The relationship between bicycle commuting and
perceived stress: A cross-sectional study. *BMJ Open, 7*(6), e013542-e013542. https://doi.org/10.1136/bmjopen-2016-013542

Blasco-Belled, A., & Alsinet, C. (2022). The architecture of psychological well-being: A network analysis study of the Ryff Psychological Well-Being Scale. *Scandinavian Journal of Psychology*, *63*(3), 199–207. https://doi.org/10.1111/sjop.12795

Bland, J. M., & Altman, D. G. (1997). Cronbach's alpha. *BMJ (Clinical Research Ed.)*, *314*(7080), 572. https://doi.org/10.1136/bmj.314.7080.572

Chatterjee, K., Chng, S., Clark, B., Davis, A., De Vos, J., Ettema, D., Handy, S., Martin, A., & Reardon, L. (2020). Commuting and wellbeing: A critical overview of the literature with implications for policy and future research. *Transport Reviews*, *40*(1), 5–34. https://doi.org/10.1080/01441647.2019.1649317

Chng, S., White, M., Abraham, C., & Skippon, S. (2016). Commuting and wellbeing in london: The roles of commute mode and local public transport connectivity. *Preventive Medicine, 88*, 182-188. https://doi.org/10.1016/j.ypmed.2016.04.014

Cohen, K. A., Graham, A. K., & Lattie, E. G. (2022). Aligning students and counseling centers on student mental health needs and treatment resources. *Journal of American College Health, 70*(3), 724-732. https://doi.org/10.1080/07448481.2020.1762611

Coutts, S., Aird, B., Mitra, R., & Siemiatycki, M. (2018). Does commute influence post-secondary students' social capital? A study of campus participation at four universities in toronto, canada. *Journal of Transport Geography, 70*, 172-181. https://doi.org/10.1016/j.jtrangeo.2018.06.006

DiPlacito-DeRango, M. L. (2016) Acknowledge the barriers to better the practies: support for student mental health in higher education. *Canadian Journal for the Scholarship of Teaching and Learning, 7*(2). https://doi.org/10.5206/cjsotl-rcacea.2016.2.2

Ezzati, A., Jiang, J., Katz, M. J., Sliwinski, M. J., Zimmerman, M. E., & Lipton, R. B. (2014). Validation of the Perceived Stress Scale in a community sample of older adults. *International Journal of Geriatric Psychiatry, 29*(6), 645–652. https://doi.org/10.1002/gps.4049

Faul, F., Erdfelder, E., Buchner, A. *et al.* Statistical power analyses using G*Power 3.1: Tests for
correlation and regression analyses. *Behavior Research Methods* 41, 1149–1160 (2009). https://doi.org/10.3758/BRM.41.4.1149

Forbus, P., Newbold, J., & Mehta, S. (2010) University commuter students: stress management, stress factors and coping strategies. *Advances in Business Research, 1*(1), 142-151.

Gottholmseder, G., Nowotny, K., Pruckner, G. J., & Theurl, E. (2009). Stress perception and commuting. *Health Economics*, *18*(5), 559–576. https://doi.org/10.1002/hec.1389

Hansson, E., Mattisson, K., Björk, J., Östergren, P., & Jakobsson, K. (2011). Relationship between commuting and health outcomes in a cross-sectional population survey in

southern sweden. *BMC Public Health, 11*(1), 834-834. https://doi.org/10.1186/1471-2458-11-834

Hilbrecht, M., Smale, B., & Mock, S. E. (2014). Highway to health? commute time and well-being among canadian adults. *World Leisure Journal, 56*(2), 151-163. https://doi.org/10.1080/16078055.2014.903723

Jain, J., & Lyons, G. (2008). The gift of travel time. *Journal of Transport Geography*, 16(2), 81-89. https://doi.org/10.1016/j.jtrangeo.2007.05.001

Jamil, D., Rayyan , M., Abdulla Hameed , A. K., Masood , F., Javed , P., & Sreejith, A. (2022). The Impact of Commute on Students' Performance. *Journal of Medical and Health Studies*, *3*(3), 59–67. https://doi.org/10.32996/jmhs.2022.3.3.9

Joo, S., & Grable, J. E. (2004). An exploratory framework of the determinants of financial satisfaction. *Journal of Family and Economic Issues, 25*(1), 25–50.

Kirk, C. M., & Lewis, R. K. (2015). Sense of community on an urban, commuter campus. *International Journal of Adolescence and Youth*, *20*(1), 48–60. https://doi.org/10.1080/02673843.2013.763833

Larochelle-Côté, S., Gilmore, J., & Yaropud, T. (2019, February 25). *Results from the 2016 Census: Long commutes to work by car*. Retrieved April 15, 2023, from https://www150.statcan.gc.ca/n1/pub/75-006-x/2019001/article/00002-eng.htm

Lorenz, O. (2018). Does commuting matter to subjective well-being? *Journal of Transport Geography*, *66*, 180–199. https://doi.org/10.1016/j.jtrangeo.2017.11.019

Mauss, D., Jarczok, M. N., & Fischer, J. E. (2016). Daily commuting to work is not associated with variables of health. *Journal of Occupational Medicine and Toxicology (London, England), 11*(1), 12. https://doi.org/10.1186/s12995-016-0103-z

Mattisson, K., Håkansson, C., & Jakobsson, K. (2015). Relationships Between Commuting and Social Capital Among Men and Women in Southern Sweden. *Environment and Behavior*, *47*(7), 734–753. https://doi.org/10.1177/0013916514529969

Morris, E. A., & Guerra, E. (2015). Mood and mode: Does how we travel affect how we feel? *Transportation (Dordrecht)*, 42(1), 25-43. https://doi.org/10.1007/s11116-014-9521-x

Peterson, N. A., Speer, P. W., & McMillan, D. W. (2008). Validation of a brief sense of community scale: Confirmation of the principal theory of sense of community. *Journal of community psychology, 36*(1), 61-73. https://doi.org/10.1002/jcop.20217

Schaeffer, M. H., Street, S. W., Singer, J. E., & Baum, A. (1988). Effects of Control on the Stress Reactions of Commuters1. *Journal of Applied Social Psychology*, *18*(11), 944–957. https://doi.org/10.1111/j.1559-1816.1988.tb01185.x

Sha, F., Li, B., Law, Y. W., & Yip, P. S. F. (2019). Associations between commuting and well-being in the context of a compact city with a well-developed public transport system. *Journal of Transport & Health, 13*, 103-114. https://doi.org/10.1016/j.jth.2019.03.016

Stutzer, A., & Frey, B. S. (2008). Stress that doesn't pay: The commuting paradox. *The Scandinavian Journal of Economics*, 110(2), 339-366. https://doi.org/10.1111/j.1467-9442.2008.00542.x

Thomas, L. (2020). "I am happy just doing the work …" Commuter student engagement in the wider higher education experience. *Higher Education Quarterly*, 74(3), 290–303. https://doi.org/10.1111/hequ.12243

Appendix A
Survey Questions

Figure A1

Time Pressure Measure

I feel a lot of time pressure in my life.

Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
○	○	○	○	○

I really feel the pressure of time passing in my life.

Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
○	○	○	○	○

I am always in a hurry.

Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
○	○	○	○	○

Figure A2

Financial Stress Measure

Are you stressed about your finances?

Not stressed at all				Very Stressed
1	2	3	4	5
○	○	○	○	○

Figure A3:
Sense of Community to UBC Measure

I feel connected to UBC.

Strongly disagree 1	2	3	4	5	6	Strongly agree 7
○	○	○	○	○	○	○

I have a good bond with others in UBC.

Strongly disagree 1	2	3	4	5	6	Strongly agree 7
○	○	○	○	○	○	○

I feel like a member of UBC.

Strongly disagree 1	2	3	4	5	6	Strongly agree 7
○	○	○	○	○	○	○

I belong to UBC.

Strongly disagree 1	2	3	4	5	6	Strongly agree 7
○	○	○	○	○	○	○

Figure A4:
Perceived Stress Measure

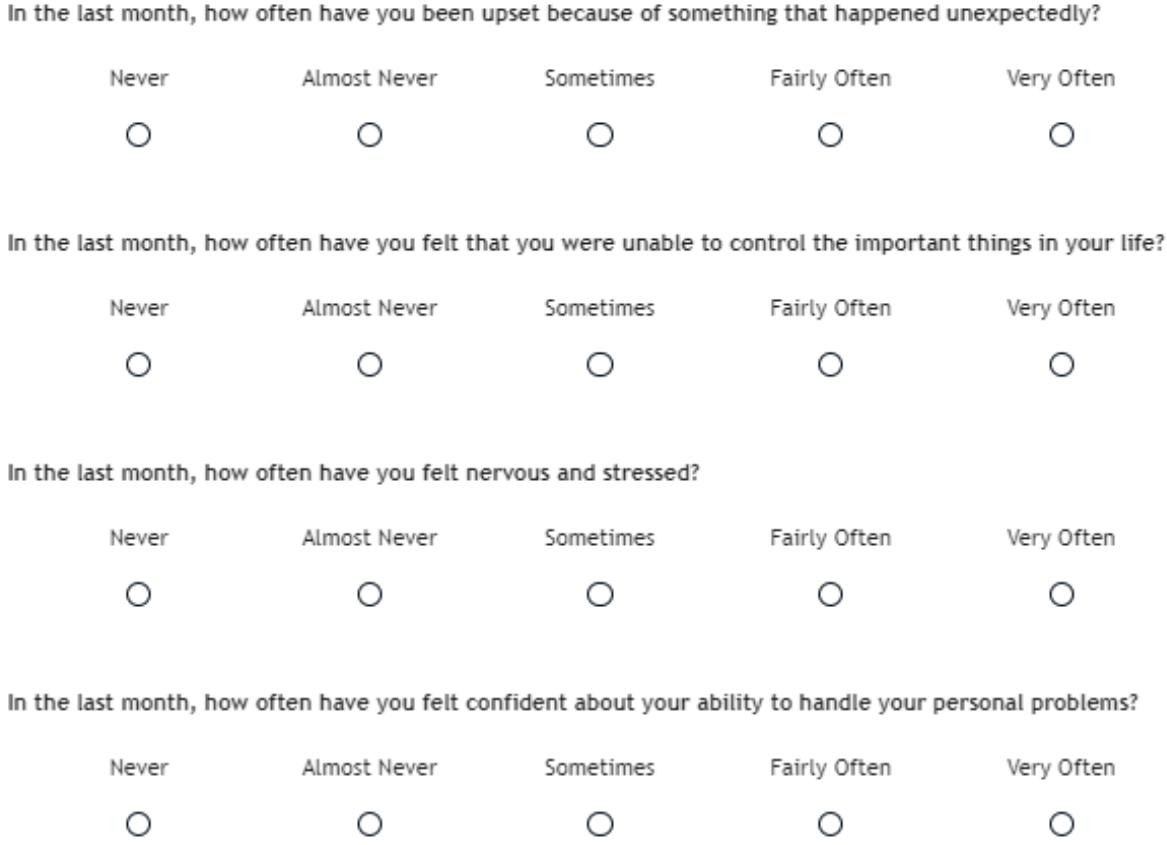

Figure A5

Cantril Ladder; Satisfaction with Life Measure

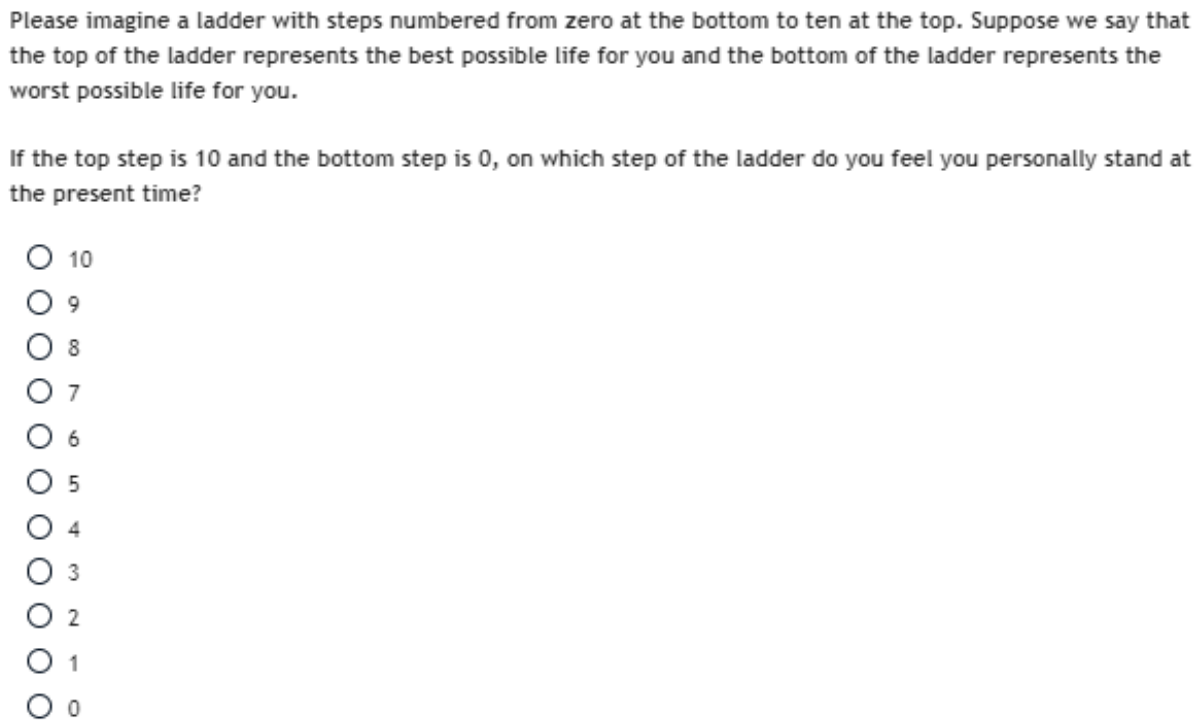

Figure A6:
Fill in Top Three Stressors

Figure A7:
Exclusionary Question for Non-UBC Students

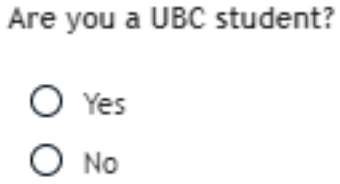

Figure A8:
UBC Student Demographic Questions (bottom questions two were optional)

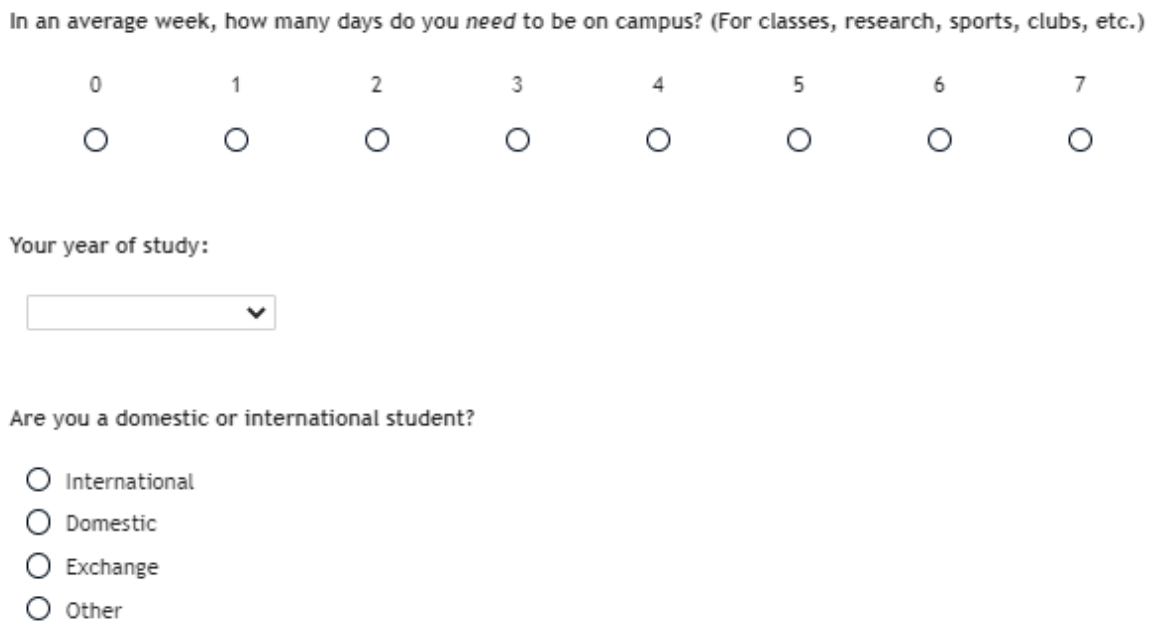

Figure A9:
Transportation Questions

What is your total commute time to and from campus on an average day (in minutes)?

What is your most frequent form of transportation to and from class?

- ○ Walking
- ○ Bike
- ○ Public transportation
- ○ Car
- ○ Other (please specify)

Figure A10
General Demographic Questions (optional)

With which gender do you most identify?

- ○ Man
- ○ Woman
- ○ Non-binary person
- ○ Not listed, please identify
- ○ Prefer not to answer

How old are you?

Appendix B

Team Member Contributions

Every group member contributed to all aspects of this study. We would like to highlight the work of Frankie Yaying Zhong for participant recruitment, and Ruoning Li's work in the statistical analyses.

Appendix C
Tables and Graphs of Results

Table C1

Participant Demographics

Age	Mean	SD	Min	Max	Total Participants
	20.34	2.07	18	30	311

Commute Time (minutes)	Mean	SD	Min	Max	Total Participants
	40.21	46.51	0	240	316

Commute Type	Walking	Bike	Public Transportation	Car	Other	Total Participants
	129	15	143	26	3	316

Type of Student	International	Domestic	Exchange	Other	Total Participants
	89	218	7	1	315

Gender Identity	Male	Female	Non-Binary	Other	Total Participants
	84	213	9	8	314

Number of Participants (Percentage)	First Year	Second Year	Third Year	Fourth Year	Fifth Year +	Graduate	Total Participants
	88 (27.94%)	84 (26.67%)	63 (20.00%)	40 (12.70%)	28 (8.89%)	12 (3.81%)	315

Table C2

Descriptive Statistics of Predictor and Criterion Variables

	n	Mean	SD	Min	Max
Commute Time (minutes)	316	46.00	94.38	0	240
Time Pressure	316	3.97	0.75	1	5
Perceived Stress	316	3.14	0.69	1	5
Sense of Community	316	4.32	1.34	1	7
Subjective Well-being	316	7.03	1.73	1	11
Financial Stress	316	3.32	1.16	1	5

Table C3

Correlation Coefficients for the Relationship Between Predictor and Criterion Variables, Controlling for Age, Aender, Year of Study, International, and Form of Transportation.

	df	*r*	*p*	*95% CI*
Commute Time vs Subjective Well-Being	314	-0.16	.01*	[-0.26, -0.05]
Commute Time vs Sense of Community	314	-0.10	.09	[-0.21, 0.19]
Commute Time vs Stress	314	0.04	.49	[-0.07, 0.15]
Commute Time vs Time Pressure	314	0.08	.14	[-0.03, 0.19]
Commute Time vs Financial Stress	314	0.01	.90	[-0.10, 0.12]

Table C4

Contingency Table for Percentage of Short-Time and Long-Time Commuters in Each Top-Ranked Stressor

	Financial Stress	Academic/Career Stress	Social/Family Stress	Number of Participants
Short-time Commuter	25.81%	39.76%	33.33%	88
Long-time Commuter	74.19%	60.24%	66.67%	151
Number of Participants	31	166	42	239

Figure C1

Scatter plots illustrate the correlational relationship between commute time and measures of psychological well-being among UBC students, including perceived stress, sense of community (SOC), time pressure, financial stress, and Life Satisfaction.