

**The Role of Campus Recreational Sports Participation in
Predicting Students' Psychological Wellbeing during the Covid-19 Pandemic:
A Goal Orientation Approach**

by

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

The emergence of the Covid-19 pandemic and sudden campus lockdown added new stressors and challenges (e.g., academic uncertainty, e-learning challenges, financial/emotional struggles; Abdeahad & Mock, in review) to post-secondary students' academic life. Drawing on goal orientation theory (Dykman, 1998), the purpose of this study was to examine the role of pre-lockdown campus recreational sports (CRS) participation in protecting students' psychological wellbeing during the Covid-19 pandemic. Furthermore, growth mindset was examined as a potential mediator to explain how pre-lockdown CRS participation can help students use more adaptive coping strategies to overcome Covid-19 related challenges and protect their psychological wellbeing during the campus lockdown.

Studies show growth-oriented individuals see challenges and setbacks as opportunities to learn new strategies rather than as a test of their basic self-worth (i.e., goal orientation model; Dykman, 1998). In the face of negative life events, rather than losing self-esteem, starting self-blaming, or disengaging from an apparently unmanageable activity, a growth-oriented individual appraises negative outcomes less threatening. Therefore, they experience less anxiety and may have a greater level of psychological wellbeing. From leisure and recreational perspective, regular exercises and sport activities can also improve self-control, self-esteem, self-efficiency, and positive social interactions all of which help students cope more adaptively with life stressors (Edwards, 2002; Coleman & Iso-Ahola, 1993; Yiannakis et al, 2001) leading to greater personal and social growth (Shaw & Dawson, 2001) and psychological wellbeing enhancement (Kilgo et al., 2016; Stebbins, 2018). Pre-lockdown CRS participation was also associated with lower levels of stress during the pandemic (Abdeahad & Mock, in review). Taken together, it stands to reason

that the students who participated in CRS activities before the pandemic are likely to be more growth oriented. Therefore, in the face of pandemic-related challenges they are more likely to engage in adaptive coping strategies which in turn can protect their psychological wellbeing over time.

Self-administered online survey data were collected at two time points from 116 students who participated in CRS programs at the University of Waterloo. Findings showed that the sample participants were mainly undergraduate male domestic Canadian students who, on average, participated four times a week in different recreational activities offered on campus before the lockdown.

Regression analyses were used to investigate the effect of CRS participation on five dimensions of psychological wellbeing: autonomy, environmental mastery, positive relations with others, self-acceptance, and purpose in life during the pandemic. Results indicated that pre-lockdown CRS participation had a significant positive impact on protecting students' environmental mastery and self-acceptance during the pandemic. However, the association was not statistically significant with autonomy, positive relations with others, and purpose in life. The off-campus recreational activities (e.g., running, bicycling, yoga) in which students participated during the lockdown were not found to have a statistically significant effect on the associations, showing that positive outcomes of engagement in CRS activities is beyond short term enjoyment, physical benefits, learning new sports, or finding new friends.

An examination of the serial mediation model in which the pathway of CRS participation predicting psychological wellbeing (i.e., environmental mastery and self-acceptance) first through growth mindset and then subsequently through adaptive coping strategies showed that the indirect

effect through both mediators was statistically significant. It can be concluded that pre-lockdown CRS participation can enhance students' growth mindset, therefore, they are less likely than those with a validation mindset to consider challenges as a threat, but a warning that their life is out of balance, and a desire to find meaning or purpose in the challenges they encounter. According to Dykman (1998) an individual with a primarily growth mindset appraises stressors as manageable and controllable problems that need to be either resolved or the underlying negative emotions should be modified. Therefore, they engage more in adaptive coping strategies such as instrumental supports, new strategy plans, positive reframing, and emotional support. It can be concluded that greater pre-lockdown CRS participation helped students to enhance a growth mindset, and that in the face of pandemic-related challenges, due to this growth mindset, they could take on behaviours to manage problems and challenges in a way to protect their perception of mastery and self-acceptance.

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Dedication

For my daughters, Aylin and Ayla, who interpret failure as natural life challenges, not personal inefficiencies.

Table of Contents

Examining Committee Membership.....	ii
Author's Declaration.....	iii
Abstract.....	iv
Acknowledgements.....	vii
Dedication.....	viii
List of Figures.....	xiv
List of Tables.....	xv
Chapter One.....	1
1.1 Introduction.....	1
Chapter Two	5
Literature Review.....	5
2.1 Introduction.....	5
2.2 Students' Psychological Distress.....	6
2.2.1 Campus Engagement and Students' Psychological Wellbeing.....	9
2.3 Campus Recreational Sports (CRS).....	11
2.3.1 The History of CRS in North America.....	13
2.3.2 CRS Adaptation to Covid-19 Pandemic.....	14
2.3.3 CRS and Psychological Wellbeing.....	17
2.4 Hedonic and Eudaimonic Wellbeing.....	20
2.4.1 Dimensions of Psychological Wellbeing.....	22
2.4.2 Students' Psychological Wellbeing During the Covid-19 Pandemic.....	25
2.5 Goal Orientation Theory.....	26

2.6 Mindsets.....	30
2.6.1 Growth versus Validation Mindset.....	30
2.6.2 Personal Growth as the Outcome of CRS Participation.....	31
2.6.3 Mindsets' Associations with Coping Strategies.....	35
2.7 Coping with Stress.....	36
2.7.1 Dimensions of Coping Strategies.....	39
2.7.2 Students' Coping Strategies During the Covid-19 Pandemic.....	42
2.7.3 Leisure as a Predictor of Coping Strategies	43
2.7.4 The Role of CRS in Coping with Stress.....	46
2.7.5 The Role of Coping in Psychological Wellbeing Enhancement.....	47
2.8 Study Rationale.....	49
2.9 Theoretical Model of the Study.....	50
2.10 Research Questions and Hypotheses.....	51
2.10.1 Research Question 1.....	51
2.10.1.1 Hypothesis 1.....	52
2.10.2 Research Questions 2 and 3.....	52
2.10.2.1 Hypothesis 2.....	53
2.10.3 Research Questions 4 and 5.....	53
2.10.3.1 Hypothesis 3.....	54
2.10.4 Research Question 6.....	54
2.10.4.1 Hypothesis 4.....	54
Chapter Three.....	55
Methods.....	55

3.1 Why a Longitudinal Study?.....	55
3.2 Participants.....	56
3.3 Data Collection Procedure.....	56
3.3.1 Pre-lockdown Plan.....	56
3.3.2 Changes in Data Collection due to Campus Lockdown.....	57
3.4 Survey Instrument.....	58
3.5 Operationalization of Variables.....	59
3.5.1 Operationalization of CRS Participation.....	59
3.5.2 Operationalization of Growth Mindset.....	60
3.5.3 Operationalization of Coping Strategies.....	61
3.5.4 Operationalization of Psychological Wellbeing.....	62
3.6 Data Analysis Plan.....	63
Chapter Four.....	65
Results.....	65
4.1 Descriptive Analysis.....	65
4.1.1 Respondents' Demographic Profile.....	66
4.1.2 Respondents' CRS Participation Profile.....	67
4.1.3 Respondents' Goal orientation Profile.....	68
4.1.4 Respondents' Coping Strategies Profile.....	69
4.1.5 Respondents' Psychological Wellbeing Profile.....	72
4.2 Bivariate Analysis.....	74
4.2.1 Correlation Analyses.....	74
4.3 Multivariate Analysis.....	77

4.3.1 Autonomy	77
4.3.2 Environmental Mastery.....	81
4.3.3 Positive Relations with Others.....	84
4.3.4 Self-acceptance.....	85
4.3.5 Purpose in Life.....	87
Chapter Five.....	88
Discussion.....	88
5.1 Participants' Profile.....	89
5.2 Research Question 1.....	92
5.2.1 Hypothesis 1.....	92
5.2.1.1 Pre-lockdown CRS and Environmental Mastery.....	92
5.2.1.2 Pre-lockdown CRS and Self-acceptance.....	94
5.3 Research Questions 2 and 3.....	95
5.3.1 Hypothesis 2.....	96
5.4 Research Questions 4 and 5.....	97
5.4.1 Hypothesis 3.....	98
5.5 Research Question 6.....	99
5.5.1 Hypothesis 4.....	100
5.6 Conclusion.....	104
5.6.1 Theoretical Implications.....	106
5.6.2 Practical Implications.....	107
5.6.3 Limitations.....	108
5.6.4 Future Studies.....	109

References.....	112
Appendices	128
Appendix A: Survey Instrument.....	128
Appendix B: Goal orientation Inventory scale.....	146
Appendix C: Brief Cope Scale.....	149
Appendix D: Scales of Psychological Wellbeing.....	151

List of Figures

Figure 1. Association of pre-lockdown CRS participation and dimensions of psychological wellbeing as mediated by growth mindset and adaptive coping strategies.....	3
Figure 2. Serial mediation model of CRS participation predicting psychological wellbeing through the mediator variables of growth mindset and adaptive coping strategies.....	50
Figure 3. Serial Mediation Model: Association of pre-lockdown CRS participation and psychological wellbeing as mediated by growth mindset and adaptive coping strategies.....	63
Figure 4. Association of pre-lockdown CRS participation and Autonomy during the pandemic as mediated by growth mindset and adaptive coping strategies.....	78
Figure 5. Association of pre-lockdown CRS participation and Environmental Mastery during the pandemic as mediated by growth mindset and adaptive coping strategies.....	83
Figure 6. Association of pre-lockdown CRS participation and Positive Relations during the pandemic as mediated by growth mindset and adaptive coping strategies.....	84
Figure 7. Association of pre-lockdown CRS participation and Self-acceptance during the pandemic as mediated by growth mindset and adaptive coping strategies.....	86

List of Tables

Table 1. Respondents' Demographic Profile.....	66
Table 2. Respondents' Recreational Sport Participation Profile.....	68
Table 3. Respondents' Goal Orientation Profile.....	69
Table 4. Respondents' Coping Strategies Profile.....	71
Table 5. Respondents' Psychological Wellbeing Profile	73
Table 6. Correlation Matrix.....	75
Table 7. Correlation between CRS participation, goal orientation, and coping strategies before the campus lockdown.....	76
Table 8. Correlation between CRS participation, goal orientation, and coping strategies during the campus lockdown.....	76
Table 9. Unstandardized coefficient for regression models showing association of demographics, T1 Criterion variables, off campus recreations, CRS participation, GS goals, and adaptive coping with psychological wellbeing.....	79
Table 10. Bootstrap analysis of total indirect effect for association of CRS participation with psychological wellbeing outcomes, and indirect effects through GS goals and adaptive coping.....	81

“What is important is not what happens to us, but how we respond to what happens to us”

Jean Paul Sartre

Chapter One

1.1 Introduction

Over the last two decades, post-secondary students’ mental health has been a focus of attention across Canada and around the world. The growing empirical research shows that psychological distress (e.g., stress, anxiety, depression, anhedonia, and sleeping problems due to worries) can negatively impact students’ physical, emotional, social, and cognitive functioning leading to lower levels of academic performance and satisfaction, more dropouts, and even self-harm or suicide in severe cases (Baik et al., 2019; Kitzrow, 2003; Lipson et al., 2018; Mackean, 2011). In March 2020 due to the emergence of the Covid-19 pandemic and sudden campus lockdowns, new stressors and challenges had also arisen. Although, as a major life storm, Covid-19 has had a long-lasting impact on all individuals globally, post-secondary students as an already vulnerable population experienced a rapid mental health crisis (Patterson et al., 2021; Sahu, 2020; Savage et al., 2020) due to academic uncertainty, financial/emotional struggles, and e-learning challenges which exacerbated their stresses (Abdeahad & Mock, in review).

To help counteract this, leisure participation can be a significant buffer against psychological distress by generating self-determination and social support (Coleman & Iso-Ahola, 1993). There is also evidence that campus recreational sports (CRS), as one of the services offered as extracurricular leisure activities, such as various sports and fitness activities at most North American post-secondary institutions, can enhance psychological wellbeing among university students (Kilgo et al., 2016). In particular, CRS has been shown to be an effective resource for coping with stress related to student life (Iso-Ahola, 1989; Kanters, 2000). Even pre-lockdown

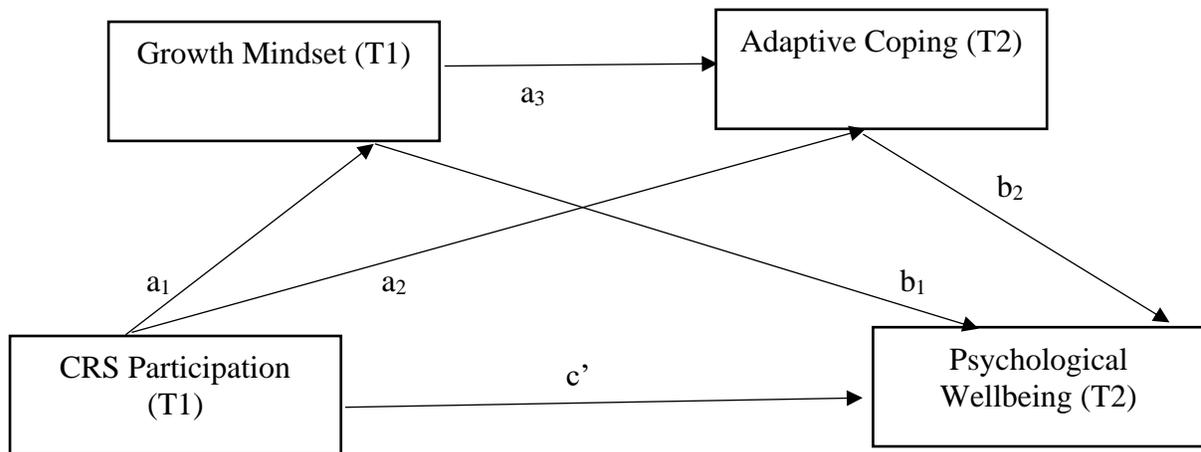
CRS experiences have the potential to reduce the impact of Covid-19 related stressors during the campus lockdown (Abdeahad & Mock, in Review). The effectiveness of pre-lockdown CRS on reducing Covid-19 related stressors may be due to its potential to develop a set of beliefs (i.e., growth mindset; Dweck, 2015; Dykman, 1998) that can help students increase their mastery to cope with challenges more effectively compared to those who do not participate in recreational activities (Iso-Ahola & Mannell, 1985; Iwasaki & Mannell, 2000). CRS can also change students' attitudes and behaviours to have a healthy lifestyle and cope with daily life challenges in the long run (Forrester et al., 2006; 2007). Growth-oriented individuals see challenges and setbacks as opportunities to learn new strategies rather than as a test of their basic self-worth (i.e., goal orientation model; Dykman, 1998). In the face of negative life events, rather than losing self-esteem, self-blaming, or disengaging from a task, a growth-oriented individual not only appraises negative outcomes as less threatening, but as opportunities to learn, grow, or develop their self-awareness, so they experience less anxiety and may have greater level of psychological wellbeing.

Frequent participation in meaningful and enjoyable leisure activities have also been shown to provide individuals with diverse opportunities to experience a sense of control and freedom of choice and build personal dispositions such as mastery, competence, self-esteem, and personal growth which, in the long run, help them cope more adaptively with life stressors (Coleman & Iso-Ahola, 1993; Iso-Ahola et al., 1989, Shaw & Dawson, 2001). Regular exercise and sport activities, in particular, can improve self-control, self-esteem, self-efficiency, and positive social interactions all of which lead to greater psychological wellbeing (Edwards, 2002; Scully et al., 1998; Yiannakis et al., 2001). From an educational perspective, engagement in extracurricular activities outside classrooms has also been shown to enhance students' developmental growth and satisfaction with campus life (Astin, 1975; 1984; Kuh, 2009; Pascarella & Terenzini, 2005), which leads to personal

growth in the long run (Bowman, 2010). If such engagement is through an enjoyable and meaningful leisure activity, it can also fulfill the personal and social growth potentials (Shaw & Dawson, 2001), and improve psychological wellbeing (Ryan & Deci, 2001; Stebbins, 2018; Waterman, 1993). Taken together, it stands to reason that students who participate in CRS activities are likely to have greater levels of personal growth. Therefore, in face of negative life challenges they are more likely to engage in adaptive coping strategies which in turn can protect their psychological wellbeing over time.

Figure 1

Association of pre-lockdown CRS participation and dimensions of psychological wellbeing as mediated by growth mindset and adaptive coping strategies



In the present study, drawing on goal orientation theory, I proposed a model (see Figure 1) that suggests that more frequent participation in CRS activities before the lockdown will enhance growth mindset leading to the use of adaptive coping strategies in face of Covid-19 related stressors which in turn protect psychological wellbeing among post-secondary students during the pandemic. With self-administered longitudinal data from students who participated in CRS activities and programs before the campus lockdown at the University of Waterloo, I examined the

link between pre-lockdown CRS participation and psychological wellbeing including autonomy, environmental mastery, positive relations with others, self-acceptance, and purpose in life during the Covid-19 pandemic along with the explanatory mechanism(s) underlying this association.

“It is not the strongest of the species that survives, nor the most intelligent. It is the one that is most adaptable to change” Charles Darwin

Chapter Two

Literature Review

2.1 Introduction

Considering the high level of psychological distress among post-secondary students during the Covid-19 pandemic and drawing on goal orientation theory (Dykman, 1998), the purpose of this study is to examine the role of pre-lockdown CRS participation in protecting students’ psychological wellbeing, namely, autonomy, environmental mastery, self-acceptance, positive relations with others, and purpose in life during the pandemic. Furthermore, growth orientation is examined as a potential mediator to explain how CRS participation before the pandemic can help students use more adaptive coping strategies and protect their psychological wellbeing during the campus lockdown.

To have a thorough understanding of the students’ challenges during the campus lockdown as well as delving deeper in the positive outcomes of CRS participation in face of negative life events, the related literature will be reviewed as follows: the chapter begins with an overview of students’ psychological distress and the significance of campus engagement in their wellbeing. Second, the nature of CRS, its adaptation to the lockdown, and its impact on students’ wellbeing will be analyzed. Then, goal orientation theory will be reviewed and its association with this study will be discussed, followed by a comprehensive review of the literature related to the relationship between mindsets and coping strategies. After explaining the rationale of this study, the chapter is concluded with the proposed model, research questions, and hypotheses.

2.2 Students' Psychological Distress

Psychological distress among students has been linked to housing, financial concerns, emotional distress, and social challenges as well as academic demands (Dyson & Renk, 2006). Although most of these challenges are expected, they are sometimes difficult to handle and remain stressful for considerable numbers of students. Graduate students are not an exception, either. They experience depression and anxiety six times more than general population due to work-life balance, family concerns, financial issues, disagreements with supervisors, sex orientation, and gender-related issues (e.g., being a female, Evans et al., 2018; Mazzola et al., 2011).

In addition to these typical stressors, the sudden campus lockdown in March 2020 due to the emergence of the novel coronavirus (Covid-19) pandemic shocked anybody engaged in any form of education with the combination of the Covid-19 virus threat and the subsequent elimination of the normal education and the emergence of alternative e-learning delivery systems. In response to the pandemic all provinces and territories in Canada declared states of emergency and the government imposed a nationwide lockdown meaning school and daycare closures, prohibitions on gatherings and two-meter physical distancing orders, closures of non-essential businesses (e.g., shopping centres, fitness centres, restaurants, community centres, coffee shops, casinos, bars), restrictions on entry to grocery stores, work from home for office jobs, and e-learning for students. Due to this unprecedented change, March 12 was the last day for most students to attend classes in-person. During the campus lockdown all classes, including lectures, tutorials, midterm and final exams, as well as academic milestones such as thesis proposals, comprehensive exams, and defences have been held virtually in most Canadian campuses for about two years. Instructors were asked to consider alternatives to in-person instructions and examinations. Due to provincial emergencies, even most of the campus buildings and residences were closed in April 2020 in

Ontario to protect students, faculty, and staff from being infected and reduce the spread of the virus.

Such a speed in campus lockdowns, left students with the feelings of uncertainty and concerns about their academic futures, being infected, unemployment, financial difficulties, and decreased emotional support (Bao et al., 2020; Elmer et al., 2020; Patterson et al., 2021; Zhai & Du, 2020). As expected, these significant changes disrupted many areas of students' personal and professional lives and caused heightened levels of anxiety, stress, and isolation.

In the spring of 2021, the American College Health Association conducted a study on 98,578 students from 143 post-secondary institutions and found that over half of students (52%) had challenges with their academics during the Covid-19 pandemic and around a third (33%) experienced a high level of stress in the last 30 days before the survey (ACHA NCHA III, 2021). Both academic challenges and the level of stress were at higher rates compared to the pre-lockdown survey in fall 2019 (43% and 27% respectively; ACHA NCHA III, 2020). Statistics Canada also conducted a crowdsourcing data collection in the spring of 2020 to better understand the impacts of the Covid-19 pandemic on post-secondary students' academics and financial concerns. From over 100,000 respondents, over half (57%) reported that the pandemic had a negative impact on their academics, and about two third were highly concerned about either losing their jobs or having no job prospects in the coming years (58% and 67% respectively, Statistics Canada, 2020). The Healthy Minds Study, with data collected from over 18,764 students on 14 campuses in the U.S also revealed that anxiety and depression (31% and 24%) had higher negative impacts on respondents' academic performance in comparison to pre-lockdown data (27.8% and 22.1% in fall 2019; Martinez & Nguyen, 2020).

The effect of the lockdown was not limited to North America and most students around the world experienced considerable distress in the form of uncertainty, anxiety, isolation, and frustration during this unprecedented time. According to the United Nations Education, Scientific, and Cultural Organization (UNESCO), 87% of students were negatively impacted by campus lockdowns (de Oliveira Araújo et al., 2020). In a longitudinal study, UK university students' mental wellbeing were examined prior to, and during the first five weeks of the lockdown. Results indicated that during the lockdown, perceived stress had increased, and students reported lower level of mental wellbeing due to their lower ability in coping with sudden challenges and demands compared to pre-lockdown periods (Savage et al., 2020). Data from a study in France also indicated that the level of depression (43%), anxiety (39.19%), and distress (42.94%) was higher during the pandemic compared to results from the normal time (Essadek & Rabeyron, 2020). In a meta-analysis of twenty countries, Crawford et al., (2020) concluded that the students from some developing countries and rural communities experienced even a more severe impact from the pandemic and e-learning strategy due to lack of internet access, expenses, and government restrictions. Research on 874 university students in Bangladesh also indicated that 40% of students experienced moderate to severe level of anxiety, and over a half (53%) had moderate to poor mental health status. Probably most alarming was that very close to three fourths of this large sample (72%) showed depressive symptoms (Faisal et al., 2021) which is much higher compared to data from North America.

Academic stresses are mainly caused by challenges such as transitioning from adolescence to adulthood, accommodating a new environment, being away from home and building up new relationships, living more independently, financial struggles, and trying to achieve personal goals in addition to managing academic demands, pressure to succeed, and finding a job (Beiter et al.,

2015; Dyson & Renk, 2006; Sawatsky et al., 2012). During the campus lockdown, some of the more stressful challenges Canadian students faced were about academic uncertainty, self-support struggles (both financially and emotionally), and e-learning challenges (Abdeahad & Mock, in Review). Over and above the negative impacts on students' academic performance, psychological distress can cause some emotional and behavioral problems which may lead to stress, anxiety, depression, or even self-harm and in some cases suicide (Kitzrow, 2003; Baik et al., 2019; Lipson et al., 2018).

Considering the negative impacts of psychological distress, struggles, and setbacks on learning and academic success, prior to the pandemic, a specific emphasis on mental health enhancement for everyone was started on campuses to promote the health and wellness of students through broader campus community engagement. In addition to focusing on students and their behaviours, post-secondary institutes started seeking other interrelated factors outside the students' selves, such as social, economical, and environmental factors through engagement of and support from campuses (CACUSS, 2013; CMHA BC, 2022; Mackean, 2011)

2.2.1 Campus Engagement and Students' Psychological Wellbeing

Although when it comes to post-secondary students' mental wellbeing, the priority is still individual treatment and awareness through campus-based mental health services, strategic plans show that campus services intended to enhance student wellbeing are not limited to counselling services (CACUSS, 2013; CMHA BC, 2022; Duffy et al., 2019; Ng & Padjen, 2019). The Canadian Association of College and University Student Services proposed a guide with seven key components to a systematic approach toward post-secondary student mental health with a focus on the significance of campus communities (CACUSS, 2013). Five components (i.e., institutional structure, mental health awareness, community capacity to respond to early

indications of student concern, accessible mental health services, and crisis management) traditionally focus on policies and practices to foster treatment, awareness, educational programs, therapies, and counselling. However, the remaining two components of “supportive, inclusive campus climate and environment” and “self-management competences and coping skills” support students through integrated development, capacity building, social equity, and promoting adaptive coping strategies. According to CACUSS, campus engagement can enhance students’ intrapersonal development, interpersonal competence, humanitarianism, and practical competence which all strengthen students’ capacity to manage challenges and find meaning, purpose, and happiness in their lives.

Early studies also show that greater involvement in extracurricular activities outside classrooms was positively correlated with students’ overall satisfaction with college/university life. In other words, student involvement is much more than taking classes, studying, or doing assignments and students should spend more time on campus, participate in organizations, and interact with other members of the campus (Astin, 1975). Bowman (2010) examined the association between campus engagement and psychological wellbeing among 3,081 first-year students at the beginning and the end of their first academic year and concluded that involvement in cocurricular activities can enhance personal growth, positive relationships with others, and purpose in life among students. In another similar longitudinal study, Kilgo et al., (2016) examined the impact of intramurals participation on psychological well-being at three intervals (at the beginning of the first year, at the end of the first year, at the end of the fourth year) among 4,402 students. Results, controlling for aerobic exercises, indicated that students who got involved in intramurals, irrespective of the academic year, had greater psychological well-being, reflecting that the impact of intramurals on students’ wellbeing was beyond just physical activity

participation. However, they did not test any mediating variables that may have influenced this association. Other studies have also confirmed that campus recreational sports (CRS) participation enhances students' psychological well-being through friendship, relieving stress, improving self-confidence, higher multicultural acceptance, greater level of tolerance, inclusion, social integration, and growth (Artinger et al., 2006; Forrester, 2014). However, CRS participation was given little consideration as a potential intervention in CACUSS's systematic approach toward student mental health.

2.3 Campus Recreational Sports (CRS)

CRS is a service of extracurricular activities provided by post-secondary institutions to offer students an opportunity to participate in a variety of sport and physical activity programs such as fitness programs, sport clubs, intramural sports, instructional lessons, and drop-in sports. CRS programs were designed to motivate students to engage in and sustain a healthy lifestyle (Lindsey & Sessoms, 2006).

Fitness programs (i.e., facilitating group-based and individual-based physical exercise) are usually led by other students, and mainly focused on effort and personal achievement, therefore, such programs can enhance students' leadership and communication skills (Lower et al., 2015), leading to self-efficacy and social interaction (D'Alonzo et al., 2004). Sport clubs (i.e., providing an opportunity for all students to participate in competitive sport games where members should take responsibility to coordinate or host competitions) also enhance students' development and positive learning through purposeful activities (Cooney, 1986). Like fitness groups, sport clubs usually appoint members as coaches or captains, therefore, students take personal responsibility over the quality and improvement of the team. Considering competitions in sport clubs, members need to commit more time for regular practicing, meetings, and extramural tournaments. All these

educational activities can improve students' planning skills, time management, leadership development, and sense of belonging to school (Haines & Fortman, 2008). Intramural sports, mainly based on students' interests and skills in competitive leagues and tournaments, also strengthen students' psychological wellbeing, physical health, and social group bonding through personal development, learning, and integration (Artinger et al., 2006; Bourgeois et al., 1995; Kilgo et al., 2016). Drop-in sports are also like intramurals, but there is no need to form teams before the seasons begin. Students at all levels, irrespective of their skills, are welcome to participate in their favourite activities upon open availability and at no cost.

Engagement in extracurricular activities such as CRS is positively associated with persistence because students can psychologically and socially be connected to achievement-oriented groups and engaging in such activities can help them develop skills and competencies (e.g., interpersonal skills, self-confidence) leading to more success in academic life (Astin, 1993; Kuh, 2009; Pascarella & Terenzini, 2005). Moreover, CRS participation is associated with lower level of dropouts and greater retention (Endo & Bittner, 1985; Mallinckrodt & Sedlacek, 1987), healthy lifestyle (Lindsey & Sessoms, 2006), sustainable physical activity behavior beyond campus life (Forrester et al., 2006; 2007), autonomy development, interpersonal relationship, and teamwork skills enhancement (Erwin, 1989; Mayers et al., 2017; NIRSA, 2004), problem-solving, prioritization, adaptability, networking, analytical skills (NIRSA, 2017), and promoting happiness and subjective wellbeing (Webb & Forrester, 2015). However, the internal mechanism of these associations was little examined.

In a study of 38 universities across the U.S. with a sample of 33,522 students, Forrester (2015) found that 74% of students considered CRS programs as an important factor in their decisions to continue their studies in a post-secondary institution. He also explained that CRS

participation has the potential to improve students' feeling of wellbeing and overall health, developing concentration, balance, coordination, self-confidence, and stress management as well as enhancing learning and academic performance through improving students' skills and abilities in managing their time, group cooperation, problem solving, and multitasking. CRS participation can also strengthen students' respect for others, multicultural awareness, and sense of belonging which leads to developing friendship (Artinger et al., 2006; Bowman, 2010; Lindsey & Sessoms, 2006). In addition to enhancing students' interpersonal competence, humanitarianism, and practical competence, CRS as structured diverse leisure activities has the potential to give students a clear idea about their strengths as well as their weaknesses. Such intrapersonal development helps students develop more skills and abilities to become the individual they would like to be and feel good about who they are (Kleiber et al., 2011) which all lead to greater psychological wellbeing (Kilgo et al., 2016).

2.3.1 The History of CRS in North America

The evolution of recreational sports on campuses dates back to late 1800s when students wanted some less rigid, more fun extracurricular physical activities than varsity sports (NIRSA, 2008). Therefore, the first intramural sports were started in the University of Wisconsin in 1893 and two years later the first women's Athletic Association was founded in the University of Minnesota. According to the NIRSA historian, Paul Wilson, during the first decade of the 20th century students started enjoying playing sports for the sake of participation instead of competition and Cornell University started recreational sports with special training for students who were not on varsity teams. However, the first departments of intramural athletics were officially founded at the University of Michigan and The Ohio State University in 1913 to organize and schedule recreational sports (NIRSA, 2008). According to Paul Wilson, it was not until the military training

camps during WWI and the Great Depression and WWII that the significance of physical education at schools and the value of recreational activities (i.e., a wise use of leisure time) were revealed to American people and institutions such as colleges and universities.

In 1950, William Wasson from Dillard University in New Orleans founded a national organization to provide references, resources, and supports to intramural departments in colleges specifically for people of color, later known as National Intramural-Recreational Sports Association (NIRSA) in 1975. During the 1950s, the non-competitive and recreational aspects (i.e., social, creative) of intramurals got more attention and since the 1980s post-secondary institutions have recognized CRS programs as a significant contribution for students' involvement and expanded activities to sport clubs, instructional programs, drop-in sports, aquatics, fitness and wellness, summer camps, and outdoor recreation (Barcelona & Ross, 2002). In a sample of 2,586 students from five post-secondary institutions, Bryant et al., (1995) examined students' involvement and satisfaction with all campus recreation programs and the institution. They also measured the level of retention, recruitment, feeling of physical well-being, self-confidence, friendship, and stress reduction and found that all CRS activities, including intramurals, sport clubs, fitness and wellness centres have the potential to enhance students' intrapersonal, interpersonal, and practical competence.

2.3.2 CRS Adaptation to Covid-19 Pandemic

Perhaps not surprisingly, there was a significant decline in CRS participation during the Covid-19 pandemic (Kiely et al., 2021) and 57% of campus recreation departments announced that they preferred to close the facilities until further notice than offering online fitness classes (Popke, 2020). Over 85% of CRS users also switched to off campus physical activities either through online exercise classes in social media or renting fitness equipment and completing home

workouts (Maire, 2020). However, some other campus recreational centres tried their best to overcome challenges and offered some physical activity opportunities, aligned with government safety guidelines, to students. The University of Waterloo (UW) was among the first institutions in Ontario adapted to the changes due to Covid-19 pandemic and the CRS department offered virtual fitness classes just a week and a half after the first campus lockdown. In my personal communications with the senior manager of recreation for this research, he explained that, after the shutdown in mid-March, after about 10 days, they were able to offer six weeks of online fitness (84 classes) with an average of 30 people/class. The activities were held multiple times per day and were open to the campus community, including those who were not in Canada (e.g., international students). All UW members could either participate live in activities or use the archived virtual library at their preferred time. In addition to virtual fitness classes, the CRS office also offered some health webinars related to concentration, sleep, and study habits as well as nutrition consultations and home workouts (i.e., a downloadable 12-week workout plan to use at home). These programs were all free with the goal of engaging as many UW members as possible (Personal communication, August 2020).

According to senior manager of recreation programming, before the pandemic, in Winter 2020 when time one of this study started, 7,812 individuals had registered for CRS activities, including intramurals (4,790 participants), athletics clubs (1,967 individuals), fitness programs (730 people), and instructional programs (325 participants) in addition to averaging 51 users per hour for open recreation gyms, and 10-20 users per hour for ice activities, swimming, and field house activities. In the Spring 2020, however, CRS services were completely virtual, and the number of participants decreased sharply to 1,019 users in online activities such as e-sport (150 participants), online fitness classes (396 participants), at home workout plans (237 participants),

personalized nutrition plans (176 participants), and warrior health webinars (60 participants; Personal communication, December 2021).

Although CRS activities were reopened in September 2020 (noting that they had to close the facilities again in December 2020), due to their commitment to government standards and guidelines it was not possible to carry out some intramural sports such as basketball or indoor soccer because of the close proximity players would be to each other, but students could register for intramural volleyball in fall 2020. As an adaptation to the new situation, they had to restrict teams into just 14 groups, compared to 100 teams before the pandemic, and a maximum of 50 people were allowed to be in the court areas at any one time. They also had the same referees every game they played against the same team. Contact tracing was required for every player, and they had to register for every game they played, as well as completing the Covid-19 online screening prior to playing. Despite all these challenges and frustrations, the CRS office managed to finish the intramural schedule before the second lockdown in December 2020.

The challenges were not limited to intramurals. There was also a maximum capacity limit of 20 individuals in the gyms where members could only exercise for 45 minutes and then the staff needed to clean all the equipment for the next group. Even the pathways were separated, so those who were going to the fitness centre would not cross paths with someone who was going to play badminton.

In addition to all the challenges and concerns about infection for the staff, the procedures were frustrating for students, too. Due to the pre-registration limit, the spots filled up quickly and many students never got an opportunity to enter the gyms. As another adaptation, the CRS office decided to move spin bikes into one of the gyms and made up a new drop-in fitness centre

opportunity. All activities, during the reopening, were offered free except for the intramurals, so CRS office could pay student leaders for fitness classes.

The senior manager of recreation further explained that before the pandemic, the intramural fall season had been between 5,500-6,000 participants. However, in fall 2020 there were only 1,000 which was still great considering the campus community was 85% smaller than it normally is. Fitness classes, offered once a day, were not very popular though and typically only five or six students participated in each session. He further stated that one of the things he and his team were most proud of, was that they had over 40,000 check-ins (i.e., any student who utilized the facility in anyway, such as intramurals, fitness classes, or varsity athletes) without a single transmission of Covid-19 disease due to recreational spaces (personal communication, June 2021).

2.3.3 CRS and Psychological Wellbeing

Research has shown that taking part in regular exercise and sport activities (i.e., 20-30 minutes a day for at least three times a week) can enhance psychological wellbeing by increasing individuals' sense of self-control, self-esteem, self-concept, self-efficiency, and positive social interactions (Edwards, 2002; Fox, 2000; Scully et al., 1998; Yiannakis et al., 2001) which all lead to greater psychological wellbeing (Scully et al, 1998).

According to data from university students in South Africa who either played on a hockey team or had memberships for sport clubs, Edwards et al. (2004) concluded that irrespective of the type of the activity, regular participation in physical activities was associated with higher level of psychological wellbeing. To examine the impact of group and individual activities, they added runners to the study and found that higher scores in all the three types of physical activities (i.e., hockey, sport clubs, running) were associated with greater psychological wellbeing and argued

that in comparison to non-exercisers, those who regularly participate in physical activities (either team- or individual-based) perceived higher level of autonomy, personal growth, positive relations with other, environmental mastery, and purpose in life (Edwards et al., 2005).

There is also some longitudinal evidence that participation in campus activities can positively promote psychological wellbeing. Building on Astin's (1984) research about the positive association of engagement in campus extracurricular activities and students' greater developmental growth, Bowman (2010), in a study with first-year students, concluded that those with cocurricular campus experiences (e.g., being a member of students' organizations such as Greek life) showed greater levels of personal growth, positive relationships with others, and purpose in life at the end of their first year compared to the first month they started school. Later, Kilgo et al., (2016) examined Bowman's findings to predict the association over four years. They concluded that frequent participation in intramural sports had a significant and positive association with end-of-fourth year psychological wellbeing even when controlling for aerobic exercises. However, they used the total mean score of psychological wellbeing in their analyses and the dimensions of autonomy, environmental mastery, positive relations with others, purpose in life, self-acceptance, and personal growth were not examined separately. Therefore, it is not clear whether intramural sports showed equal association with each dimension of psychological wellbeing or if there was a variation between them. They also argued that the association between engagement in intramural sports and psychological wellbeing is beyond just aerobic exercise and further research is needed to understand the mechanism.

Other studies also confirm that personally meaningful and structured recreational/leisure activities can enhance individuals' autonomy through freedom of choice (Ryan & Deci, 2000), promote purpose in life through being a part of the community (Misener et al., 2010), improve

self-acceptance through providing a clear idea about their strengths and weaknesses (Kleiber et al., 2011), increase positive relations with others through development of friendship and social connections (Coleman & Iso-Ahola, 1993), augment environmental mastery through handling difficulties (Patterson & Pegg, 2009), and cultivate personal growth through improving skills, talents, potentials, and capacities (Csikszentmihalyi, 1990; Dik & Hanson, 2008).

This association between meaningful activities through leisure or individuals' functioning and wellbeing is the significant link between leisure studies and positive psychology (Mock et al, 2016). According to positive psychology, wellbeing is a process over and above fixing what is wrong and it also includes building what is right through systematic focusing on strengths, abilities, and competencies (Ryff, 2014). Considering the diverse components of wellbeing (i.e., pleasure, happiness, life satisfaction, growth, self-efficacy), one of the very first questions positive psychology researchers asked was "what makes one moment better than the next?" Seligman and Csikszentmihalyi (2000) argued that hedonic quality of current experience can be the fundamental block of positive psychology. However, they simultaneously critiqued their own argument and stated that what makes individuals happy in small doses or in younger ages does not necessarily add satisfaction in the long run or at older ages. Therefore, wellbeing is more than happiness and includes an integration of hedonic (i.e., happiness, pleasure, positive affect) and eudaimonic (i.e., purpose in life, personal growth, positive relations with others, autonomy, self-acceptance, environmental mastery) factors of wellbeing (Seligman, 2011; Ryff & Keyes, 1995). To better understand what defines optimal functioning and what makes 'the good life', wellbeing will be analyzed from two general perspectives: the hedonic approach and the eudaimonic approach.

2.4 Hedonic and Eudaimonic Wellbeing

Achievement of a good life can be, psychologically, interpreted based on two broad philosophical traditions. One approach traces back to the hedonic view of a Greek philosopher, Aristippus of Cyrene (435-366 BC), who believed that a good life is the pursuit of happiness. Similarly, Aristotle's (384-322 BC) introduced the concept of eudaimonia and stated that wellbeing is more than just purely happiness, but also depends on meaning, personal growth, and an individual's virtues (Ryan & Deci, 2000).

Broadly speaking, hedonism, founded on the judgements about the good/bad elements of life, was derived from Kahneman et al., (1999) who argued that life experiences are either pleasant or unpleasant and wellbeing is the result of maximising individuals' happiness and avoidance of pain. Hedonism is not limited to pleasures of the body (i.e., physical hedonism), but also includes pleasurable experiences in all areas of life (e.g., satisfaction with marriage, work, and life; Diener et al., 1998). Later, subjective wellbeing (i.e., SWB) with three components of life satisfaction, the presence of positive mood (i.e., positive affect), and the absence of negative mood (i.e., negative affect) was introduced to assess individuals' happiness (Diener & Lucas, 1999).

Drawing on the Aristotelian view, Fromm (1981) argued that wellbeing is beyond satisfaction from momentary pleasure, but it is connected to meaning and purpose in life. It also denotes the actualization of individuals' potentials, such as positive social relations, mastery, and personal growth. Through the same lens, Ryff (1995) also argued that eudaimonic wellbeing focuses on the realization of an individual's true potential which gives meaning and direction to life, and she called it psychological wellbeing (i.e., PWB). Drawing from Aristotle, Ryff and Singer (1998) also challenged SWB due to its narrow view toward positive functioning. In response, Diener et al., (1998) argued that although Ryff and Singer's eudaimonic criteria provided

a more scientific definition of wellbeing, the SWB model lets individuals share their experiences of a good life with researchers.

Consistent with Ryff, Waterman (1993) also defined wellbeing as a state of being in accordance with the daimon (i.e., true self) through fully engagement in activities connected with deep-down values. These activities develop skills and abilities aligned with the individual's life purposes and lead to fulfilling personal potential and providing feeling of conformity, achievement, accomplishment, and aliveness. However, he highlighted that such activities should be first enjoyable then lead to flow and expressiveness, otherwise an activity which leads only to eudaimonia is a "theoretical null" (Waterman, 2005). He labelled the feelings resulted from such enjoyable activities as "personal expressiveness" and argued that an individual can achieve psychological wellbeing through personal expressiveness (i.e., engaging in enjoyable and meaningful activities; Waterman, 1993). Therefore, in contrast to Diener and colleagues who focused on the hedonic aspect of wellbeing (i.e., SWB) and Ryff and her colleagues who emphasized the eudaimonic aspect of wellbeing (i.e., PWB), Waterman argued that wellbeing or personal expressiveness results from both hedonic and eudaimonic wellbeing together.

Therefore, it can be concluded that each definition of wellness leads to different kinds of inquiry regarding the predictors, outcomes, and the dynamics of wellbeing (Ryan & Deci, 2001). Considering the stressful nature of the Covid-19 pandemic for all individuals, and post-secondary students' priorities (i.e., completing their courses or degrees successfully), the goal of this study is not finding happiness during the pandemic but analyzing how enjoyable activities such as CRS programs can help students maintain their positive attitudes toward themselves and overcome challenges despite the pandemic-related setbacks and failure. Therefore, wellbeing, for the purpose

of this study, is defined as the realization of an individual's true potential which gives meaning and direction to life (i.e., psychological wellbeing; Ryff & Keyes, 1995).

2.4.1 Dimensions of Psychological Wellbeing

In the mid 20th century, psychologists argued that psychological wellbeing is beyond mental illness or suffering, but the causes and consequences of positive functioning (i.e., positive and negative affect, and life satisfaction) mattered, too (Diener, 1984; Jahoda, 1958). As discussed, Ryff (1989) argued that the characteristic of positive psychological functioning is not limited to the criteria of subjective wellbeing and she proposed to integrate theories of clinical psychology, life span development, and positive mental health to comprehensively define psychological wellbeing. Therefore, according to theories of individuation (Jung, 1933), fully functioning person (Rogers, 1961), maturity (Allport, 1961), self-actualization (Maslow, 1968), basic life tendencies (Bühler, 1935), personal development (Erikson, 1959), personality changes (Neugarten, 1968), and the six criteria of positive mental health (i.e., positive attitudes toward the self, growth, integration, autonomy, a true perception of reality, and environmental mastery; Jahoda, 1958), she proposed six life challenges of autonomy, self-acceptance, positive relations with others, purpose in life, environmental mastery, and personal growth. She later argued that how individuals cope or negotiate their way through these challenges leads them to psychological wellbeing and flourishing (Ryff & Keyes, 1995). She defined the six dimensions of the scales of psychological wellbeing as follows:

Self-acceptance: Ryff (1989) argued sense of self-acceptance was repeated as a central feature in almost all theories related to self-actualization, maturity, optimal functioning, mental health, and life span theories and defined it as individuals' awareness of personal limitations while accepting the self and the past life. Ryff and Singer (2008) further explained that self-acceptance

is beyond self-esteem, and it is a long-term self-evaluation including awareness and acceptance of both strengths and weaknesses.

Positive relations with others: Jahoda (1958) emphasized the ability to love as a central feature of mental health. Allport (1961) defined warm relations with others as a result of maturity and Maslow (1968) stated that self-actualizers have a strong sense of empathy and capabilities for love and deeper friendship. From a life span development point of view, intimacy and generativity also lead to personal development. Taken together, Ryff (1989) considered the depth of connection with significant others as a core dimension of psychological wellbeing.

Autonomy: Self-determination, independence, and self-regulation have always been key factors to enhance positive psychological functioning. Maslow (1968) argued that self-actualizers show autonomous functioning and do not look for approval of others. Rogers (1961) described a fully functioning individual as a person with an internal locus of evaluation based on personal standards. Jung (1933) also explained that individuation happens when an individual does not stick to collective fears, beliefs, and laws of masses and reach the true self. Life span development theories also see the sense of freedom from everyday life norms in later years of life as autonomy. Taken together, Ryff (1989) defined autonomy as the accordance of an individual with their own personal convictions. According to Ryff and Singer (2008), autonomy is the most western dimension of wellbeing

Environmental mastery: According to theories related to positive psychological functioning and life span development, individuals need an ability to advance in the world and change, create, or choose it creatively to be adaptable to their psychic conditions either through participating and engaging in some activities outside of self or controlling complex environment.

How well individuals are capable of managing their life situations is described as environmental mastery (Ryff, 1989).

Purpose in life: Mental health (Jahoda, 1958), maturity (Allport, 1961), and life span developmental theories (Bühler, 1935; Erikson, 1959) all emphasize that there is a purpose in and meaning to life. Therefore, to have a positive functioning an individual needs to have goals, intentions, and a sense of direction to lead a meaningful life. The extent to which an individual feels their life has meaning and direction is defined as purpose in life (Ryff, 1989).

Personal growth: Ryff (1989) believed that psychological wellbeing is beyond achieving the characteristics previously explained, but individuals need to grow to reach their potentialities. Ryff described openness to experiences as a significant characteristic of a fully functioning individual and argued that such a person is continually looking for developing and expanding their “self” while facing life challenges through their personal talents and potential. Ryff (1989) defined personal growth as the only dimension of wellbeing very close to Aristotle’s notion of eudaimonia (i.e., “the feelings accompanying behavior in the direction of, and consistent with, one’s true potential”, Waterman, 1984, p.16).

Through factor analysis and correlations, Ryff (1995) also found that the dimensions of self-acceptance and environmental mastery were strongly correlated with affect balance, life satisfaction, self-esteem, and morale; representing a clear link between these two dimensions and subjective wellbeing, which was previously used for wellbeing-related studies. However, the other four dimensions (i.e., autonomy, positive relations with others, purpose in life, and personal growth) were associated with neither the short-term affective wellbeing nor even with life satisfaction despite its enduring long-term quality. She also argued that psychological wellbeing

is theoretically and empirically different from other constructs such as self-esteem, happiness, and locus of control.

2.4.2 Students' Psychological Wellbeing During the Covid-19 Pandemic

The Ryff scales of psychological wellbeing (SPWB, 1989) was first developed to examine life transitions in a variety of contexts related to older adults and aging. However, Seifert (2005) suggested that the SPWB can be used in higher education to both assess the influence of counselling sessions on students' psychological wellbeing and evaluate what kinds of programs can be more effective. Bowman (2010) was among the first researchers who extended Seifert's proposal and tested, through longitudinal data, the association of co-curricular activities on first-year students' wellbeing. Results showed that participation in co-curricular activities could promote the development of personal growth, positive relations with others, and purpose in life among first-year students. This led to more adjustments in their academic lives due to enhancing some sets of skills, beliefs, or tendencies which can effectively help individuals manage their lives (i.e., thinking independently, knowing oneself, having healthy relationships with others, and having goals for life; Bowman & Kitayama, 2009).

While there have only been a few studies to specifically examine students' psychological wellbeing during the pandemic, longitudinal research in Australia found that students reported a lower level of psychological wellbeing during the pandemic compared to the pre-lockdown period, specifically in the dimensions of positive relations, autonomy, and environmental mastery (Anglim & Horwood, 2021). The low level of psychological wellbeing may be beyond the fear of viral transmission, sickness, or death. Government-imposed lockdowns and physical distancing restrictions in addition to psychological distress due to financial, academic, health, and social

challenges may have a negative impact on low level of students' psychological wellbeing (Anglim & Horwood, 2021; Savage et al., 2020).

Considering the Covid-19 as an unprecedented environmental stressor, we realized how negatively it impacted the normal education and caused stress for students, professors, and even recreation professionals who had to adapt with new challenges they had never seen before. Lazarus and Folkman (1984) described stress as a dynamic interaction process between an individual and their environment and explained that stress responses are the combination of the environmental stressor, the way the individual perceives this stressor and the coping strategies they use to adapt to it. In the face of stressors, some individuals see the stressful situation as a challenge where there is a chance of benefits (e.g., learning, self-awareness), while some interpret it as a threat with possible loss (e.g., damage to their esteem, social relationships, or health; Skinner & Brewer, 2002). This challenge/threat appraisal or growth/validation mindset (Dykman, 1998) leads to different coping expectancies. The first step in understanding the impact of CRS on counteracting stress, is to review how students who participate in CRS activities perceive stressors. Therefore, through goal orientation theory students' perceptions of stressors will be discussed.

2.5 Goal Orientation Theory

In the 1970s, Carol Dweck and colleagues began to theoretically and empirically shape the way social psychologists view the different patterns of reaction to ability, difficult tasks, and failure (Dweck & Reppucci, 1973; Dweck, 1975; Diener & Dweck, 1978;1980) through integrating attribution theory and learned helplessness. Attribution theory explains how individuals interpret what happens to them, and how these interpretations guide the way in which they react (Weiner & Kukla, 1970). Learned helplessness argues that when individuals believe that they are unable to control or change the situation, therefore, they do not try, even when

opportunities for change become available (Seligman, 1972). Taken these two theories together, Dweck's very first studies (i.e., cited above) revealed that children who attributed setbacks to their abilities responded with a more helpless reaction to failure than those who attributed failure to controllable factors, such as effort. Moreover, helpless children looked for ineffective problem-solving strategies (e.g., connecting the failure to memory deficiency), while their mastery-oriented counterparts were highly strategic and even created new ways to solve problems. Dweck and Elliott (1983) concluded that such a contrast was beyond a simple difference in attribution and argued that achievement striving is motivated either by *performance goals*, in which individuals look for positive judgments of their ability through proving, validating, and supporting (e.g., I want to get a good grade; I don't want to look dumb), or *learning goals*, in which individuals try to augment their ability through mastering new tasks (e.g., I want to learn how it works properly) and introduced Goal Orientation Theory. Later, they argued that a goal does not always refer to learning objectives, but it can also convey a broad unconscious orientation to helpless or mastery-oriented responses in face of setbacks (Elliott & Dweck, 1988). In other words, when an individual experiences a situation, these unconscious orientations guide them to different interpretation of events and lead them to specific cognitions, emotions, and behaviours.

Dweck extended her theory and revealed that the goal orientation model is also applicable for the human personality (Dweck & Leggett, 1988). They explained that those who considered failure as a personal inefficiency mostly doubted their abilities and showed helplessness, while individuals who viewed failure as a natural part of learning mostly focused on learning new skills and increasing their competence. They also argued that goal orientation is associated with the level of engagement with any school activity or even any emotional experience and that may be the reason why students behave differently in similar academic situations. Overall, Dweck and

colleagues, through longitudinal studies and observations in academic settings, examined real-world coping strategies students were showing in the face of important academic challenges and concluded that students with a mastery-oriented approach achieved significantly better results, both emotionally and intellectually.

Goal orientation theory was later used as the foundation of Dykman's (1998) cognitive framework to measure wellbeing. Through the goal orientation model, Dykman integrated motivational and cognitive factors to predict depression in clinical psychology. He compared personal strivings of depression-prone individuals with depression-resistant ones through four different studies among undergraduate students and found that the fundamental goal of depression-prone individuals (namely, validation-seekers) is the need to prove their basic worth, competence, and likeability, whereas the fundamental goal of depression-resistant individuals (namely, growth-seekers) is the need to learn, grow, and improve even in the face of challenges, adversity, and setbacks. In all his studies, Dykman first tested participants' goal striving at the baseline, then in the first study (n = 103), he predicted that in anticipation of a stressful event, validation-seekers showed higher levels of anxiety than growth-seekers. Findings from the second study (n = 44) supported the prediction that in face of negative life events validation-seekers were more likely to experience self-esteem loss than their growth-seeking counterparts. In study three (n = 119), Dykman found that validation-seekers were more likely than growth-seekers to disengage from the task in face of stressful events. Furthermore, in the last study (n = 68), through moderation, he predicted that at higher level of stress, validation-seekers experienced greater depressive symptoms than growth-seekers. His studies also confirmed the independent predictive power of growth and validation mindsets.

According to findings, Dykman explained that the individuals' differences in their emotional or behavioural patterns of reactions are rooted in their beliefs and the goal they set for themselves. For an individual who is primarily validation-seeking (VS), failure means they are worthless, incompetent, or unlikeable. Due to fear of failure and the belief that it reflects their personal inadequacy, in face of challenges, they lose their self-esteem leading to blaming either their abilities or others, avoiding risks, and a preference to disengage (e.g., too much sleeping, watching TV, alcohol, drugs, and giving up from the task) from the apparently unmanageable task. While such disengagement leads them to become more depressed, growth-seeking (GS) students, on the contrary, engage more in adaptive coping strategies such as planning, positive reinterpretation, and acceptance. Dykman also argued that for validation seekers the total worth of the individual (i.e., the total self) matters most, not specific intellectual abilities. Thus, they have fragile self-esteem (i.e., self-esteem is high if external approvals are gained), therefore, the main concern for a validation seeker is measuring the self and worrying how the self will appear or be judged in face of challenges. In contrast, a GS individual interprets failure as an instructional value which helps learning either about themselves or the situation (e.g., which areas need improvements), so they try their best to stay focused and take action to overcome the challenges. Therefore, negative outcomes are less threatening for growth-seekers because failure does not reflect their personal deficiencies and success is still possible. In other words, growth leads to perseverance in face of adversity and failure has a learning value for future improvement, therefore, they are more likely focused on the problem and try harder to find a way to overcome it (Dweck, 2015).

Since the focus of this study is on students' psychological wellbeing in the unprecedented time of campus lockdown due to Covid-19 pandemic, the following research will be conducted in

line with Dykman's (1998) goal orientation model to first examine the mindsets of students who participate in CRS activities (i.e., whether they are more growth-oriented or validation seekers) and second analyze how their mindset is associated with coping strategies and psychological wellbeing during the pandemic.

2.6 Mindsets

Mindsets are sets of beliefs that shape how individuals make sense of themselves and their environment. In other words, mindsets influence the way individuals think, feel, or behave in any given situation (Dweck & Yeager, 2019). Individuals' mindsets also play a pivotal role in what they want and whether they achieve it or not (O'Keefe et al., 2018).

Studying about mindsets traces back to White (1959) who argued that in mammals, especially human beings, innate attributes can be transformed through learning, and he proposed that motivation cannot be limited to instincts or drives because human beings have the ability (what he called as "competence") to interact effectively with the environment. Therefore, motivations developed in dealing with the environment are not completely biological. He also stated that individuals have the potential to engage in behaviors that increase adaptive interaction with their environment. He called this mastery of the environment as growth and development of personality.

2.6.1 Growth versus Validation Mindset

Mindsets can even have an impact on the meaning given to psychological processes such as responding to failure. An individual with a validation mindset wants to always look talented and smart through proving their worth, competence, and likeability. Therefore, in face of setbacks or failure, such an individual sees weakness as a permanent lack of ability and are likely to focus on hiding their shortcomings or deficiencies. In contrast, an individual with a growth mindset believes that challenges or failure remind them that their skills and abilities require improvement

through practicing more, trying new strategies, and accepting feedback from others. Therefore, in the long run, through task persistence and commitment, they achieve more than those who believe abilities and talents are innate (i.e., validation-seekers, Dykman, 1998). Dykman (1998) also argued that in the face of stressful events, those with validation mindsets show more stress and anxiety, task disengagement, greater self-esteem loss, and depression than growth-seekers. Considering a growth mindset provides a platform for cultivating basic qualities through effort and perseverance, Dweck (2015) argued that the interests, talents, skills, or even temperaments can be changed and flourished through application and experience.

In conclusion, individuals with validation mindsets always measure the self and are worried about how the self will be judged if they make mistakes or perform poorly. This self appraisal leads to maladaptive thoughts and behaviours, such as fear of challenges, reluctance to exert effort, and giving up in the face of failures, all of which prevent them from any achievement. In contrast, growth seekers look for new strategies to overcome difficulties. Rather than thinking they are incompetent; they work hard to learn what they do not know, try new strategies, and even ask help from others to achieve their goals. Reviewing the literature in the field of recreation and leisure studies indicated that structured and personally meaningful leisure activities have the potential to enhance psychological wellbeing, competence, and personal growth (Kleiber et al., 2011), which will be discussed in the following sections. Overall, a growth mindset can encourage students to try adaptive coping strategies to overcome challenges leading to lower levels of depression and better life adjustment (Dykman, 1998).

2.6.2 Personal Growth as the Outcome of CRS Participation

Studies show individuals who arrange leisure activities in a purposeful way would benefit from personal and social growth (Shaw & Dawson, 2001). There is also evidence that the positive

outcomes can be even more effective if individuals are intrinsically motivated, persistent over time, and engaged in a specific leisure setting or environment (Larson, 2000; Watts & Caldwell, 2008). Moreover, frequent engagement in leisure activities enhances specialized skills and knowledge, which lead to greater personal growth through promoting one's sense of competence, mastery, sense of control, self-esteem, self-expression, and self-determination (Freire, 2010; Iso-Ahola, 1980; 1988; Iso-Ahola et al., 1989; Kleiber & Rickards, 1985; Stebbins, 1982). CRS activities also provide a unique sport setting where students are motivated to develop a sense of personal growth over competition (Anderson & Dixon, 2009) due to purposeful engagement and operational responsibilities (Lower & Turner, 2016) which in turn lead to leadership skills improvement, time management, and planning skills enhancement (Haines & Fortman, 2008).

Some studies in the CRS setting have also started applying goal orientation theory as a prominent motivation construct to examine how students define success through CRS participation. In a study with 1,176 students in a U.S post-secondary institution, Lower et al., (2013) partitioned mastery goals into task-based goals (i.e., mastery in the performance) and self-based goals (i.e., do better performance than the past; see Elliot et al., 2011 for review) and concluded that greater CRS participation did not enhance mastery goals. However, there was a positive linear association between mastery goals and positive outcomes, such as intrapersonal improvement, skill development, and performance accomplishment while performance goals had no significant association with the outcomes.

In another study in a Canadian university with 315 intramural participants, Webb and Forrester (2015) also examined the association of task-based orientation with positive and negative affects. Findings showed that intramural sport participants reported higher levels of positive affect than negative affect irrespective of their gender, year of study, types of intramural sports, or

whether they won, lost, or tied the game. Also, those at higher levels of mastery goals showed higher levels of positive affect compared to those who reported medium/low levels of mastery goals, indicating that students who participated in intramurals for the purpose of gaining skills or knowledge experienced more positive affects. In this study, performance goals (i.e., sport participation for the purpose of showing superior competence and ability) did not show significant differences in the outcome variables (i.e., positive affect and negative affect), either. Mastery orientation was also insignificantly related to changes in the levels of negative affect, meaning that although personal growth can enhance positive affect, it does not impact on the levels of negative affect.

In another cross-sectional study with medical students, Babenko and Mosewich (2017) applied goal orientation theory to examine the relationship between CRS participation and wellbeing (i.e., academic burnout) among medical students. They examined mastery goal as mastery approach (i.e., “I enjoy difficult tasks in my program where I will learn new skills”) and mastery avoidance (i.e., “I just hope I am able to master enough skills, so I am competent in my work”, see Elliot & McGregor, 2001 for review). Results showed that students were predominantly mastery- oriented. However, despite the positive correlation between CRS participation and mastery approach, the relationship was not significant, which is aligned with Lower et al.’s, (2013) study that CRS participation does not enhance mastery goals. However, when they examined past CRS participation, results showed that those who participated in CRS activities in the past reported lower levels of performance goals at the time of the study. Moreover, those with higher levels of past CRS participation also showed lower level of academic burnout and could manage their school workload well. Babenko and Mosewich (2017) argued that CRS participation can support

the resilience of students and improve their mental health. Although neither of these studies show causality, they can shed some light on CRS participation and mastery orientation association.

The effectiveness of mastery orientation in developing positive outcomes, enhancing positive affect, and decreasing academic burnout maybe due to its role in evaluating challenging events. Irrespective of the type of the event, mastery -oriented individuals interpret challenges as opportunities for accomplishment and personal growth (Adie et al., 2008). In other words, mastery goals motivate students to look for opportunities to challenge their abilities and improve skills to have more positive experiences (Webb & Forrester, 2015). Parenthetically, it should be noted that studies in highly competitive sport settings show that performance goals are associated with success (Stoeber et al., 2009) although that is not directly applicable to this study.

Bassi and Delle Fave (2013) argued that meaning making through leisure involvement can be considered both as a predictor and an outcome. Through participation in a leisure activity, the participant will gain psychological rewards which will enhance development, social integration, and even lead to more engagement in the activity in the long run. It can also be explained that if an individual has a tendency for meaning-making, interactions with environment through leisure activities can open an avenue for them to explore new opportunities and activities leading to optimal experiences.

From another point of view, Csikszentmihalyi (1985) argued that if individuals focus on goals beyond their biological organism or learned behaviours, the self will transform to an open system to gain more information to increase in complexity. When an individual intentionally focuses on achieving new goals, the self will consciously be reformed based on the new feedback and will be transformed to develop the new goals. This process is called self-development (i.e., the result of the needs of the self to keep itself in an ordered way). The self has the potential to

transform whenever a new goal is introduced. The new goals can be achieved after experiencing flow in an activity, or even because of unexpected events, such as anxiety, anger, loneliness, and depression, which can cause disorders in the self-system, so the self-system is forced to redefine itself to support the self, thereby leading to intentional change or lifelong learning. Engagement in meaningful activities provides the opportunity for self reflection while creating a sense of personal growth and greater psychological wellbeing (Sheldon & Kasser, 2001).

Building on Csikszentmihalyi (1985), Bassi and Delle Fave (2013), and other results related to the association of mastery orientation (either as a predictor or an outcome; discussed earlier) with CRS activities, it can be concluded that personal growth is not only the result of an activity or learning from challenges, but at the same time it can be the reason or the motivation for another activity, new perspectives, and new learning opportunities. Therefore, I propose to study personal growth (or growth mindset, to be specific) as a mediator in this research not as a predictor of a behaviour or an outcome of an experience. Personal growth and self-development are dynamic and never stop, therefore, they should be statistically analyzed as parts of a model, not separately.

2.6.3. Mindsets' Associations with Coping Strategies

One of the key contributions of mindset for wellbeing are the consequences of holding one mindset or the other in facing challenges and setbacks. Coping with negative life events is a key factor in students' academic lives. Dykman's (1998) finding indicated that students with a validation mindset are more likely to cope with stressful events using different forms of task disengagement (e.g., doing little to solve the problem, drinking alcohol or taking drugs to think about the problem less, quitting) and self-blaming (e.g., thinking of themselves as a collection of weaknesses and shortcomings). Those with a growth mindset, in contrast, showed using adaptive coping strategies such as active coping (e.g., trying to make the situation better), planning (e.g.,

thinking about what steps to take), acceptance (e.g., learning to live with the problem), positive reframing (e.g., see the problem in a different light), and suppression of competing activities (e.g., putting aside other activities in order to concentrate on this problem). Dweck later added that a growth mindset individual is even ready to seek help and feedback from others (Dweck, 2015; Dweck & Sorich, 1999). No one, for sure, is calm and relieved by setbacks, but an individual with a growth mindset does not label themselves and becomes ready to take risks, faces challenges, and tries to improve themselves despite feeling distressed, which contrasts with validation seekers who do not believe in effort or trying new strategies. Due to different mindsets, in the face of similar challenges, individuals, even with same abilities, approach the situation with different concerns, asking different questions, and seeking different information. (Dweck & Leggett, 1988).

Other studies also show that the way individuals appraise stress is shaped by their goals, beliefs, and values (Lazarus & Folkman, 1984; Mikhail, 1985). Therefore, it can be concluded that growth mindset is positively associated with effective coping strategies. That is, individuals with higher levels of growth mindset may employ more effective coping strategies in the face of challenges.

Although research shows that leisure activities, specifically CRS participation improve both personal growth and stress management, such association has seldom been tested among post-secondary students who participate in CRS activities. To understand stress management in an academic context, the coping literature will be reviewed to explore how the dimensions of coping strategies helped students to overcome pandemic-related difficulties.

2.7 Coping with Stress

Beyond being a basic element of survival, coping also relates to the quality and the meaning we give to our lives. Coping can involve reconstruction of our life priorities to look at negative

events with a different perspective. Therefore, it is a significant part of human beings' change process leading to a fulfilling life (Folkman, 1997; Snyder & Dinoff, 1999). Coping is usually defined as "constantly changing cognitive, behavioral, [and emotional] efforts to manage particular external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p.141). According to Lazarus and Folkman (1984), stress is a dynamic interaction process between an individual and their environment. Therefore, in the face of similar challenges, individuals respond differently depending on how each individual perceives a specific stressor (i.e., cognitive appraisal) and what resources or strategies they use to cope (i.e., coping process).

Lazarus and Folkman (1984) partitioned cognitive appraisal to two interdependent processes of primary appraisal, and secondary appraisal. Through primary appraisal, an individual evaluates the stressor to find whether the stressful situation is a threat (i.e., causes damage to the esteem, health, performance, social bonding, and so forth) or a challenge (i.e., despite difficulties, there is still some benefits and room for improvement if effective resources are used). Perceiving stressors as threats or challenges leads individuals to different beliefs about their abilities to cope and the availability of resources (i.e., secondary appraisal). After evaluating the stressor and the potential resources, the individual decides which coping strategies/responses should be used through judging their abilities (i.e., secondary appraisal). Those who evaluate stressful situations as threats usually have lower confidence in their abilities to cope, in contrast those who appraise stressors as challenges lead them to using more effective coping (Skinner & Brewer, 2002). Lazarus and Folkman's (1984) cognitive appraisal seems to be aligned with Dykman's (1998) validation-seeking goals (i.e., failure signifies lack of abilities) and growth-seeking goals (i.e., a challenge is a welcome opportunity to stretch abilities and discover new strategies). This

challenge/threat appraisal or growth/validation mindset will lead to different coping expectancies. An individual with a growth mindset focuses more on efforts, planning, and adaptive strategies to overcome difficulties while those with a validation mindset have lower confidence in their abilities to apply effective coping strategies. Studies show the larger the discrepancy between resources and effective coping strategies, the higher level of stress and lower mental wellbeing an individual experiences (Carver & Scheier, 1998; Folkman, 1997; Lazarus & Folkman, 1984; Snyder & Dinoff, 1999).

Although cognitive appraisals and coping processes linearly repeat as a cycle in a stressful situation (i.e., in face of stressful events, coping process always starts with primary appraisal, followed by secondary appraisal, and coping strategies), Lazarus and Folkman (1984) emphasized that when an individual already knows that some coping responses are available, they will reappraise the threat as less threatening. Lazarus (1993) also considered coping as a central concept for research on adaptation, health, and well-being and argued that the way individuals cope with stressful events can also indicate how well or poorly they manage in their lives.

Further, Carver and Connor-Smith (2010) explained that individual differences related to stress and coping can be studied and analyzed from two viewpoints of biological models and goal-based models. They discussed that from the biological model perspective, human beings, like other animals, have three basic properties of self-regulation; “the tendency to approach desirable objects and situations (e.g., food), the tendency to avoid dangerous objects and situations (e.g., predators), and the capacity to regulate the approach and avoidance tendency” (p.681). However, from the goal-based model perspective, rooted in developmental psychology, it can be argued that in addition to the function of the brain, human beings also have a supervisory system for self-controlling, planning for future, and considering situational complexities to choose their behavior.

In other words, each individual has some specific goals and standards for themselves (i.e., reference points), through which individuals basically evaluate what they do. However, from the feedback they receive, sometimes they need to make some adjustments to be closer to their own standards. Anxiety arises when those reference points are threatened, and individuals need to consider a change in their behaviours or priorities. In face of such challenges, individuals act differently. Those who believe in their abilities can make adjustments and follow their goals despite adversity, while those with little confidence in their ability are less likely to pursue their goals and prefer to withdraw which is consistent with Lazarus and Folkman (1984) who considered coping as a process-related/interactive than a trait-oriented/automated phenomenon.

Reviewing different models of stress and coping show that an environmental stressor is not the only trigger for stress response, but the way an individual perceives it (i.e., either as a threat or a challenge) leads them to either avoid dealing with the problem or try to resolve it or modify the underlying negative emotions (Dykman, 1998; Lazarus & Folkman, 1984; Skinner & Brewer, 2002). Thus, it can be concluded that individuals' beliefs about their abilities (i.e., their mindsets) plays a key role in adopting effective or dysfunctional coping strategies which is also one of the reasons why individuals behave differently under similar stressful situations.

2.7.1 Dimensions of Coping Strategies

Folkman and Lazarus (1985) developed two major functions of coping, termed problem-focused and emotion-focused coping strategies. They defined problem-focused coping as the direct action toward changing the situation (i.e., the interaction between the individual and the environment). In other words, the focus is directly on the stressor to either remove it or decrease its impact as much as possible. In contrast, emotion-focused coping was defined as changes on either the commitment patterns (e.g., avoid thinking about the setbacks) or the interpretation of

what is happening. In other words, emotion-focused coping focuses on decreasing the level of distress caused by the stressor.

According to Lazarus and Folkman (1984), neither coping strategy outweighs the other because both problem- and emotion-focused coping can mitigate the physical, emotional, and psychological impacts of stressors. However, some specific coping strategies can lead to more adaptive outcomes when used by some specific individuals for some specific stressors. If it is possible to change a stressor, those who choose problem-focused coping strategies can mitigate the level of distress and augment their psychological wellbeing. However, if it is not possible to change the stressor for the better, adopting emotion-focused strategies can help the individual to reduce anxiety or stress.

Although the distinction between problem- and emotion-focused coping was initially effective and significant, it was considered to be too broad. Research shows emotion-focused coping does not always convey positive reinterpretation of stresses, because it leaves some individuals in the denial process, or in search of emotional support, such as sympathy. Therefore, these different responses may have different implications for coping with challenges (Scheier et al., 1986). Problem-focused coping also conveys different activities such as planning, taking direct action, and looking for external help (Aldwin & Revenson, 1987). Built on Lazarus and Folkman's (1984) model of stress and the discussed critics, Carver and Scheier (1981) proposed the model of behavioral self-regulation and developed a new 60-item instrument (i.e., COPE inventory) to measure coping strategies. Later, Carver (1997) revised the COPE inventory due to its length and redundancy of some items and proposed the brief COPE (i.e., extensively used in studies and research since then) with 14 coping responses (i.e., active coping, planning, using instrumental support, using emotional support, venting, behavioral disengagement, self-distraction, positive

reframing, denial, acceptance, humor, religion, self-blame, and substance use) and only 28 items. The definition of these 14 coping responses and the 28 items are available in Appendix C.

Lazarus (2006) later argued that problem- and emotion-focused coping can facilitate one another and explained that when effective problem-focused coping is used, it not only mitigates the threat, but also reduce the level of distress caused by that problem. Likewise, when effective emotion-focused coping is used, it will make individuals calmer which may lead them to apply a better problem-focused coping approach later. Therefore, due to this interrelatedness of problem- and emotion-focused coping, Lazarus suggested to use them as complementary rather than independent categories. He also supported the difference between engagement (approach) and disengagement (avoidance) coping and explained that if challenges are considered surmountable, individuals usually use engagement coping. However, if challenges are appraised as threats, individuals are more likely to choose disengagement coping. Later, Carver and Conner-Smith (2010) defined engagement coping as dealing with stressors or related emotions which includes problem-focused coping and some forms of emotion-focused coping, such as support seeking, emotion regulation, acceptance, and positive reframing. They also explained that individuals are likely to adopt disengagement coping (e.g., avoidance, denial, and wishful thinking or fantasising) to escape the threat or related emotions. Although an individual who gets involved in disengagement coping wishes to escape distress, such coping strategies are ineffective in reducing stressors and may even cause other problems due to procrastination and increase anxiety in the long run (Najmi & Wegner, 2008).

In an academic setting, Dykman (1998) integrated active coping, planning, acceptance, positive reframing, and suppression of completing activities to measure adaptive coping among university students. However, the adaptive coping variable he constructed was adopted from the

original COPE inventory with 60 items (Carver & Scheier, 1981), which is not very often used in more recent studies. Moreover, he did not measure the impact of instrumental and emotional supports on his research. Considering the significance of emotional and instrumental supports in promoting psychological wellbeing and stress reduction among students (Dwyer & Cummings, 2001; Elliott et al, 1992; Freire et al, 2016; 2019), for the purpose of this study, the adaptive coping strategy variable was constructed based on Freire et al.'s, (2016; 2019) studies. Items were also adopted from the brief COPE (Carver, 1997), including positive reframing, planning, emotional support, and instrumental support.

2.7.2 Students' Coping Strategies During the Covid-19 Pandemic

With longitudinal data from students at the University of Toronto (UofT) and York University, Logel et al., (2021) studied the challenges students in Canada encountered and the coping strategies they employed during the pandemic. In the follow up survey, participants' life satisfaction, social connection, and mental/physical health were also measured. Data analysis for the baseline study at the beginning of the lockdown indicated that participants were mostly struggling with establishing a new routine, lacking motivation, experiencing problems with online learning, feeling lonely and depressed, and having financial concerns. To overcome difficulties, participants mostly used proactive and creative coping strategies, such as having a new daily routine, focusing on physical exercise, cooking, eating, and maintaining virtual social activities. However, just after five weeks, in May of 2020 the responses were dramatically different. Participants were extremely worried about paying their spring semester tuition, they were also feeling nervous, anxious, uncontrollably worried, and depressed. They showed a lack of motivation, had missed their friends, and felt a longing for a predictable routine for their studies all of which significantly and negatively impacted their wellbeing, such as lower levels of life

satisfaction, mental/physical health, and greater levels of distress. Results of this study revealed that those participants who maintained social connections as a coping strategy at the beginning of the lockdown reported higher levels of wellbeing in the follow up study. However, since the questions in the survey were open ended, it is not possible to compare the coping strategies with the COPE scale. Moreover, the coping strategies were not measured in the follow up study, meaning it is not clear whether participants' strategies of coping changed after five weeks.

Results from a cross sectional data from university students in Pakistan, based on the COPE scale, showed that the majority of respondents (92%) employed religious coping followed by acceptance, self-distraction, and active coping (Salman et al., 2020), representing emotion-focused coping was more applicable than problem-focused coping. It should be noted that for some individuals and in some cultures, religion is a source of emotional support, a means of positive reinterpretation, and even a strategy for active coping (Carver, 1997). Another cross-sectional study from university students in Ghana indicated that religion, planning, and self-distraction were the most commonly used coping strategies (Oti-Boadi et al., 2021). An interview survey from U.S students showed that emotional support from family and friends, through virtually meetings, helped them cope with stress and anxiety during the pandemic (Son et al., 2020). Although studies related to students' coping strategies during the pandemic are not enough to generalize a conclusion, it seems that despite the similar pandemic-related challenges students faced around the world, it seems the coping strategies they use are quite different.

2.7.3 Leisure as a Predictor of Coping Strategies

Early studies show the significant role of leisure in coping with stress through several conceptualizations (Caltabiano, 1995; Coleman & Iso-Ahola, 1993; Iso-Ahola & Park, 1996; Iwasaki & Mannell, 2000). The two conceptualizations of leisure stress-coping dimensions,

extensively used in leisure studies, are Coleman and Iso-Ahola's (1993) stress-buffering hypothesis and Iwasaki and Mannell's (2000) hierarchical dimensions of leisure stress coping.

It was Coleman and Iso-Ahola (1993) who systematically conceptualized leisure as a way of coping and introduced leisure as a buffer against stress. Specifically, their findings indicated that leisure has a moderating role to counteract the influence of stress on both physical and mental health through self-determination and social support. Frequent leisure participation provides an individual with diverse opportunities to experience greater levels of freedom of choice and personal control which helps them develop a self-determined personality in the long run. As the result, when they face a challenging event, their high level of perceived competence, control, and autonomy help them effectively cope with that stress. Considering leisure as a social activity, they also argued that not only shared leisure activities which are mainly used for enjoyment and spending time with friends or family can reduce stresses related to daily life, but the perceptions or beliefs that leisure activities develop friendship can also help individuals cope with significant negative life events.

Building on Coleman and Iso-Ahola's conceptualization and in line with Lazarus' (1993) coping theory, Iwasaki and Mannell (2000) later distinguished two major roles for leisure engagement in helping individuals cope with stress: leisure coping strategies, and leisure coping beliefs. Leisure coping strategies, rooted in the process approach, are more situation-specific and like other coping strategies, discussed earlier, can be changed over time depending on the specific life stressors or events. In other words, leisure coping strategies happen when an individual faces a stressful event, so they decide to engage in a specific leisure activity to reduce the impact of that stress. Leisure activities can reduce stress through leisure companionship (i.e., enjoyable shared experiences as a form of social support), palliative coping (i.e., escape-oriented coping strategy

like a coffee break or a vacation which can help an individual be prepared to better handle problems), or even mood enhancement (i.e., activities such as nature-based recreation, a weekend get-away, or cultural events such as concerts which can make the individual mentally feel better). Iwasaki and Mannell (2000) also argued that both palliative coping and mood enhancement through leisure activities are significant mediators in association of academic stressors with purpose in life and personal growth (i.e., dimensions of psychological wellbeing).

Iwasaki and Mannell (2000) also proposed that, irrespective of the leisure activity, the underlying psychosocial meaning of leisure can also be a strategy for managing stress and argued that individuals' beliefs about leisure are also means of coping with stress (i.e., leisure coping beliefs). Leisure coping beliefs resulted from involvement in leisure activities overtime is rooted in the style approach (Lazarus' coping theory, 1993) and refers to relatively enduring psychological dispositions built on individuals' generalized beliefs that leisure activities can help them cope with stress. Individuals believe to varying degrees that leisure engagement can reduce life stresses either through strengthening their social support resources or enhancing their personality characteristics to effectively cope with stresses through self-determination (i.e., leisure behaviour is freely chosen and under control) and empowerment (i.e., overcoming challenges of life through maintaining a valued sense of self), and lead to wellbeing enhancement. Individuals with high leisure empowerments consider difficulties as challenges for personal growth, so they are motivated to overcome the setbacks. Because of their positive attitude toward life and possessing strong leisure coping beliefs, they can better manage challenges in life while leisure can contribute to their development (Iwasaki et al., 2005). This is consistent with psychological findings that individuals who believe in their abilities to make adjustments can cope effectively in face of challenges and experience greater psychological wellbeing (Carver & Scheier, 1998). It

can be concluded that the dimension of empowerment may have a link with growth-seeking orientation.

Iwasaki and Mannell (2000) concluded that sometimes individuals intentionally participate in leisure activities to cope with stressful events, and sometimes they find what they did as a leisure activity helped them overcome a stress although they participated in that activity for another reason. Overall, leisure has the potential to regulate an individual's feelings or emotions through avoidance or distracting from stressors which lead to "change the meanings of a situation, without changing the environment" (Lazarus, 1999, p.114 as cited in Hutchinson et al., 2003).

2.7.4 The Role of CRS in Coping with Stress

Early studies show CRS activities also have the potential to relieve academic stress (Iso-Ahola, 1989; Kanters, 2000; Ragheb & McKinney, 1993). Data from a longitudinal study revealed that the more students participated in CRS activities, the less anxiety they experienced during stressful events, which was not limited to campus life and could promote students' wellbeing even after graduation (Kanters, 2000). Results from a recent longitudinal study also showed that students who participated more frequently in CRS activities before the Covid-19 pandemic reported lower level of academic stress resulting from e-learning challenges, academic uncertainty, or self-support struggles during the campus lockdown (Abdeahad & Mock, in review). The effectiveness of CRS participation in providing long-term effective coping strategies may be due to its potential in changing students' health-related knowledge and perception leading to a healthier lifestyle in the long run (Forrester et al., 2006; 2007), planning and prioritization improvement leading to lifelong physical activity, and negotiation skills (Hartman et al., 2020), engaging in new leisure activities aligned with Covid-19 health and safety protocols (Zhuo & Zacharias, 2020) or cultivating a pathway toward gaining lifelong skills (Abdeahad & Mock, in review). However,

more in depth analysis is needed to understand the mechanism through which CRS can protect psychological wellbeing during the pandemic.

2.7.5 The Role of Coping in Psychological Wellbeing Enhancement

Studies show effective coping strategies (i.e., problem-focused or approach emotion-focused) are generally related to better adjustment to stress (Carver & Scheier, 1998) and greater psychological wellbeing (Park & Adler, 2003). To be specific, the coping strategies students choose to adopt in the face of difficulties can protect or even deteriorate their psychological wellbeing. In a cross-sectional study from young Portuguese, including university students, Carvelho and Vale-Dias (2013) found that active coping and positive reframing were positively correlated with higher levels of psychological wellbeing. In contrast, those who reported distraction, behavioral disengagement, denial, or substance use showed lower wellbeing. In another study, Dykman (1998) concluded that individuals who preferred to give up or disengage from tasks showed more anxiety and lower wellbeing because they were more likely to interpret failure as a personal deficiency. However, those who tried to deal with challenges more adaptively interpreted negative outcomes as less threatening leading to experiencing less anxiety and greater wellbeing. Freire et al., (2016) examined the influence of dimensions of wellbeing as predictors of adaptive coping strategies and argued environmental mastery, positive relations with others, personal growth, and self-acceptance were positively associated with adaptive coping strategies (i.e., positive reframing, support seeking, and planning). However, because the study was cross-sectional it does not show the causal relations of wellbeing as the predictor of adaptive coping strategies.

The meaningful impact of coping strategies on the level of psychological wellbeing is not limited to normative life challenges. There is evidence that even during the nonnormative,

unanticipated time of the Covid-19 pandemic, coping strategies can improve or decline wellbeing. A cross-sectional study from nursing students in Israel showed that those who chose humour as a coping strategy reported lower levels of anxiety, however, alcohol/drug use or even excessive eating (i.e., mental disengagement coping strategies) were significantly associated with higher state of anxiety (Savitsky et al., 2020). A longitudinal study with 10,464 South Korean participants (average age of 33 years) revealed that effective coping strategies, such as positive reframing, social connection, and self-distraction significantly moderated changes to wellbeing, meaning that those who reported more positive reframing and behavioural strategies were more likely to maintain their wellbeing over time compared to those who did not use these coping strategies (Kim et al., 2022).

The impact of coping strategies on wellbeing was also studied among older adults in residential care facilities, and women diagnosed with cancer. Older adults who adopted positive reframing showed greater positive affect, positive relations with others, and greater self-acceptance (Schanowitz & Nicassio, 2006). Women diagnosed with stage I or II breast cancer also experienced higher level of psychological wellbeing when they reported emotional support or other approach-oriented coping (Dukes Holland & Holahan, 2003). Hence, when it comes to challenges, changes in coping strategies can lead to improvement in psychological wellbeing (Ryff, 2014).

In sum, it can be concluded that to maintain wellbeing in the face of normative life setbacks or to adjust to a “new normal” due to nonnormative difficulties, individuals need to use adaptive coping strategies to overcome challenges or deal with situations with low controllability to promote resilience.

2.8 Study Rationale

As discussed in the literature review above, the outcomes of CRS participation are not limited to physical health, and CRS has the potential to promote personal growth, help students adopt effective coping strategies to reduce the level of stress, and improve psychological wellbeing. However, considering limited access to in-person CRS activities due to campus lockdowns and Covid-19 pandemic, it is not clear whether the discussed outcomes can still sustain. There is some evidence that past CRS participation can change students' attitudes and behaviours to have a healthy lifestyle (Forrester et al., 2006; 2007) to cope with daily life challenges even after graduation. However, little is known about the impact of past CRS participation on coping with nonnormative challenges such as campus lockdown. This study addresses this gap in the CRS literature to examine whether pre-lockdown CRS participation can still have an impact on students' adaptive coping strategies to protect their psychological wellbeing during the lockdown.

Moreover, despite growing literature about CRS participation on psychosocial outcomes, such as personal growth, coping, and psychological wellbeing, little is known about the mechanism that underlies the relationship between CRS participation and these outcomes. Thus, this study, guided by goal orientation theory, will provide an opportunity to advance the understanding of the internal mechanism underlying the relationship between CRS participation and students' psychological wellbeing. Therefore, this study seeks to explore whether the growth mindset shaped by CRS participation before the pandemic will be long-lasting irrespective of the limited engagement in CRS during the lockdown and whether it can help students to find new strategies to protect their psychological wellbeing when life is out of balance in this unprecedented time of the Covid-19 pandemic.

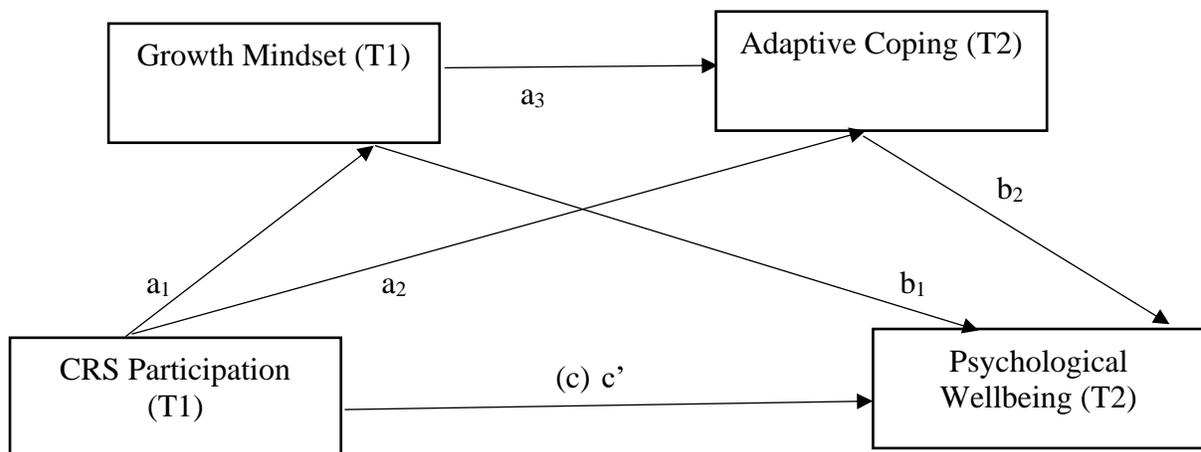
Furthermore, examining whether pre-lockdown CRS participation had any positive impacts on students' psychological wellbeing during the lockdown can shed a light to repositioning CRS services from a centre for physical activity programs to one of the significant campus-based services to help wellness and counselling services improve students' mental health and increase retention and school satisfaction.

2.9 Theoretical Model of the Study

This research will be conducted based on the following conceptual framework to facilitate the paths of research to reach the goal.

Figure 2

Serial mediation model of CRS participation predicting psychological wellbeing through the mediator variables of growth mindset and adaptive coping strategies.



This serial mediation model depicts the direct and indirect effect of pre-lockdown CRS participation on psychological wellbeing through four pathways. One pathway is indirect and runs from CRS participation to psychological wellbeing through growth mindset, only (a_1b_1). The second indirect path runs through adaptive coping strategies, only (a_2b_2). The third indirect

influence passes through both growth mindset and adaptive coping strategies in serial, with growth mindset affecting adaptive coping strategies ($a_1a_3b_2$). The remaining effect of CRS participation is direct (c') from CRS participation to psychological well-being without passing through either growth mindset or adaptive coping strategies.

2.10 Research Questions and Hypotheses

Drawing on the works cited above and the proposed theoretical model (Figure 2), the following six research questions and four directional hypotheses were developed to examine the association of pre-lockdown CRS participation and students' psychological wellbeing (i.e., autonomy, environmental mastery, positive relations, self-acceptance, purpose in life) during the lockdown. Using a longitudinal self-administered data, this study revealed the internal mechanism of this relationship as well.

2.10.1 Research Question 1

CRS participation as a meaningful and structured recreational activity is a known predictor of wellbeing through enhancing students' self-control, self-esteem, self-concept, self-efficacy, autonomy, mastery, and positive social interaction (Coleman & Iso-Ahola, 1993; Edwards, 2002; Fox, 2000; Kilgo et al., 2016; Scully et al., 1998; Yiannakis et al., 2001). Students who regularly participated in physical activities (either team- or individual-based) also reported higher level of autonomy, personal growth, positive relations with others, environmental mastery, and purpose in life (Edwards, et al., 2005). Moreover, past CRS participation has the potential to improve students' attitudes and perceptions about maintaining a healthy lifestyle even if they are not directly involved in campus activities (Forrester et al., 2006; 2007). As such, this study will seek to explore whether pre-lockdown CRS participation protect students' psychological wellbeing during the lockdown?

2.10.1.1 Hypothesis 1.

It is hypothesised that greater pre-lockdown CRS participation will protect post-secondary students' psychological wellbeing (i.e., autonomy, self-acceptance, purpose in life, environmental mastery, positive relations with others) during the Covid-19 pandemic.

2.10.2 Research Questions 2 and 3

Engagement in campus activities lead to higher level of personal growth (Bowman, 2010) and CRS activities, in particular, provide a unique sport setting in which students are motivated to develop a sense of personal growth over competition (Anderson & Dixon, 2009) because purposeful leisure activities can help individuals to have a clear idea about their strengths and weaknesses, so they develop more skills and abilities which lead to lifelong learning and growth (Csikszentmihalyi, 1982; Kleiber et al., 2011). From the psychological point of view, Dykman (1998) called such a belief "growth mindset" and explained that an individual with a growth mindset believes that they can cultivate their basic qualities through effort and perseverance. Therefore, two questions arise here:

Research Question 2: Do students with pre-lockdown CRS experiences still show some level of growth mindset during the pandemic?

Research Question 3: Considering the response is positive and significant, how will growth mindset influence the relationship between pre-lockdown CRS participation and students' psychological wellbeing during the pandemic?

2.10.2.1 Hypothesis 2.

It is hypothesized that growth mindset will mediate the association between pre-lockdown CRS participation and post-secondary students' psychological wellbeing during the Covid-19 pandemic.

2.10.3 Research Questions 4 and 5

Structured leisure activities provide individuals with an opportunity to develop a self-determined personality in the long run. As a result, in face of challenges individuals with high levels of perceived control can effectively cope with the stress (Coleman & Iso-Ahola, 1993). Studies related to students' distress also show that CRS participation has the potential to relieve academic stress (Kanters, 2000; Forrester, 2014). When it comes to Covid-related stressors, results from a recent longitudinal study also revealed that frequent CRS participation before the lockdown helped students to overcome academic challenges during the Covid-19 pandemic (Abdeahad & Mock, in review). From psychological point of view, effective coping strategies not only reduce immediate distress, but they contribute to long-term outcomes such as psychological wellbeing (Snyder & Dinoff, 1999). Keeping this in mind, through this study, the following two research questions will be answered:

Research Question 4: Do students who participated in CRS activities before the lockdown employ adaptive coping strategies during the pandemic?

Research question 5: Considering the response is positive and significant, how will adaptive coping strategies influence the relationship between pre-lockdown CRS participation and students' psychological wellbeing during the pandemic?

2.10.3.1 Hypothesis 3.

It is hypothesized that adaptive coping strategies will mediate the association between pre-lockdown CRS participation and post-secondary students' psychological wellbeing during the Covid-19 pandemic.

2.10.4 Research Questions 6

CRS, as a purposeful leisure activity, helps students improve their skills and abilities and leads to personal growth (Anderson & Dixon, 2009; Kleiber et al., 2011). In face of challenges or setbacks growth-seeking individuals try to overcome difficulties through task persistence and perseverance (Dykman, 1998). Therefore, they do not consider challenges as a threat, but a warning that their life is out of balance, and they need to reconstruct some of their purposes or redefine some of life meanings (Dykman, 1989, Wong, 2020). In other words, individuals' self-perception, and their selected coping strategies can change the level of their wellbeing (Ryff, 2014). Thus, the following research question and hypothesis finalize this study:

Research Question 6: What role do growth mindset and adaptive coping strategies have in the association between pre-lockdown CRS participation and dimensions of psychological wellbeing during the pandemic?

2.10.4.1 Hypothesis 4.

It is hypothesized that growth mindset and adaptive coping strategies will play a mediating role in the relationship between pre-lockdown CRS participation and dimensions of psychological wellbeing among post-secondary students during the Covid-19 pandemic. To be more specific, it is hypothesized that the association between pre-lockdown CRS participation and dimensions of psychological wellbeing will be serially mediated via growth mindset through adaptive coping strategies.

“It is impossible to live without failing at something, unless you live so cautiously that you might as well not have lived at all” J.K. Rowling

Chapter Three

Methods

This chapter explains the methods and procedures used to collect the data for this research study. The following six sections are presented in this chapter: the reason for longitudinal data, the sample population, data collection procedure, survey instrument, operationalization of variables, and data analysis plan.

3.1 Why a Longitudinal Study?

According to Lazarus (1993), experiencing stress is a transactional process that does not exist in the environment or in an individual by itself, but resulted from the interaction of these two. Therefore, repeated assessment of coping processes enables researchers to measure each variable “in each distinct context repeatedly from moment to moment or encounter to encounter” (Lazarus, 1995, p.4). Moreover, collecting data from the same individuals across various circumstances can help researchers study the level of stabilities as well as changes in individuals’ behaviors while coping with different stressful situations (Lazarus, 1999). Keeping this in mind, data were collected at two time points to determine the causal role of CRS participation on students’ wellbeing in the face of academic challenges and stresses. By assessing the same number of participants as they moved from a period of relatively lower stress (i.e., beginning of the semester and before the lockdown) to a time of higher stress (i.e., campus lockdown due to Covid-19 pandemic), it was possible to measure the effect of pre-lockdown CRS participation in

differentiating participants' psychological wellbeing, coping strategies, and the mindset they experienced as a result of such a stressful storm like the pandemic.

3.2 Participants

The sample was recruited from CRS members in a large university in southwestern Ontario. In addition to varsity sports, Athletics and Recreation office offers diverse CRS activities under the categories of intramural sports (e.g., indoor soccer, basketball, dodgeball, flag football, ice hockey, spikeball, squash, ultimate frisbee, and volleyball), instructional programs (e.g., figure skating, skating, dance, boxing, squash, swimming, Tai chi chuan), sport clubs (e.g., archery, ball hockey, cycling, marathon & running, quidditch, rowing, tennis, fencing, cricket, field lacrosse, judo), open recreation (e.g., basketball, skate, volleyball), fitness (e.g., including group activities, such as Zumba, yoga, Barre, spin, as well as individual workouts in campus fitness centres).

3.3 Data Collection Procedure

3.3.1 Pre-Lockdown Plan

Before the pandemic, data were supposed to be collected both online and in-person. Since the ethics clearance for online recruitment was first granted, upon prior agreement, the senior manager of recreation of the university emailed the link of the first phase of the study to all members (n= 7,812), at the end of January 2020 to measure their baseline wellbeing when the level of stress was still low. At the end of the questionnaire, participants were also invited to participate at the second phase of the study, which was supposed to be conducted near the end of the Winter 2020 semester (i.e., end of March and beginning of April), when students were busier and more nervous about the due dates, the tests, and their incomplete assignments, to examine the changes in the level of wellbeing and coping strategies over time. In exchange for their participations in the study, participants entered into a draw for fifteen \$10 Amazon's gift cards.

I, as the researcher, was also supposed to show up in different fields, the swimming pool, and the fitness centers to collect data from “drop in users” who participated in “open recreation”. Open recreation (e.g., gyms, ice activities, swimming, and field house) is a facility for all students with a valid student ID card, irrespective of being an athlete or a recreational member. The ethics clearance for in-person data collection was received early in March (i.e., not good timing to measure low academic stresses), so my supervisor and I decided to do the in-person recruitment at the beginning of the Spring semester. However, the campus encountered a lockdown in mid-March, due to the Covid-19 pandemic, which brought a halt to data collection for this study.

3.3.2 Changes in Data Collection due to Campus Lockdown

By the beginning of campus lockdown, I had already collected 127 completed questionnaires from the online recruitment, out of which 74 respondents had agreed to participate in phase 2. However, there was little chance of recruiting new participants since there was very limited CRS in-person participation and programs were switched mainly to online activities. Moreover, changes to CRS and consequences of these changes were also needed to be measured to evaluate students’ psychological wellbeing in face of such an unprecedented crisis. Therefore, after consultation with my supervisor and the committee, we decided to make some modifications to reflect adaptation to campus lockdown in the study, too. Since I already had 127 participants, and 74 of them agreed to take part in phase 2 of the study, we decided to ask the rest 53 respondents if they would like to participate in the second phase of the study and receive a \$10 Amazon Gift card in addition to entering in the draw. Due to adding new questions to the follow up study and changes in recruitment, research ethics addendums were required before I could resume data collection. The office, however, argued what I requested was beyond a simple amendment and I

needed to reapply for a new application from the scratch. Considering the number of researchers with similar challenges, the ethics clearance process took substantially more time than expected.

Once ethics clearance was granted, I personally emailed those 53 respondents and outlined the purpose and the new direction of the study to them and asked if they would like to participate in the follow up study and 42 more respondents agreed to take part in the study again. In sum, at time one 127 participants took part in the survey and 116 participants took part in both time one and time two surveys by the end of August 2020, approximately seven months after time one data collection.

3.4 Survey Instrument

The surveys were designed through Qualtrics Online Surveys, which is a powerful enterprise-class survey system, and it is extensively used at universities for doing research.

The survey for time one included a 15-minute structured questionnaire designed specifically for this study and based on the contributions and scales identified in the literature review. In addition to assessing CRS participation, mindsets, coping strategies, and psychological wellbeing, students' age, gender, education level, status in Canada, and GPA (i.e., grade point average) were also measured to understand the characteristics of participants. The survey for time two included a 12-minute structured questionnaire. Questions related to CRS participation were modified with the new virtual activities and participants were also asked about their off-campus recreational sport activities during the pandemic to realize how they adapted to the new normal. The questions related to mindsets, coping strategies, and psychological wellbeing remained the same, while demographic-related questions were removed because of little variation from the time one study.

Age was included as a self-reported measure. Participants reported their sex in response to the options of male, female, and other. Because no participant identified themselves as “other”, for the purpose of analysis sex was coded as female=1 and male= 0. Education was measured through three questions; participants were asked whether they were undergraduate or graduate students, their academic year was measured from 1= first year, 2= second year, 3= third year, to 4= last year, and they were also asked to choose the faculty in which they studied from the options provided. Participants reported their status in Canada in response to the options of domestic student and international student. Their status in Canada was coded as international=1, and domestic= 0 for analysis. GPA was self-reported in a number out of four. The completed survey package is provided in Appendix A.

3.5 Operationalization of Variables

3.5.1 Operationalization of CRS Participation

CRS participation in time one was measured based on frequency of participation in each of the activities offered on campus (i.e., drop-in sports, intramurals, instructional programs, sport clubs, group fitness classes, and individual fitness workouts). Using The Recreation and Wellness Benchmark (NIRSA, 2010), participants were asked “*On average, how many times per week do you participate in on-campus recreation sports, programs, and/or activities?*” rated on a scale from 0= never, 1= 1 time per week, to 7= 7 times per week or more.

Due to the campus lockdown, after mid-March 2020, most of the CRS programs were switched to online activities and the Athletic and Recreation Office offered some new programs to adapt to the situation, including e-sports, at home workout plans, personalized nutrition plans, and health webinars. Therefore, in time two participants were asked “*On average, how many times per week do you participate in the following online recreation sports, programs, and/or*

activities?” rated on a scale from 0= never, 1= 1 time per week, to 7= 7 times per week or more. Due to the lockdown, some students got engaged in off-campus sport activities. Based on my own observations of the youth’s recreational activities when I went for outdoor sports activities and what I had heard or read in the news or articles related to Canadians’ new recreational behaviors, I realized that Canadians were more interested in activities such as running, brisk walking, bicycling, skateboarding, outdoor volleyball, badminton, tennis, home workout, and yoga. Therefore, participants were also asked *“On average, how many times per week do you participate in the following off-campus recreation sports, programs, and/or activities during the pandemic?”* rated on a scale from 0= never, 1=one time per week, to 7= 7 times per week or more. Students’ off-campus physical activities during the campus lockdown were also included as one of the covariates.

3.5.2 Operationalization of Growth Mindset

Considering individuals are a mixture of both validation and growth mindsets (Dykman, 1998), both validation-seeking (VS) and growth-seeking (GS) goals were measured to differentiate participants’ goal orientations before and during the pandemic. The questions were derived from Dykman’s (1998) Goal Orientation Inventory (GOI). From the original scale with 36 items, 6 statements (3 for each goal) were modified to be matched with campus recreationists to measure their level of GS/VS goals. In time one participants were asked to imagine themselves facing setbacks and difficulties related to their student life, while in time two, they were asked to focus on Covid-related setbacks and difficulties in their academic life and were asked to interpret those setbacks. VS goals were assessed through items such as *“I feel like I’m constantly trying to prove that I’m as competent as the students around me”*, and for GS goals participants responded to items, such as *“I’m likely to view it as an opportunity to learn and grow”* on a seven-point scale

from 1= strongly disagree to 7= strongly agree. Internal consistency reliabilities (i.e., Cronbach alpha) for VS and GS in the T1 sample was .74 and .89 and in T2 sample was .86 and .93, respectively. The selected items were made bold in Dykman's original scale in Appendix B.

3.5.3 Operationalization of Coping Strategies

Coping strategies were assessed with the brief version of Coping Orientation for Problem Experiences (COPE; Carver, 1997). The scale consists of 14 types (2-item each) of coping strategies, including; 1. Positive reframing "*I learn something from the stressful experience*", 2. Self-distraction "*I sleep more than usual or watch TV to think about it less*", 3. Venting "*I feel a lot of emotional distress & I find myself expressing those feelings a lot*", 4. Instrumental support "*I try to get advice from someone about what to do*", 5. Active coping "*I concentrate my efforts on doing something about it*", 6. Denial "*I act as though it hasn't even happened*", 7. Religion "*I try to find comfort in my religion*", 8. Humor "*I make jokes about it*", 9. Helplessness "*I admit to myself that I can't deal with it and quit trying*", 10. Self-Blame "*I start blaming myself for things that happened*", 11. Emotional support "*I try to get emotional support from friends or relatives*", 12. Substance use "*I try to lose myself for a while by drinking alcohol or taking drugs*", 13. Acceptance "*I accept the reality of the fact that it happened*", and 14. Planning "*I try to come up with a strategy about what to do*" and were measured on a three-point scale from 1= do not do this at all to 3= do this a lot. Internal consistency reliabilities (i.e., Cronbach alpha) in the present sample ranged from .58 to .80 in T1 and from .32 to .88 in T2. It should also be noted that in time one, participants were asked to think about stressful events related to school and academic life, however, in time two, they were asked to think about Covid-related stresses in their academic life before choosing the option that was closest to what they felt.

For this study (discussed in the literature review), coping was assessed as adaptive coping strategies from the subscales of *positive reframing*, *support seeking* (i.e., both *emotional support*, and *instrumental support*), and *planning* on the same 3-point scale (time one $\alpha = .68$; time two $\alpha = .76$). In addition to adaptive coping strategies, to have a better understanding of students' adaptation to the lockdown period, all coping strategies were also measured and analyzed individually for providing further information. The brief COPE is also available in Appendix C.

3.5.4 Operationalization of Psychological Wellbeing

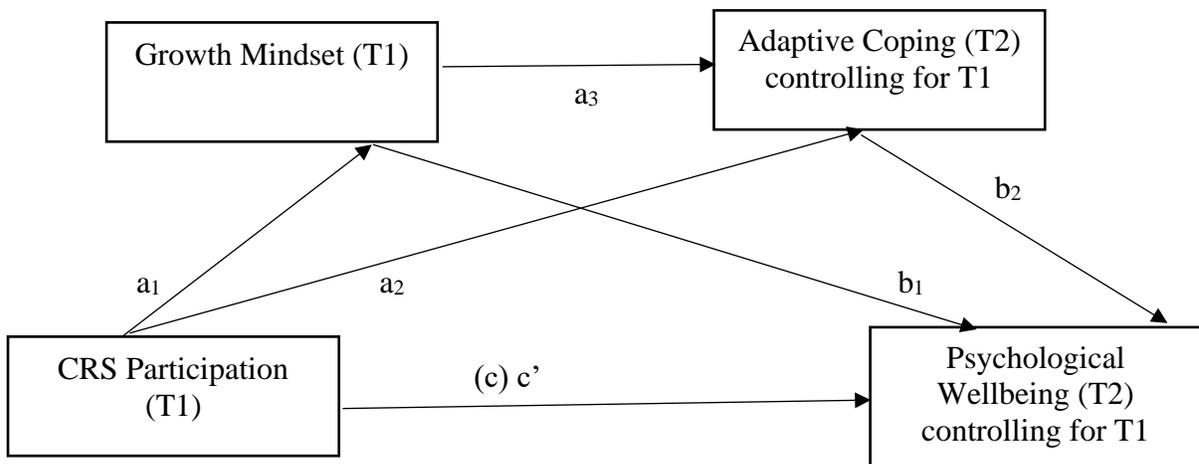
Of three versions of the Scale of Psychological Well-being (i.e., 84-, 54-, and 18-item; SPWB; Ryff, 1989), for the purpose of this study, the 18-item version was selected. Despite the low internal consistency of the short version (varies from .33 to .56), this version is still a valid and reliable measure of psychological wellbeing in colleges or universities (Seifert, 2005). In both time points, without mentioning stressful events or Covid-related challenges, participants were asked about their interpretation of their life and how they saw the different aspects of themselves through assessing Autonomy (e.g., *"I have confidence in my own opinions, even if they are different from the way most other people think"*, T1 $\alpha = .86$; T2 $\alpha = .86$); Environmental Mastery (e.g., *"In general, I feel I am in charge of the situation in which I live"*, T1 $\alpha = .82$; T2 $\alpha = .92$); Positive relations with others (e.g., *"I have not experienced many warm and trusting relationships with others"*, T1 $\alpha = .83$; T2 $\alpha = .89$); Self-acceptance (e.g., *"I like most parts of my personality"*, T1 $\alpha = .85$, T2 $\alpha = .89$); and Purpose in Life (e.g., *"Some people wander aimlessly through life, but I am not one of them"*, T1 $\alpha = .92$; T2 $\alpha = .88$) rated on a scale from 1=strongly disagree to 6=strongly agree. It should be noted that, for the purpose of analyses, some of the items in this scale were reverse-coded. The reverse-coded items were shown in the original 18-item scale is in Appendix D.

3.6 Data Analyses Plan

In addition to descriptive analyses of the variable changes during the pandemic and correlational analyses to examine the inter-relationship of variables, for each dimension of psychological wellbeing (i.e., autonomy, environmental mastery, positive relations, self-acceptance, purpose in life) two linear regression models were constructed to examine the effect of pre-lockdown CRS participation on wellbeing during the pandemic along with the potential role of growth mindset and adaptive coping strategies as serial mediators. Control variables of age, gender, T1 criterion, and T2 off-campus recreational activities were included in Model 1, with the potential mediators of growth mindset and adaptive coping strategies added in Model 2. Controlling for T1 criterions allowed researchers to examine changes in the criterion variables associated with CRS participation (Cronbach & Furby, 1970).

Figure 3

Serial Mediation Model: Association of pre-lockdown CRS participation and dimensions of psychological wellbeing as mediated by growth mindset and adaptive coping strategies.



Then the PROCESS SPSS macro (Hayes & Preachers, 2013) was used to test the multiple mediator models. This approach used bootstrapping to calculate estimates with 95% confidence intervals of the total effect, or the c path (i.e., association of pre-lockdown CRS participation with each dimension of psychological wellbeing, See Figure 3), direct path, or c' (i.e., association of pre-lockdown CRS participation with each dimension of psychological wellbeing partialling out the mediators), and indirect paths, or $a_1a_3b_2$, of pre-lockdown CRS participation with psychological wellbeing through the serial mediators of growth mindset and adaptive coping strategies. This model also allowed an examination of the indirect effects through each individual mediator (i.e., a_1b_1 , a_2b_2).

“The hallmark of successful people is that they are always stretching themselves to learn new things” Carol Dweck

Chapter Four

Results

This chapter reports the complete procedure of data analysis in time one (February 2020; before the pandemic) and time two (August 2020; during the pandemic and campus lockdown). This study was conducted with quantitative research methods to provide a numeric description of the results by examining the association among variables. The computer program SPSS (the Statistical Package for the Social Sciences) version 28 along with PROCESS SPSS macro (Hayes & Preachers, 2013) were used to conduct statistical analyses.

Findings are organized as follows: first, analyses begin with the calculation of descriptive statistics for all study variables, including demographics, CRS participation, goal orientations, coping strategies, and psychological wellbeing. Second, bivariate analysis (i.e., correlation) shows the relationship between the variables of the study to test whether they are statistically interrelated. Then, multivariate analyses (i.e., multiple linear regression and mediation) examine the associations of pre-lockdown CRS participation with dimensions of psychological wellbeing (i.e., autonomy, environmental mastery, positive relations, self-acceptance, purpose in life) during the pandemic and the potential role of growth mindset and adaptive coping strategies as serial mediators.

4.1 Descriptive Analysis

This section presents a summary of the samples and the measures completed both before the pandemic (time one) and during the campus lockdown (time two).

4.1.1 Respondents' Demographic Profile

Results indicate that participants were mainly undergraduate (76%) students with an average age of 21 years (see Table 1). Male participants (53%) outnumbered their female counterparts (47%).

Table 1

Respondents' Demographic Profile

Variables	M/Percentage	SD	n
Age	21.4	3.05	126
Gender			127
Male	52.8	---	
Female	47.2	---	
Other	---	---	
Education			127
Undergraduate	76.4	---	
Graduate	23.6	---	
Academic Year			127
First year	26.0	---	
Second year	22.1	---	
Third year	23.6	---	
Last year	28.3	---	
Faculty			127
Engineering	31.5	---	
Science	26.8	---	
Health	17.3	---	
Math	14.2	---	
Art	7.9	---	
Environment	2.4	---	
University Colleges	---	---	
Student Status in Canada			127
Domestic	95.2	---	
International	4.8	---	
GPA	3.34	0.53	127

Note. GPA= Grade Point Average, M= Mean, SD= Standard Deviation, n= Number of Respondents

Although it was asked, nobody identified themselves with other sexual orientations. Therefore, it is not clear whether students with other sexual orientations were reluctant to participate in the study or they were not interested in CRS participation. Nearly all participants (95%) were domestic Canadian students mainly from the faculties of Engineering, Science, and Health. Approximately, 26% of participants were first year, 45% were second or third year, and 28% were last year students. The average GPA for the sample was 3.34 out of 4.00, too.

4.1.2 Respondents' CRS Participation Profile

Before the pandemic, respondents averagely participated four times per week in different physical activities offered on campus. Among the activities, intramurals were the most popular, followed by Fitness Centres and Group Fitness programs, while participation in instructional lessons were the lowest (see Table 2).

After the shutdown in mid-March, all activities were offered completely virtual in Spring 2020 which consequently caused a sharp decline in the frequency of CRS participation with large standard deviations (see Table 2). Although intramurals were offered as e-sports during the campus lockdown, it seems respondents were more interested in “online group fitness” and “at home workouts” than e-sports, suggesting actual physical activities and body movements were more popular than e-sport participation.

When participants were asked about their adaptation to limited access to CRS activities, data revealed that respondents averagely participated three times per week in different physical activities either at home or outdoor. Results showed that running/jogging, bicycling/scootering, and home workout were the most popular activities respondents engaged in during the campus lockdown (see Table2), reflecting physical activity engagement can be a lifestyle for such students above and beyond campus programs.

Table 2*Respondents' Recreational Sport Participation Profile*

	M/Percentage	SD	n
CRS Participation (per week; T1)	4.05	1.12	127
Intramurals	1.91	1.52	
Fitness Centres	0.89	0.94	
Group Fitness	0.80	0.91	
Open Rec	0.27	0.57	
Sport Clubs	0.10	0.39	
Instructional lessons	0.06	0.27	
CRS Participation (per week; T2)	1.45	1.95	116
Online Group Fitness	0.71	0.95	
At Home Workout	0.44	0.82	
E-sports	0.16	0.51	
Health Webinars	0.09	0.41	
Personalized Nutrition	0.05	0.34	
Off-campus Sport Participation (T2)	3.48	1.31	116
Running/Jogging	1.25	1.58	
Bicycling/scooter	0.80	1.37	
Home Workout	0.67	0.80	
Yoga/meditation	0.29	0.88	
Skateboarding/Roller skating	0.17	0.51	
Outdoor sports (e.g., volleyball)	0.15	0.36	
Brisk walking/nature walk	0.14	0.60	

Measured on a 0 to 7 scale, where 0= never to 7= 7 times a week or more

Note. CRS= Campus Recreational Sports, M= Mean, SD= Standard deviation, n= number of participants, T1= Time 1, T2= Time 2

4.1.3 Respondents' Goal Orientation Profile

Growth-seeking (GS) goals were generally above the midpoint at both time points (see Table 3). Although results show that respondents reported lower levels of GS goals during the pandemic, the paired sample t-test indicated that there was no statistical difference between GS goals in time one and two, showing that irrespective of the level of stresses, respondents were primarily growth seekers.

Results also indicated that respondents reported higher levels of validation-seeking (VS) goals during the pandemic compared to pre-lockdown period, showing that respondents were a mixture of validation and growth mindset, which is aligned with Dweck (2015) that a pure growth mindset does not exist. In face of challenges, all individuals easily feel incompetent, defeated, or even overly anxious, and look for excuses because of falling into insecurity.

As presented in Table 3, all values of skewness (i.e., measure of symmetry) are between -2 and +2, and all values of kurtosis (i.e., measure of the tailedness of the probability distribution) fall within an acceptable range (between -3 and +3; Hair et al., 1998). The reliability analysis also shows that the Cronbach's alpha for GS goals and VS goals were greater than the acceptable criterion of .60 (Hair et al., 1998) in two time points.

Table 3

Respondents' Goal Orientation Profile

Goal orientations	M	SD	t-test	Ske.	Kur.	α	n
GS Goals (T1)	4.26	1.07		.099	-1.026	.89	127
GS Goals (T2)	4.19	1.03	t (115) = 1.538, p=n.s ^a	-.439	-.337	.93	116
VS Goals (T1)	3.47	1.03		.166	-.713	.74	127
VS Goals (T2)	3.66	1.17	t (115) = -2.407, p<.01 ^b	.181	-.349	.86	116

Measured on a 1 to 7 scale, where 1=Strongly disagree to 7= Strongly agree.

Note. GS= Growth-seeking, VS= Validation-seeking, M= Mean, SD= Standard Deviation, Ske. =Skewness, Kur= Kurtosis, α = Cronbach's alpha, T1= Time 1, T2= Time 2, n= number of participants, ^a Paired t tests compared T1 GS goals mean score to T2 mean score, ^b Paired t-tests compared T1 VS goals mean score to T2 mean score

4.1.4 Respondents' Coping Strategies Profile

Before the lockdown, respondents reported that they mostly used positive reframing, active coping, acceptance, support seeking, and planning to cope with difficulties. Results also indicated

that religion, denial, helplessness, and substance use were the least frequently used coping strategies (all below the midpoint of 1.5; see Table 4).

However, it seems pandemic resulted in some changes in the coping strategies employed by participants, too. As presented in Table 4, during the lockdown, emotional support was the most frequently used coping strategy followed by acceptance, venting, and planning. Helplessness, substance use, and religion were still among the least frequently used coping strategies. Although respondents reported a bit higher use of substances and helplessness, it was still below the midpoint or “sometime” (See Table 4).

Delving deeper, results indicated some fluctuation in the frequency of the coping strategies used before and during the pandemic. Comparing coping strategies in these two time points, using paired-samples t-tests, revealed that there was no significant difference between coping strategies such as, instrumental support, active coping, religion, and self-blame before and during the pandemic. However, other strategies such as, emotional support, self-distraction, venting, planning, acceptance, denial, helplessness, and substance use were relied upon more during the pandemic, while there was a decline in using positive reframing and humor when respondents faced with such a serious threatening stress as Covid-19. Endorsing some maladaptive coping strategies during the Covid-19 pandemic confirms Lazarus’s (2006) findings that, in the face of uncontrollable challenges, individuals are more likely to use more disengagement coping strategies.

For the purpose of the study, adaptive coping (i.e., emotional support, instrumental support, positive reframing, and planning; Freire et al., 2016; 2019) was also measured in both time points. As Table 4 shows, ratings for adaptive coping were above the midpoint or “sometimes” on a 3-point scale at both time points. Despite the higher mean score in T1, paired-samples t-tests showed

that there was no significant change in the frequency of using adaptive coping strategies before and during the pandemic, suggesting that although respondents were likely to use more self-distraction coping strategies, such as watching too much TV or sleeping or were likely to express negativity most of the time, they were likely to cope as adaptively as coping with challenges before the lockdown.

It should be noted that the skewness and kurtosis values for all coping strategies in both time points fell within acceptable ranges. Although reliability for some coping strategies were very low, the Cronbach's alpha for adaptive coping strategies which were specifically used for analyses in this study were greater than the acceptable criterion of .60 at both time points (Hair et al., 1998).

Table 4

Respondents' Coping Strategies Profile

Coping Strategies	M	SD	Ske.	Kur.	n	t-test	α
Reframing (T1)	2.38	0.57	-.433	-.790	127		.80
Reframing (T2)	1.91	0.70	.178	-1.15	116	t (115) 6.904, p<.001	.81
Distraction (T1)	1.96	0.50	.064	-.086	127		.62
Distraction (T2)	2.24	0.41	-.138	.490	116	t (115) -4.830, p<.001	.32
Emotional Support (T1)	2.22	0.53	-.158	-.688	127		.61
Emotional Support (T2)	2.49	0.59	-.815	-.438	116	t (115) -5.506, p<.001	.81
Planning (T1)	2.20	0.49	.358	-.868	127		.61
Planning (T2)	2.36	0.63	-.723	-.377	116	t (115) -2.867, p<.01	.81
Instrumental Support (T1)	2.22	0.51	-.347	.160	127		.65
Instrumental Support (T2)	2.24	0.55	-.145	-.794	116	t (115) -.157, p=.882	.72
Acceptance (T1)	2.23	0.49	.310	-.928	127		.61
Acceptance (T2)	2.40	0.49	-.234	-.796	116	t (115) -3.261, p<.001	.65
Self-blame (T1)	1.92	0.62	.238	-.841	127		.70
Self-blame (T2)	1.94	0.56	.057	-.325	116	t (115) .336, p=.737	.83

Helplessness (T1)	1.32	0.41	.848	-.672	127		.58
Helplessness (T2)	1.49	0.47	.331	-.932	116	t (115) -3.034, p<.001	.78
Venting (T1)	1.93	0.53	-.071	-.359	127		.63
Venting (T2)	2.36	0.43	.157	-.928	116	t (115) -6.539, p<.001	.51
Denial (T1)	1.33	0.42	1.269	1.563	127		.60
Denial (T2)	1.55	0.44	.030	-1.245	116	t (115) -3.928, p<.001	.57
Substance Use (T1)	1.30	0.51	1.638	2.080	127		.75
Substance Use (T2)	1.45	0.55	.864	-.193	116	t (115) -2.266, p<.05	.88
Humor (T1)	2.14	0.53	.302	-.689	127		.66
Humor (T2)	1.52	0.45	-.031	-1.630	116	t (115) 9.032, p<.001	.75
Religion (T1)	1.46	0.45	.273	-1.421	127		.67
Religion (T2)	1.44	0.45	.896	.886	116	t (115) .460, p=.873	.67
Active Coping (T1)	2.30	0.54	-.259	-.632	127		.71
Active Coping (T2)	2.34	0.50	-.196	-.585	116	t (115) .246, p=.493	.66
Adaptive Coping (T1)	2.26	0.38	-.233	-.339	127		.68
Adaptive Coping (T2)	2.25	0.48	-.323	-.720	116	t (115) .301, p=.766	.76

Measured on a 1 to 3 scale, where 1=Not at all to 3= a lot.

Note. M= Mean, SD= Standard Deviation, Ske. =Skewness, Kur= Kurtosis, α = Cronbach's alpha, T1= Time 1, T2= Time 2, n= number of participants, t-tests compared T1 mean scores to T2 mean scores.

4.1.5 Respondents' Psychological Wellbeing Profile

As Table 5 shows, the average scores for all dimensions of psychological wellbeing were above the midpoint at both time points. Before the lockdown, participants of this study reported a higher level of positive relations with others followed by autonomy and environmental mastery. As shown in Table 5, students' psychological wellbeing differences before the lockdown and during the pandemic were minimal. The paired samples t-tests also indicated that the pandemic and campus lockdown had little impact on the level of respondents' environmental mastery and self-acceptance, showing that they were more likely to be in charge of their life situation and could

manage the demands of pandemic-related life and did not relate challenges to their personality, either. However, the mean of autonomy, purpose in life, and positive relations with others changed significantly from time one to time two (See t-tests in Table 5), showing that respondents were feeling lower levels of autonomy, positive relations with others, and purpose in life compared to pre-lockdown period.

Statistically speaking, skewness and kurtosis values for all dimensions of psychological wellbeing in both time points fell within an acceptable range and the reliability analysis also shows that the Cronbach's alpha for all dimensions, both in time one and time two, were greater than the acceptable criterion of .60 (Hair et al., 1998).

Table 5

Respondents' Psychological Wellbeing Profile

Variables	M	SD	Ske.	Kur.	n	α	t-test
Autonomy (T1)	4.49	0.92	-.491	-.239	127	.86	
Autonomy (T2)	4.28	1.01	-.517	-.411	116	.87	t (115) 3.293, p<.001
Environmental Mastery (T1)	4.45	0.99	-.524	-.241	127	.82	
Environmental Mastery (T2)	4.36	1.24	-.503	-.880	116	.92	t (115) 1.272, p=.206
Positive Relations (T1)	4.57	0.96	-.698	.484	127	.83	
Positive Relations (T2)	4.39	1.01	-.469	-.519	116	.89	t (115) 2.720, p<.01
Self-acceptance (T1)	4.37	1.02	-.307	-.787	127	.85	
Self-acceptance (T2)	4.35	0.97	-.312	-.764	116	.89	t (115) .797, p=.427
Purpose in Life (T1)	4.40	1.13	-.589	-.145	127	.92	
Purpose in Life (T2)	4.04	0.98	-.512	-.403	116	.88	t (115) 3.697, p<.001

Measured on a 1 to 6 scale, where 1=Strongly disagree to 6= Strongly agree.

Note. M= Mean, SD= Standard Deviation, Ske. =Skewness, Kur= Kurtosis, α = Cronbach's alpha, T1= Time 1, T2= Time 2, n= number of participants, t-tests compared T1 mean scores to T2 mean scores.

4.2 Bivariate Analysis

4.2.1 Correlation Analyses

Pearson correlation analysis was employed to determine the relationships between variables of this study. According to the findings, the predictor (i.e., CRS participation), mediators (i.e., growth mindset, and adaptive coping strategies), and criterion variables (i.e., autonomy, environmental mastery, positive relations, purpose in life, and self-acceptance) are statistically inter-related (see Table 6). Values indicate that there is a positive significant relationship between all variables. Age and gender were not correlated with CRS participation and dimensions of wellbeing. Off-campus recreational activities during the pandemic as an adaptation to the limit access to CRS were also significantly and positively correlated with growth mindset, coping strategies and dimensions of wellbeing.

To have a better understanding of the role of goal orientation in adapting coping strategies in face of challenges, the relationship between GS goals and VS goals with coping strategies were measured at both time points. Correlation analysis indicated that before the campus lockdown when challenges were more predictable, VS goals were not significantly correlated with coping strategies, but participants who were primarily growth seekers showed higher level of positive reframing, support seeking, humor, active coping, planning, and acceptance (see Table 7). During the pandemic and in face of uncertainty and new challenges, however, validation-oriented individuals showed lower levels of emotional support, and higher level of venting and helplessness. On the contrary, their growth-seeking counterparts reported lower level of self-blame, denial, and helplessness while showing greater planning, active coping, acceptance, support seeking, and positive reframing (see Table8).

Table 6*Correlation Matrix*

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.Age	1																
2.Female	-.15	1															
3. GS goals 1	-.04	-.08	1														
4. Cope 1	-.08		.64**	1													
5. Cope 2	-.04	.19*	.74**	.69**	1												
6.CRS 1	-.01	-.04	.61**	.58**	.64**	1											
7. Off Campus Rec 2	.13	.12	.27**	.22*	.39**	.51**	1										
8.Autonomy 1	-.02	.006	.66**	.61**	.67**	.69**	.32**	1									
9.Mastery 1	-.07	-.06	.69**	.64**	.69**	.66**	.39**	.84**	1								
10.Relations 1	-.04	.04	.66**	.60**	.71**	.68**	.32**	.87**	.83**	1							
11.Acceptance 1	-.02	.07	.63**	.56**	.66**	.63**	.25**	.78**	.76**	.79**	1						
12.Purpose 1	-.03	-.04	.50**	.48**	.63**	.58**	.26**	.64**	.64**	.65**	.64**	1					
13.Autonomy 2	.04	-.11	.69**	.61**	.68**	.65**	.30**	.72**	.70**	.70**	.66**	.62**	1				
14.Mastery 2	.10	-.04	.70**	.62**	.69**	.73**	.42**	.67**	.69**	.70**	.64**	.54**	.74**	1			
15.Relations 2	.009	-.09	.69**	.65**	.68**	.66**	.30**	.72**	.73**	.72**	.69**	.61**	.82**	.72**	1		
16.purpose 2	.01	.001	.44**	.39**	.49**	.38**	.18*	.50**	.44**	.51**	.44**	.49**	.57**	.41**	.58**	1	
17.Acceptance2	.03	-.01	.71**	.57**	.69**	.68**	.37**	.67**	.65**	.69**	.63**	.53**	.74**	.78**	.73**	.42**	1

Note. 1 = Time one, 2 = Time 2, n (Time 1) = 127, n (Time 2) = 116, *p<.05, **p<.01, ***p<.001

Table 7*Correlation between CRS participation, goal orientations, and coping strategies before the campus lockdown*

Variables	VS	GS	Cope	CRS	reframe	distract	vent	instru	active	denial	religion	humor	helpless	blame	emotion	alcohol	plan	accept
VS goals	1	-.03	.11	.03	.10	.10	.09	.04	.09	-.09	.007	.03	.06	.05	.06	.02	.11	.09
GS goals	-.03	1	.64**	.61**	.37**	.01	.008	.31**	.57**	.03	.08	.29**	-.12	.01	.55**	-.003	.63**	.64**
CRS	.03	.61**	.58**	1	.44**	.03	.04	.27**	.53**	.04	.09	.25**	-.05	-.02	.45**	-.03	.51**	.49**

Note. VS=validation-seeking goals, GS=growth-seeking goals, Cope= adaptive coping strategies, CRS= campus recreational sports participation, reframe= positive reframing, distract= distraction, vent=venting, instru=instrumental support, active=active coping, helpless=helplessness, blame=self-blame, emotion= emotional support, alcohol= substance use, plan=planning, accept= acceptance, n= 127, *p<.05, **p<.01, ***p<.001

Table 8*Correlation between CRS participation, goal orientations, and coping strategies during the Covid-19 pandemic*

Variables	VS	GS	Cope	CRS	reframe	distract	vent	instru	active	denial	religion	humor	helpless	blame	emotion	alcohol	plan	accept
VS goals	1	-.21*	-.18	-.19*	-.14	.001	.19*	-.03	-.07	.13	-.07	.07	.21*	.09	-.22*	-.14	-.12	-.13
GS goals	-.21*	1	.69**	.50**	.50**	-.14	.08	.47**	.56**	-	-.02	-.03	-	-	.56**	.01	.62**	.39**
CRS	-.19*	.50**	.65**	1	.58**	-.05	.21*	.42**	.51**	-	.04	-.06	-	-	.47**	-.10	.50**	.38**

Note. VS=validation-seeking goals, GS=growth-seeking goals, Cope= adaptive coping strategies, CRS= campus recreational sports participation, reframe= positive reframing, distract= distraction, vent=venting, instru=instrumental support, active=active coping, helpless=helplessness, blame=self-blame, emotion= emotional support, alcohol= substance use, plan=planning, accept= acceptance, n= 116, *p<.05, **p<.01, ***p<.001

Results also show that, in time one, VS and GS goals were not correlated and there was no relationship between being a validation seeker and frequency of CRS participation (see Table 7). However, during the pandemic, those higher in VS goals showed lower level of growth ($r = -.21^*$, Table 8) and participated less frequently in online CRS activities ($r = -.19^*$, Table 8). In contrast, having a growth mindset was positively correlated with CRS participation irrespective of in-person or virtual activities (T1; $r = .61^{**}$, T2; $r = .50^{**}$).

4.3 Multivariate Analysis

This section presents a comprehensive analysis to predict that post-secondary students who participated more frequently in CRS activities before the campus lockdown developed higher level of growth mindset (T1), which may have helped them cope more adaptively (T2) with covid-19 related stressors, which in turn, lead to protecting their psychological wellbeing (i.e., autonomy, environmental mastery, positive relations with others, self-acceptance, and purpose in life) during the pandemic and campus lockdown.

4.3.1 Autonomy

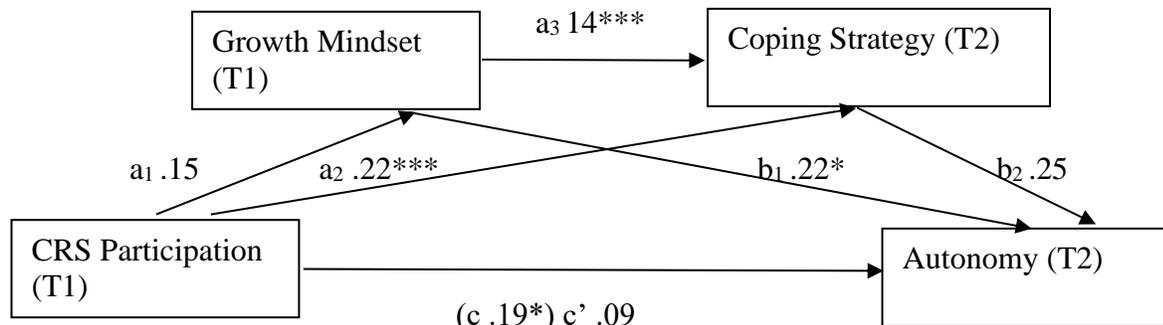
With respect to autonomy during the campus lockdown, the regression analysis showed that the higher respondents' pre-lockdown CRS participation rating was, the greater their sense of autonomy during the pandemic, controlling for demographic variables, T1 autonomy, T1 coping strategies, and T2 off-campus recreation (see Table 9, Model 1). Age, gender, and off-campus recreation during the pandemic were not significantly associated with autonomy, but those who had greater autonomy before the lockdown reported higher level of autonomy even during the pandemic (see Table 9, Model 2). T1 coping strategies were also found to be positively associated with autonomy during the pandemic. However, with the addition of growth mindset and adaptive

coping strategies, this significance dissipated to non-significant levels (see Table 9, Model 2). Of the potential mediators, adaptive coping strategies were not significantly associated with autonomy, but the more respondents reported growth mindset, the greater their ratings of autonomy were (see Table 9, Model 2). The association of CRS participation with autonomy was also reduced to a non-significant level with the addition of the potential mediators (see Table 9, Model 2).

The mediation analysis of pre-lockdown CRS participation as the focal variable and T2 autonomy as the criterion variable (see Figure 4) indicated that the total effect of CRS participation on autonomy was at a significant level. The direct effect of CRS participation on adaptive coping was also at significant level. However, the association of CRS and growth mindset was not significant. Although, the direct effect of growth mindset as the first mediating variable on the second mediating variable of adaptive coping was at a significant level and growth mindset had a positive significant association with autonomy, adaptive coping showed to be a non-significant predictor for autonomy. When all these variables in addition to controlled variables were entered into the equation simultaneously, the association between CRS participation and autonomy, in relation to direct effect, was reduced to a non-significant level (see Figure 4).

Figure 4

Association of pre-lockdown CRS participation and Autonomy during the pandemic as mediated by growth mindset and adaptive coping strategies.



Although the total pathway of pre-lockdown CRS participation to T2 autonomy is significant (see Table 10, Total Effect), the pathway of CRS participation to autonomy through both growth mindset and coping strategies was not statistically significant since the bootstrapped confidence interval encompassed zero (see Table 10; M1, M2). When both mediators were included in the serial mediation model in which the pathway of CRS participation predicting autonomy first through growth mindset and then through adaptive coping, findings indicated the indirect effect through both mediators was not statistically significant (see Table 10; M1+M2), suggesting that there was no association between pre-lockdown CRS participation and autonomy during the pandemic. This final pathway rejects all hypotheses related to the association of pre-lockdown CRS participation and autonomy during the pandemic.

Table 9

Unstandardized coefficients for regression models showing association of demographics, T1 Criterion variable, Off Campus recreations, CRS participation, GS Goals, and adaptive coping with Psychological Wellbeing

	Model 1		Model 2	
	B	SE	B	SE
Autonomy (T2)				
Constant	-.227	.61	-.220	.58
Age	.01	.02	.01	.01
Female	-.16	.12	-.20	.12
Autonomy (T1)	.51***	.09	.41***	.09
Coping (T1)	.56*	.21	.24	.23
Off campus Recreation (T2)	-.001	.05	.001	.05
CRS Participation (T1)	.19*	.08	.09	.10
Growth Mindset (T1)	---	---	.22*	.08
Adaptive Coping (T2)	---	---	.25	.26
Adjusted R ²	.59		.62	
Environmental Mastery (T2)				
Constant	-1.874**	.69	-1.801*	.65
Age	.05*	.02	.05*	.02
Female	.09	.14	.001	.13

Environmental Mastery (T1)	.36***	.09	.21*	.10
Coping (T1)	.61*	.25	.16	.26
Off campus Recreation (T2)	.02	.06	.04	.05
CRS Participation (T1)	.47***	.09	.27*	.10
Growth Mindset (T1)	---	---	.23*	.09
Adaptive Coping (T2)	---	---	.66*	.29
Adjusted R ²	.64		.69	
Positive Relations (T2)				
Constant	-.302	.60	-.212	.58
Age	.007	.02	.006	.01
Female	-.15	.12	-.15	.12
Positive Relations (T1)	.47***	.09	.36***	.09
Coping (T1)	.77***	.21	.52*	.23
Off campus Recreation (T2)	.01	.05	.01	.05
CRS Participation (T1)	.16	.08	.11	.10
Growth Mindset (T1)	---	---	.22*	.08
Adaptive Coping (T2)	---	---	.08	.26
Adjusted R ²	.60		.63	
Self-acceptance (T2)				
Constant	.348	.63	.320	.57
Age	.01	.02	.01	.01
Female	-.003	.13	-.03	.12
Self-acceptance (T1)	.24**	.08	.12	.08
Coping (T1)	.50*	.23	.02	.23
Off campus Recreation (T2)	.04	.05	.04	.05
CRS Participation (T1)	.32***	.08	.16	.10
Growth Mindset (T1)	---	---	.30***	.08
Adaptive Coping (T2)	---	---	.45	.25
Adjusted R ²	.53		.61	
Purpose in Life (T2)				
Constant	.626	.90	.615	.88
Age	.005	.03	.005	.02
Female	.008	.18	-.06	.18
Purpose in Life (T1)	.35***	.10	.30**	.10
Coping (T1)	.60	.31	.14	.35
Off campus Recreation (T2)	.01	.08	.01	.07
CRS Participation (T1)	.04	.11	-.12	.15
Growth Mindset (T1)	---	---	.21	.12
Adaptive Coping (T2)	---	---	.48	.39
Adjusted R ²	.25		.28	

Note. n=127 (T1), n= 116 (T2); *p<0.05, **p<0.01, ***p<0.001

Table 10

Bootstrap analysis of total indirect effect for association of CRS participation with psychological wellbeing outcomes, and indirect effects through GS goals and adaptive coping

		Estimate	SE	Confidence Interval	
Mediation Effect				Lower	Upper
Total Indirect Effect		.0985	.0664	.0382	.2249
CRS participation & Autonomy	M1: Growth Mindset	.0340	.0287	.0000	.1204
	M2: Adaptive Coping	.0588	.0616	-.0611	.1783
	M1 & M2	.0057	.0079	-.0032	.0321
Total Indirect Effect		.2070	.0781	.0728	.3819
CRS participation & Environmental Mastery	M1: Growth Mindset	.0456	.0317	.0007	.1405
	M2: adaptive Coping	.1448	.0638	.0284	.2783
	M1 & M2	.0167	.0129	.0009	.0604
Total Indirect Effect		.1646	.0660	.0490	.3093
CRS participation & self-acceptance	M1: Growth Mindset	.0527	.0361	.0039	.1521
	M2: Adaptive Coping	.1009	.0537	.0001	.2151
	M1 & M2	.0111	.0087	.0006	.0413

Note. Lower limit and upper limit denote the boundaries of a 95% confidence interval (CI).

4.3.2 Environmental Mastery

For environmental mastery, regression analyses indicated that although gender and off-campus recreation were not statistically associated with environmental mastery, age had a positive association in the model. Older respondents showed higher level of environmental mastery even during the pandemic (see Table 9, Model 2). The higher respondents' pre-lockdown CRS participation rating were, the greater their level of environmental mastery was during the pandemic, controlling for demographic variables, T1 environmental mastery, T1 coping strategies,

and T2 off-campus recreation (see Table 9, Model 2). T1 coping strategies were found to be positively associated with environmental mastery during the pandemic. However, with the addition of growth mindset and adaptive coping strategies, this significance dissipated to non-significant levels (see Table 9, Model 2). Respondents who had greater environmental mastery before the lockdown also reported higher level of mastery during the pandemic (see Table 9, Model 2). Of the potential mediators, both growth mindset and adaptive coping strategies were significantly associated with environmental mastery (see Table 9, Model 2). After the addition of the potential mediators, the association of CRS participation with environmental mastery was reduced, but still at significant level (see Table 9, Model 2).

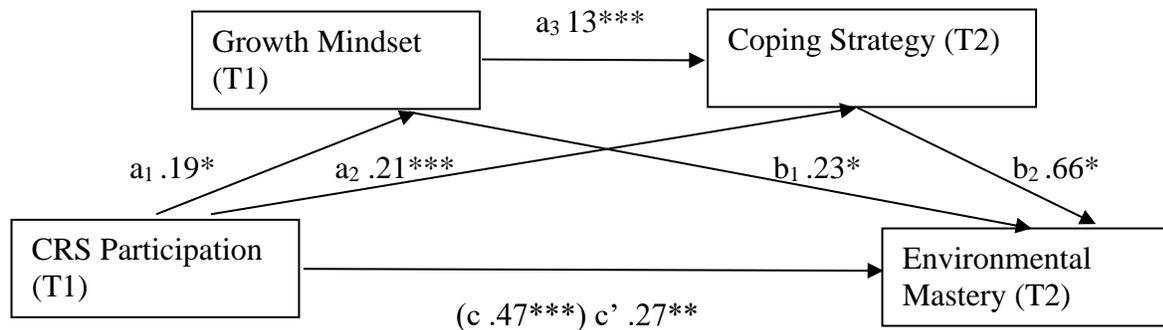
The mediation analysis of pre-lockdown CRS participation as the focal variable and T2 environmental mastery as the criterion variable (see Figure 5) indicated that the total effect of pre-lockdown CRS participation on environmental mastery was at a significant level. The direct effect of CRS participation on growth mindset, and adaptive coping were also at significant levels. The direct effects of growth mindset as the first mediating variable on the second mediating variable of adaptive coping was also at a significant level. Likewise, the direct effects of growth mindset and adaptive coping on environmental mastery were also significant. When all these variables in addition to controlled variables were entered into the equation simultaneously, the association between pre-lockdown CRS participation and environmental mastery during the pandemic, in relation to direct effect, was reduced, but still at a significant level.

The pathway of pre-lockdown CRS participation to T2 environmental mastery through growth mindset was statistically significant since the bootstrapped confidence interval did not encompass zero (see Table 10, M1). The pathway of CRS participation to environmental mastery through adaptive coping was also significant (see Table 10, M2). An examination of the serial

mediation model in which the pathway of CRS participation predicting environmental mastery first through growth mindset and then through adaptive coping indicated that the indirect effect through both mediators was statistically significant (see Table 10; M1+M2), suggesting that the association between pre-lockdown CRS participation and environmental mastery was partially explained by links through growth mindset leading to greater adaptive coping and protecting environmental mastery during the pandemic. This final pathway supports hypothesis 1 (i.e., greater pre-lockdown CRS participation will protect students' environmental mastery during the pandemic), hypothesis 2 (i.e., growth mindset will mediate the association between pre-lockdown CRS participation and students' environmental mastery during the pandemic), hypothesis 3 (i.e., adaptive coping strategies will mediate the association between pre-lockdown CRS participation and students' environmental mastery during the pandemic), and hypothesis 4 (i.e., the association between pre-lockdown CRS participation and students' environmental mastery will be serially mediated via growth mindset through adaptive coping strategies).

Figure 5

Association of pre-lockdown CRS participation and Environmental Mastery during the pandemic as mediated by growth mindset and adaptive coping strategies.

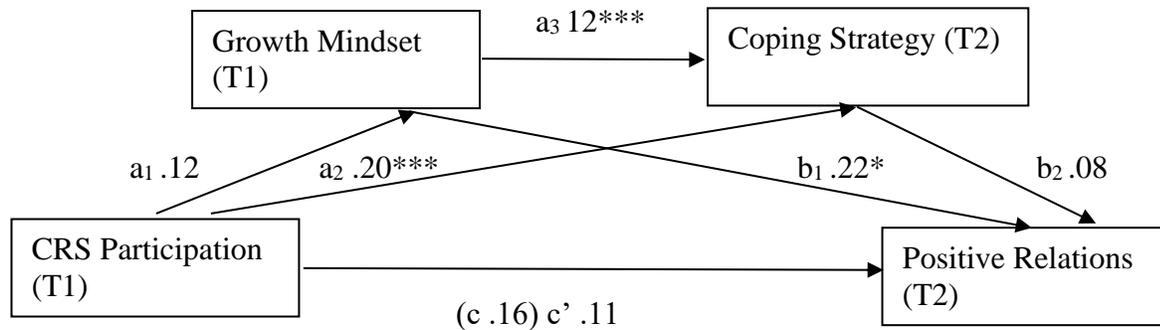


4.3.3 Positive Relations with Others

Regression analysis indicated that there was no association between pre-lockdown CRS participation and positive relations with others during the pandemic (see Table 9, Model 1). None of the control variables (i.e., age, being a female, off-campus recreation during the pandemic) were determined to be significant (Model 1). However, those who experienced greater positive relations and used more adaptive coping strategies before the lockdown reported higher levels of positive relations even during the pandemic. Of the potential mediators, adaptive coping strategies were not significantly associated with positive relations, but the higher respondents' growth mindsets were, the greater their ratings of positive relations with others were (see Table 9, Model 2).

Figure 6

Association of pre-lockdown CRS participation and Positive relations during the pandemic as mediated by growth mindset and adaptive coping strategies.



The mediation analysis of pre-lockdown CRS participation as the focal variable and T2 positive relations as the criterion variable (see Figure 6) indicated that the total effect of CRS participation on positive relations was not at a significant level, and the indirect effects of a_1b_1 and a_2b_2 were not statistically significant, either. Since there was no statistically significant total effect or direct effect between pre-lockdown CRS participation and positive relations with others during

the pandemic, all hypotheses related to the association of pre-lockdown CRS participation and positive relations with others during the pandemic will be rejected.

4.3.4 Self-acceptance

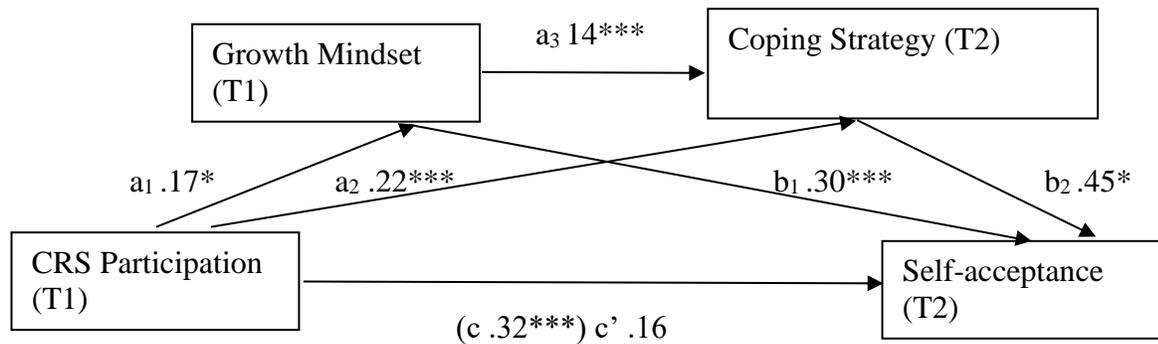
With respect to self-acceptance during the campus lockdown, the regression analysis showed that the higher respondents' pre-lockdown CRS participation rating was, the greater their self-acceptance was, controlling for demographic variables, T1 self-acceptance, T1 coping, and T2 off-campus recreation (see Table 9, Model 1). Age, gender, and off-campus recreation during the pandemic were not significantly associated with self-acceptance. T1 coping strategies and T1 self-acceptance were found to be positively associated with self-acceptance during the pandemic. However, with the addition of growth mindset and adaptive coping strategies, this significance dissipated to non-significant levels (see Table 9, Model 2). Of the potential mediators, adaptive coping strategies were not significantly associated with self-acceptance, but the higher respondents' growth mindsets were, the greater their ratings of self-acceptance (see Table 9, Model 2). The association of CRS participation with self-acceptance was also reduced to non-significant with the addition of the potential mediators (see Table 9, Model 2).

The mediation analysis of pre-lockdown CRS participation as the focal variable and self-acceptance as the criterion variable (see Figure 7) indicated that the total effect of CRS participation on self-acceptance was at a significant level. The direct effects of CRS participation on growth mindset, and adaptive coping were also at significant levels. The direct effect of growth mindset as the first mediating variable on the second mediating variable of adaptive coping was also at a significant level. Likewise, the direct effects of growth mindset and adaptive coping on self-acceptance were significant. When all these variables in addition to controlled variables were

entered into the equation simultaneously, the association between CRS participation and self-acceptance, in relation to direct effect, was reduced to non-significant level.

Figure 7

Association of pre-lockdown CRS participation and Self-acceptance during the pandemic as mediated by growth mindset and adaptive coping strategies.



The pathway of CRS participation to self-acceptance through growth mindset was statistically significant since the bootstrapped confidence interval did not encompass zero (see Table 10, M1). The pathway of CRS participation to self-acceptance through adaptive coping was also significant (see Table 10, M2). An examination of the serial mediation model in which the pathway of CRS participation predicting self-acceptance first through growth mindset and then through adaptive coping was statistically significant (see Table 10, M1+M2), suggesting that the association between CRS participation and self-acceptance was fully explained by links through growth mindset leading to greater adaptive coping and protecting self-acceptance during the pandemic. This final pathway supports hypothesis 1 (i.e., greater pre-lockdown CRS participation will protect students' self-acceptance during the pandemic), hypothesis 2 (i.e., growth mindset will mediate the association between pre-lockdown CRS participation and students' self-acceptance during the pandemic), hypothesis 3 (i.e., adaptive coping strategies will mediate the association

between pre-lockdown CRS participation and students' self-acceptance during the pandemic), and hypothesis 4 (i.e., the association between pre-lockdown CRS participation and students' self-acceptance will be serially mediated via growth mindset through adaptive coping strategies).

4.3.5 Purpose in Life

Regression analyses indicated that age, gender, T1 coping strategies, and T2 off-campus recreation were not significantly associated with purpose in life during the pandemic. However, those who had a higher sense of purpose in their life before the lockdown showed greater purpose in life during the pandemic (see Table 9, Model 2). Respondents' pre-lockdown CRS participation ratings showed no association with the degree of purpose in life during the pandemic, controlling for demographic variables and T1 purpose in life (see Table 9, Model 2), suggesting pre-lockdown CRS participation do not predict an impact on protecting the sense of purpose in life during the pandemic. Therefore, all hypotheses related to this association are rejected for this association.

In sum, analyses with the dimensions of psychological wellbeing, namely, autonomy, environmental mastery, positive relations with others, self-acceptance, and purpose in life showed that higher levels of pre-lockdown CRS participation were associated with greater levels of environmental mastery and self-acceptance. This association was statistically explained by greater levels of adaptive coping strategies during the pandemic and by a process that potentially operates through serial mediators of growth mindset to greater adaptive coping strategies.

“The curious paradox is that when I accept myself just as I am, then I can change” Carl Rogers

Chapter Five

Discussion

The main focus of this study was to examine whether pre-lockdown CRS participation has positive impact on protecting students’ psychological wellbeing during the pandemic. A notable body of research has examined the role of CRS in psychological wellbeing enhancement (Edwards et al., 2005; Forrester, 2014; Kilgo et al., 2016; Scully et al., 1998). In general, frequent CRS participation is associated with higher level of tolerance, autonomy development, stress management, interpersonal relationship, self-confidence, problem-solving, and skills improvement (Artinger et al., 2006; Erwin, 1989; Forrester, 2014; Kanters, 2000; NIRSA, 2004). There is also evidence that past CRS participation is associated with greater healthy lifestyle after graduation (Forrester et al., 2006; 2007), lower levels of academic-related stresses, and higher levels of perceived competence during the campus lockdown (Abdeahad & Mock, in Review).

Drawing on goal orientation theory (i.e., growth-oriented individuals’ higher level of task persistence and commitment has a positive impact on adopting effective coping strategies leading to fewer depression symptoms overtime; Dykman, 1998), the significance of campus engagement on students’ mental wellbeing (CACUSS, 2013; CMHA BC, 2022; Duffy et al., 2019; Ng & Padjen, 2019), as well as research from the field of leisure studies that explain how CRS participation as a structured meaningful leisure activity helps students cope with academic challenges and enhance wellbeing, I examined the ways pre-lockdown CRS participation may help students to protect their wellbeing, namely, environmental mastery and self-acceptance during the unprecedented time of Covid-19 pandemic and campus lockdowns.

This chapter begins with explaining respondents' profile, followed by discussion and interpretation of the results of this study's research questions and hypotheses, and then concludes with a discussion of the theoretical and practical implications of the findings, limitations of the study, and the future research directions.

5.1 Participants' Profile

Findings revealed that CRS participants were mainly undergraduate male domestic Canadian students who averagely participated four times a week in different recreational activities offered on campus before the lockdown. Intramurals were the most popular and instructional lessons were the least favorite activities among students. Comparing findings with data from UW Warriors Athletics and Recreation in Winter 2020 also indicated that intramural registration outnumbered other activities by over four times while aquatics and instructional programs had the lowest registered participants (See Section "2.3.2 CRS adaptation to Covid-19 Pandemic" for data comparison).

After the lockdown in mid-March 2020, all CRS activities were offered virtually and participation was dramatically declined to once a week, on average. Although students had an opportunity to get engaged in e-sports as an alternative to intramurals, actual physical activities, such as "Online group fitness", or "At home workouts" activities were preferred over e-sports. Results are also consistent with data from UW online CRS participation, representing during the Spring 2020, online group fitness had the most registered participants (396 people) followed by "at home workout" (237 individuals) compared to 150 participants for e-sports (personal communication with the UW senior manager of recreation; December 2021).

As an adaptation, during the campus lockdown, students started participating in some off-campus physical activities, such as running, bicycling, or home workout, reflecting that

engagement in physical activity maybe a lifestyle for CRS members and is not limited to structured programs on campus. Findings are consistent with other studies related to CRS participation during the pandemic. Although there was a significant decline in CRS participation during the campus lockdown (Kiely et al., 2021), over 85% of CRS users switched to off-campus recreational activities such as online fitness classes or home workouts (Maire, 2020) and stayed physically active during the pandemic. Correlation analyses in this study also indicated that the more often students participated in CRS activities prior to campus lockdown, the more physically active they were during the pandemic ($r = .51, p < .01$, see Table 6). Findings are also consistent with Burcal et al.'s (2021) study that the more often students participated in CRS activities prior to campus lockdown, the more active they were during the pandemic. Forrester et al., (2007) also argued that there is likely an association between past CRS participation and current physical activity levels of students even after graduation. Findings of this study extends Forrester et al.'s, (2007) proposition that frequent CRS participation has a positive impact on students' healthy lifestyles due to variety of skilled activities in their leisure repertoire (Roberts, 1999).

Generally, students who participated more frequently in CRS activities were more growth oriented than validation oriented. At ordinary expectable and controllable challenges before the pandemic, irrespective of having primarily a growth mindset or a validation mindset, respondents preferred to use positive reframing, support-seeking, active coping, sense of humor, planning, and acceptance as coping strategies (see Table 4), showing that at lower level of stresses, there was no difference between validation/growth mindset in employing effective coping strategies (Dweck & Sorich, 1999; Dykman, 1998). However, during the pandemic those who less frequently participated in CRS programs showed higher level of validation mindset and engaged more in venting and helplessness, compared to students with greater CRS participation who not only had

greater level of growth mindset during the pandemic, but engaged more in positive framing, support-seeking, planning, active coping, and acceptance and reported lower level of denial, self-blaming, or helplessness (see Table 4). It is important to note that both VS and GS goals are natural, necessary, and universal. Every individual wants to be likeable and worthy in the eyes of others and every individual wants to learn new things and overcome challenges. The difference lies in how much they value each goal (Dweck, 2015).

Considering the sudden emergence of Covid-19 virus, campus lockdown, and cities shutdown everybody around the world, including students, faced with some periods of initial confusions with no idea how new situations were related to anything they had experienced before. This period of confusion may have a negative impact on students with validation mindset, calling their skills into question. Students with a growth mindset, on the contrary, look at challenges as opportunities to stretch their skills, improve their abilities (i.e., either about themselves or the new situation), learn new strategies, and take action to overcome challenges (Dweck & Sorich, 1999).

Findings also showed that campus lockdown had little impact on CRS users' level of environmental mastery and self-acceptance, reflecting that they were more likely to be in charge of their life situation and could manage the demands of pandemic-related life and did not relate challenges to their personality, either. However, comparing to the pre-lockdown period, students experienced a lower sense of autonomy, positive relations with others, and purpose in life during the pandemic which may be due to government-imposed lockdowns, regulations on mandatory masks, physical distancing restrictions, or financial, academic, health, and social challenges (Anglim & Horwood, 2021; Savage et al., 2020).

5.2 Research Question 1

In relation to the first research question (i.e., “Does pre-lockdown CRS participation protect students’ psychological wellbeing during the lockdown due to Covid-19 pandemic?”), findings show that pre-lockdown CRS participation has the potential to protect students’ sense of environmental mastery and self-acceptance during the lockdown, but has no impact on autonomy, purpose in life, or positive relations with others.

5.2.1 Hypothesis 1

It was hypothesized that greater pre-lockdown CRS participation will protect post-secondary students’ psychological wellbeing (i.e., autonomy, environmental mastery, positive relations with others, self-acceptance, and purpose in life) during the Covid-19 pandemic. The findings of this study show that pre-lockdown CRS participation had a significant positive impact on protecting students’ environmental mastery and self-acceptance during the pandemic, suggesting that more frequent CRS participation before the lockdown is associated with greater levels of each of these constructs. The off-campus recreational activities (e.g., running, bicycling, yoga) in which students participated during the lockdown was not found to have a statistically significant effect on any dimensions of wellbeing examined in this study, suggesting that CRS activities makes a contribution to well-being above and beyond physical health benefits.

5.1.1 Pre-lockdown CRS and Environmental Mastery.

An individual with a high level of environmental mastery is defined as a person “who has a sense of mastery and competence in managing the environment, controls a complex array of external activities, makes effective use of surrounding opportunities, able to choose or create contexts suitable to personal needs and values” (Ryff, 1989, p. 1072). Accordingly, environmental mastery is beyond the sense of control or self-efficacy, but the individual creates, changes, or

chooses factors or conditions adaptable to their psychic needs and capacities through participating and engaging in some activities to “extend the self” to manage complex situations. Perceived environmental mastery motivates individuals to persist in their tasks, be more positive to overcome challenges, and feel good about themselves (Bandura, 2004).

CRS participation and engagement in fitness activities, sport clubs, or intramurals, as structured purposeful activities, provide a platform for the development of specific competencies and mastery in challenging situations. When students get engaged in sport clubs, every member has the opportunity to invest in the program. Student-oriented activities such as sport clubs indirectly train students to improve their time management, travel planning skills, and self-confidence (Haines & Fortman, 2008). Therefore, members will have more awareness of surrounding opportunities and can take personal responsibility over the creation and changes to the teams, leading to a higher sense of control over the quality and success of the team and competitions. Intramurals and group fitness classes also enhance students’ environmental mastery through the development of social skills, communication skills, and self-esteem. Even individual fitness exercises on campus help students improve their personal achievement and efforts (Lower et al., 2015). All in all, frequent CRS participation is one of the key factors in cultivating the pathway toward gaining lifelong skills. Such skills can be generalized to other domains of life and develop a sense of beliefs that they can effectively manage their real-life demands (Kennedy et al., 2006). Students who participate in CRS activities more frequently may not start out being highly skilled, but they become skilled overtime because leisure settings provide them with an opportunity to improve their skills in a leisure/recreational activity. These improved skills can make activities manageable and flow-producing, motivating individuals toward more challenges and more skill enhancement, leading to mastery and expansion of self (Csikszentmihalyi, 1993).

5.2.1.2 Pre-lockdown CRS and Self-acceptance.

An individual with a high level of self-acceptance “possesses a positive attitude toward the self; acknowledges and accepts multiple aspects of self, including good and bad qualities; feels positive about past life” (Ryff, 1989; p. 1072). In other words, self-acceptance is a long-term self-evaluation and awareness merging with acceptance of both personal strength and weaknesses, beyond self-esteem (Ryff & Singer, 2008).

There is evidence that participation in recreational activities improve students’ sense of self-acceptance by providing a clear idea about their strengths and weaknesses (Kleiber et al., 2011). CRS activities not only promote students’ strengths in problem-solving, prioritization, adaptability, networking, and analytical skills (NIRSA, 2017) as well as improving their self-esteem (Simmons & Childers, 2013), but such activities also create new challenges (e.g., sport skills), barriers (e.g., study-sport balance), and pressures (e.g., disagreement with teammates; Siedentop, 1998), too. In another study, Webb and Forrester (2015) found that after an intramural game, irrespective of the outcome (won, lost, tied), students felt active, proud, and enthusiastic which can strengthen their true value in their abilities (Forrester et al., 2007). Therefore, it can be argued that CRS activities provide a platform on which students become aware of their limitations, and simultaneously, due to the nature of such activities, they feel confident in their own abilities to overcome challenges. According to the findings of this study, students who participated more frequently in CRS activities before the lockdown showed a better sense of self-acceptance in the face of lockdown-related academic challenges. It can be concluded that students who participate more frequently in CRS activities do not let their weaknesses be an obstacle for their achievement.

From psychological point of view, individuals’ acceptances of their attributes for what they are, without judgement, does not mean individuals must like, or celebrate every aspect of

themselves. Self-acceptance is an important first step in changing, adapting, or improving what individuals do not like about themselves (Grieger, 2020). This is aligned with Jung's (1933) proposition about the shadow-side of human nature (i.e., "We cannot change anything until we accept it. Condemnation does not liberate, it oppresses", pp.234-235).

Overall, this study shows that students who participated more frequently in CRS activities before the lockdown were more likely to feel confident and positive about their "self". In other words, they were aware of both their strengths and limitations, and faced academic challenges with less self-blaming or self-criticizing, therefore, they could protect their mental wellbeing despite experiencing challenges of the unprecedented time of the pandemic.

5.3 Research Question 2 and 3

In response to the second research question (i.e., "Do students with pre-lockdown CRS experiences still show some level of growth mindset during the pandemic?"), findings revealed that despite all pandemic-related academic challenges, students with greater pre-lockdown CRS participation were predominately more growth-oriented even during the pandemic.

Examining the results to answer research question 3 (i.e., "How will growth mindset influence the relationship between pre-lockdown CRS participation and students' psychological wellbeing during the pandemic?") indicated that the positive associations found between pre-lockdown CRS participation and wellbeing (i.e., environmental mastery and self-acceptance) were partially explained by growth mindset, suggesting that CRS enhances wellbeing, in part, because of an enhanced sense of growth mindset.

5.3.1 Hypothesis 2

It was hypothesized that a growth mindset would mediate the association between pre-lockdown CRS participation and post-secondary students' psychological wellbeing during the pandemic. Findings indicated that the associations of pre-lockdown CRS participation with environmental mastery and self-acceptance were partially explained by growth mindset, reflecting growth as an important contributor to psychological wellbeing in the long run. Results are consistent with research both in leisure studies about the role of recreational activities in enhancing personal development (Haines & Fortman, 2008) and psychology that skills, interests, potentials, and even temperaments can be changed or flourished through practice, persistence, and experience overtime (Dweck, 2008).

CRS activities such as sport clubs or intramurals provide students with opportunities to try purposeful engagement and practice operational responsibilities which lead to effective leadership skills, time management, and planning skills enhancement (Haines & Fortman, 2008). Such development in skills and abilities may strengthen students' belief that they can cultivate their basic qualities through persistent and perseverance, namely, growth (Dykman, 1998). Therefore, in the face of negative outcomes, they will not be overwhelmed by stress and show greater mastery (i.e., environmental mastery) and lower level of self-criticizing or self-blaming (i.e., self-acceptance). Experiencing flow and lifelong learning, through engaging in freely chosen and intrinsically motivated activities, leads to skill development, changes in the state of mind and personal growth (Csikszentmihalyi, 1982). Growth-oriented individuals do not define failure or challenges as a reflection of their personal deficiencies but try their best to learn from them for future improvement, through practicing more, trying new strategies, and accepting feedback from

others, which may subsequently lead to showing fewer depressive symptoms and higher level of wellbeing overtime (Dykman, 1998).

Overall, findings revealed that students who cultivated their growth mindset through more frequent CRS participation before the lockdown could better control the complex and unprecedented academic challenges caused by the Covid-19 pandemic because of their lifelong skills and adjustment to the new normal (i.e., environmental mastery). They also faced academic challenges with less self-blaming or self-criticizing (i.e., self-acceptance). In other words, students who extended the self through CRS activities could manage academic challenges more confidently and efficiently. As results indicated, the impact of CRS activities on enhancing environmental mastery or self-acceptance is not limited to physical activities, enhanced skills, or awareness about strengths and weaknesses, but it is the beliefs about the valued sense of self and empowerment which protect students' mental wellbeing during the pandemic.

5.4 Research Questions 4 and 5

Research question 4 asked whether students who participated in pre-lockdown CRS activities employed adaptive coping strategies during the pandemic. Results confirm a positive answer, representing that those students who more frequently participated in pre-lockdown CRS activities engaged more in adaptive coping strategies (i.e., support seeking, planning, positive reframing) to overcome pandemic-related academic challenges.

To answer the research question 5 (i.e., “How will adaptive coping strategies influence the relationship between pre-lockdown CRS participation and students' psychological wellbeing during the pandemic?”), findings indicated that the positive association between pre-lockdown CRS participation and wellbeing (i.e., environmental mastery and self-acceptance) were

particularly explained by more engagement in adaptive coping strategies, meaning that CRS enhances wellbeing, in part, because of an enhanced adaptive coping strategies.

5.4.1 Hypothesis 3

It was hypothesized that adaptive coping strategies will mediate the association between pre-lockdown CRS participation and post secondary students' psychological wellbeing during the pandemic. Findings revealed that the association of pre-lockdown CRS participation with environmental mastery and self-acceptance were partially explained by adaptive coping strategies, indicating the significance of adaptive coping strategies for wellbeing enhancement in the long run. This is consistent with other studies showing that CRS participation can help students to cope with stress more effectively (Forrester, 2014; Kanters, 2000) and coping strategies not only reduce immediate distress, but it also contributes to long-term psychological wellbeing (Snyder & Dinoff, 1999).

Findings show pre-lockdown CRS participation had a positive impact on students' use of adaptive coping strategies (i.e., support-seeking, planning, positive reframing) which in turn could protect their environmental mastery and self-acceptance during the pandemic. It can be argued that pre-lockdown CRS participation is beyond just a leisure activity to reduce stresses through palliative coping or mood enhancement, but it is likely the underlying psychosocial meaning of leisure which is the strategy for managing the stress during the pandemic. Pre-lockdown CRS activities may help students find new meanings and directions in interpreting challenges (Kleiber et al., 2002) or empowerment (Iwasaki & Mannell, 2000), therefore, they were more likely to engage in adaptive coping strategies to overcome Covid-19 related academic challenges. From a psychological point of view, it can be argued that students who participated more frequently in CRS activities before the pandemic had a greater belief in their abilities to make adjustments in

face of adversity (Carver & Scheier, 1998), therefore, they engage in more effective coping strategies to reduce the negative impact of the stresses. To be specific, it seems CRS participation before the lockdown provided a platform upon which students faced with different challenges, barriers, or even failures. In other words, they already learned about their strengths and weaknesses (i.e., self-acceptance) and gained awareness of effective coping strategies to help them change, create, or choose factors or conditions adaptable to their psychic needs and the challenging situation (i.e., environmental mastery). When individuals know there are some coping strategies available, they are more likely to appraise negative events controllable and manageable (Lazarus, 2006) and dealing with challenges adaptively leads to less anxiety and greater wellbeing (Dykman, 1998).

5.5 Research Question 6

To answer the last research question (i.e., “What role do growth mindset and adaptive coping strategies have in the association between pre-lockdown CRS participation and psychological wellbeing during the pandemic?”), findings of this study showed that greater pre-lockdown CRS participation was associated with higher levels of environmental mastery and self-acceptance during the pandemic and this association was explained through two pathways. First, the association of pre-lockdown CRS participation with wellbeing was partially explained by employing adaptive coping strategies in face of challenges. Second, the association of CRS participation with wellbeing was also partially explained with serial mediation suggesting that greater CRS participation enhanced growth mindset to interpret failure as challenges not threats, leading participants to use more adaptive coping strategies in the face of setbacks. Overall, pre-lockdown CRS participation can protect students’ environmental mastery and self-acceptance

during the pandemic, however, it has little impact on their autonomy, positive relations with others, or purpose in life.

5.5.1 Hypothesis 4

It was hypothesized that growth mindset and adaptive coping strategies would play a significant mediating role in the association between pre-lockdown CRS participation and dimensions of psychological wellbeing during the pandemic. Results revealed a significant serial mediation effect for the association of CRS participation to environmental mastery and self-acceptance via growth mindset and adaptive coping strategies. Findings suggest that pre-lockdown CRS participation can enhance students' growth mindset, which in turn usually guide them to employ adaptive coping strategies in face of negative life events. Therefore, in the long run, they can protect their environmental mastery and self-acceptance during unprecedented times such as during the Covid-19 pandemic.

Students who participated more frequently in CRS activities before the pandemic showed to be more growth oriented. Therefore, they may be more likely to view pandemic-related challenges (e.g., academic uncertainty, self-support struggles, and e-learning challenges, Abdeahad & Mock, in review) as opportunities for learning about themselves (i.e., their strengths/weaknesses, as well as the new situation). Challenges remind them what skills or abilities are in need for improvement in academic performance. In the face of negative life events, they are also more task-focused, so they look for overcoming the challenges, through planning and trying new strategies, reframing the challenges in a manageable way, or seeking help from their friends and family or faculty members, teaching assistants, and staff. Because they do not interpret failure as a reflection of personal deficiencies, they could take a control of the environment around them.

A longitudinal study among students in Australia showed that they reported lower level of environmental mastery during the pandemic compared to the pre-lockdown period (Anglim & Horwood, 2021). Findings of this study, with a focus on CRS users, shed a light to consider CRS participation as one of the key factors to augment students' mastery in the face of challenges. It will be valuable to compare CRS users and non-users in future research to study their levels of environmental mastery when confronting stressful events.

Results also showed that the off-campus physical/recreational activities had no significant direct or indirect effects on protecting psychological wellbeing during the pandemic, representing that the impact of CRS activities is beyond and over the positive impact of aerobic movements or physical activities (Kilgo et al., 2016). To be aligned with early studies, it can be argued that experiences through CRS participation may change students' perspective, attitude, skills, and knowledge which in turn leads to experiential learning, personal development, and satisfaction with college/university life (Astin, 1993; Boyer, 1987; Light, 1992; Pace, 1987; Smith & Thomas, 1989; Todaro, 1993). Therefore, in the face of negative life events, they can be more resilient, which may lead to lower level of dropouts and greater retention (Endo & Bittner, 1985; Mallinckrodt & Sedlacek, 1987).

In many ways, the findings of the present study are consistent with previous research. CRS as a purposeful leisure activity helps students improve their skills and abilities leading to personal growth (Anderson & Dixon, 2009; Kleiber et al., 2011). In face of challenges or setbacks growth-seeking individuals try to overcome difficulties through trying new strategies (Dweck, 2015). Therefore, they do not consider challenges as a threat, but a warning that their life is out of balance, and they need to reconstruct some of their purposes or redefine some of life meanings (Dykman, 1998, Wong, 2020). In other words, individuals' self-perceptions, and their selected coping

strategies can change the level of their wellbeing (Ryff, 2014), leading to lower levels of depression and better life adjustment (Dykman, 1998).

In relation to autonomy, positive relations with others, and purpose in life, after accounting for control variables there was no significant direct or indirect effects of pre-lockdown CRS participation on any of the dimensions of autonomy, positive relations with others, or purpose in life, though some positive associations were noted which will be discussed.

As noted above, some positive associations between positive relations with others and growth mindset were found (see Figure 6), showing that primarily growth-oriented students had better positive relations with others during the pandemic, which is consistent with Dweck's early studies about mindsets, representing that mindsets not only influence self-judgements, but they also have an impact on judgement about others (Chiu et al., 1997). Individuals with a growth mindset avoid rapid judgements and predictions about others just because of a single behaviour, therefore, they are capable of greater empathy, affection, and intimacy. However, it seems that pre-lockdown had little impact on this association which is not consistent with previous studies. Related literature shows that students experience little judgemental criticism in CRS activities (Watson et al., 2006) and CRS activities can enhance students' respect for others, multicultural acceptance, and tolerance (Artinger et al., 2006; Bowman, 2010; Forrester, 2014). Considering the nature of humans' relationships changed dramatically due to physical distancing restrictions and fears of infection, it can be argued that it would be frustrating and difficult to maintain close friendships or relationships virtually. It would also be challenging to share some quality time with others through screen and be warm and trusting, especially for some post-secondary students who might have started to build on some serious meaningful relationships just months before the pandemic. Thus, it would seem to make sense that pre-lockdown CRS participation could not

protect positive relations with others during the pandemic, because there were few opportunities for in-person relations available during this time.

In relation to autonomy, findings at the first glimpse showed that there was an indirect positive effect between pre-lockdown CRS participation and autonomy during the pandemic (see Figure 4). However, examining the pathways indicated that the association was not statistically significant. Despite the positive association between CRS participation and enhanced coping strategies, coping strategies seemed to have been ineffective in protecting students' autonomy. Moreover, no significant association was found between CRS participation and growth mindset enhancement, although those with a higher level of growth mindset showed higher level of autonomy during the pandemic. Results showed that those who had a higher level of autonomy before the lockdown could protect it to some extent, however, the impact of CRS participation on maintaining autonomy was not statistically significant. This low level of autonomy may be explicable, considering the reduced freedom, and strict rules and regulations related to masks, physical distancing, and vaccines.

In relation to protecting one's sense of purpose in life during the pandemic, findings showed no significant association between pre-lockdown CRS participation and purpose in life. Although greater CRS participation was positively associated with enhanced growth mindset and adaptive coping strategies, neither growth mindset nor coping strategies were significantly associated with purpose in life during the pandemic. Considering Statistics Canada's (2020) findings showed that students' main concerns during the spring of 2020 (i.e., time two data collection for this study) were about losing their jobs, having no jobs prospects in the coming years, having to take on more student debt, and inability to return to school and finish their degrees, it may be explicable to see the sense of purpose in life was so low among participants of this study.

5.6 Conclusion

The main purpose of this study was to examine the impact of CRS participation on students' psychological wellbeing overtime. Moreover, this study aimed to explore some of the potential mechanisms that may enhance this association. Findings revealed that positive outcomes of engagement in CRS activities is beyond short-term enjoyment, body movements, learning new sport skills, or finding new friends. Greater and more frequent CRS participation can also enhance growth mindset among students. Growth mindset, known as a character strength (Dweck, 2015), can help an individual evaluate stressors as challenges, not threats toward the self-worth. According to Dykman (1998), individuals with a primarily growth mindset appraise stressors as manageable and controllable problems that need to be either resolved or the underlying negative emotions should be modified. Therefore, such individuals engage more in adaptive coping strategies such as instrumental supports, new strategy plans, positive reframing, and emotional support. It can be concluded that greater pre-lockdown CRS participation has built students' beliefs about their abilities and thus in the face of pandemic-related challenges, they could take on behaviours to manage problems and challenges in ways to protect their perceptions of environmental mastery and self-acceptance.

Consistent with Mattlin et al., (1990) who discussed that coping successfully with short-term life stressors can enhance individuals' coping skills which leads to lower levels of anxiety and depression in face of more complex stressors in the long run, it can be argued that students who learned how to deal with challenges and setbacks (e.g., disagreement with teammates, lack of skills to play well, physical weaknesses for some activities, study-sport balance, time management) in the context of CRS activities and learned to manage the challenges through regular participation had built some personality characters (e.g., growth mindset, empowerment). Therefore, they were

able to bring these personality enhancement and coping skills to bear on pandemic-related challenges and protect their wellbeing.

In other words, considering the limited access to in-person CRS activities due to Covid-19 pandemic and the non-significant effect of off-campus recreational activities on the positive association of pre-lockdown CRS participation with environmental mastery and self-acceptance, it can be argued that the underlying psychosocial meaning of CRS activities, through generating coping beliefs, may be the reason for sustaining environmental mastery and self-acceptance during the pandemic. Coping beliefs, refers to relatively enduring psychological dispositions built on individuals' generalized beliefs that leisure activities can help them cope with stress. Iwasaki and Mannell (2000) argued that leisure autonomy (i.e., self-determination and empowerment) and leisure friendship (emotional/instrumental support) can enhance coping beliefs to reduce stress. Built on their study and Dykman's (1998) goal orientation theory, findings from the present study show that growth mindset resulted from CRS participation also has the potential to protect students' wellbeing in face of challenges. Growth mindset may provide students with the opportunity for empowerment (as Iwasaki and Mannell argued) to overcome challenges of life through maintaining a valued sense of self. Students with enhanced growth mindset consider stressors as challenges against learning and improvement, not as a threat toward their self-worth, therefore, they are more determined and motivated to overcome the setbacks. Because of their positive attitude toward life and possessing strong leisure coping beliefs, they can better manage challenges in life while leisure can contribute to their development (Iwasaki et al., 2005). This is consistent with psychological findings that individuals who believe in their abilities to make adjustments can cope effectively in face of challenges and experience greater psychological wellbeing (Carver & Scheier, 1998).

Findings of this study confirm that the outcomes of CRS participation are aligned with the goals of the Canadian Association of College and University Student Services (CACUSS, 2013) to enhance students' intrapersonal development (i.e., self-acceptance), and practical competence (i.e., environmental mastery) to strengthen students' capacity to manage challenges and find meaning, purpose, and happiness both on campus and later in their life.

5.6.1 Theoretical Implications

Previous studies have found that CRS participation can enhance psychological wellbeing (Edwards et al., 2004; 2005; Kilgo et al, 2016). However, it was not clear how CRS participation impacted wellbeing. Findings of this study extend that line of research by showing the link between CRS participation and wellbeing through increased growth mindset and enhanced adaptive coping strategies.

The positive outcomes of CRS participation have extensively been studied, but little research has examined the impact of past CRS participation in a context where access to physical activities then became limited. This study opened a new pathway to examine the positive impacts of CRS on wellbeing above and beyond just physical activities in a setting where students had very limited access to facilities.

According to Forrester (2015) the questions related to wellbeing and wellness are not theoretically grounded in the Campus Recreation Benchmarking Student Survey. Built on coping theory, psychological wellbeing theory, and goal orientation theory, findings of this study can contribute to revise the Survey to be more theoretically adapted.

Although goal orientation theory has been broadly applied in sport settings and educational contexts to examine athletes' or students' success, it has seldom been tested to understand the

reason why post-secondary students cope differently in face of challenge. This research revealed that studying students' mindset, in particular opportunities to enhance growth mindset such as CRS participation, can help them to employ more adaptive coping strategies and protect their wellbeing.

5.6.2 Practical Implication

In terms of practical values, finding of the present study have some notable implications both for post-secondary students and universities/colleges services.

Practically, increasing awareness of the impact of CRS activities on wellbeing may assist students in navigating opportunities to enhance their own wellbeing. Studies show some students have a lower tendency to seek help from counsellors due to stigma and embarrassment, poor mental health literacy, and a preference for self-reliance (Eisenberg et al., 2012; Gulliver et al., 2010). Therefore, the dissemination of this knowledge through campus services, faculties, and departments can help students have a comprehensive knowledge about the positive outcomes of CRS participation. It can be implemented through the following strategies:

“Move your Mind” is a peer-to-peer program at UW which uses physical activity to help support students' mental health and overall wellbeing. The program can change to “Move to Thrive” campaign to encourage all first-year students to participate in “try-it” sessions to become familiar with intramurals, shoe tag classes, instructional classes, strength and conditioning, open recreation, and clubs. CRS services can be suggested through each department's orientation programs when campus mental health resources are introduced.

Sharing findings of this study with other campus services specifically campus wellness, and counselling services can support their work in promoting students' wellness and lead to greater academic performance and retention. Campus collaboration and informational support from

counselling services, in particular, can promote credibility of CRS participation in wellbeing enhancement. Although it was asked, no participant identified themselves with other sexual orientations, therefore, it is not clear whether students with other sexual orientations were reluctant to participate in the study or they are not interested in CRS participation. Results also showed that the rate of graduate students and specifically international students' participation in CRS programs were very low. Considering the positive impact of CRS participation on students' coping strategies, environmental mastery and self-acceptance in the long run, it is recommended that the Athletic and Recreation Office work more closely with Graduate student association, Glow centre for sexual and gender diversity, and student success office (international peer community program) to introduce their programs in a more effective and inclusive way through use of the vocabulary related to health and wellbeing rather than just physical activity. It is time to shift the long-established attitude towards CRS activities from the general belief of a centre for physical activities, having fun and enjoyment, spending time with friends to the broader significant concept of wellbeing. Bringing positive outcomes of prior CRS participation in time of Covid-19 pandemic (i.e., having primarily a growth mindset, adaptive coping strategy enhancement, protecting environmental mastery, and self acceptance) to the forefront may help students think of CRS activities as one of the key self-care factors on campus.

5.6.3 Limitations

The current study has several limitations. First, due to the halt in data collection because of the campus lockdown the small sample size limited the power to find more relationships among the variables. At the same time, finding significant associations between CRS participation, growth mindset, adaptive coping strategies, environmental mastery, and self-acceptance in this small sample suggests that these are relatively robust associations. Second, the use of self-report

measures as the only data collection method may give the possibility of response bias, memory bias, and other artifacts. Also, self-reported evaluation of wellbeing, mindsets, or coping strategies can be influenced by mood or some cultural beliefs. Therefore, for future studies, it is recommended to use multimethod approaches such as structured interviews or diaries. Third, data was collected from one Canadian post secondary institution which limits the generalizability of the results to other Canadian or North American post-secondary institutions which offer CRS activities to students. Finally, data were collected only from those with CRS membership. Due to the campus lockdown, it was not possible to recruit students who participated only in open recreational activities to assess their mindset and coping strategies.

5.6.4 Future Studies

This research is among the first studies to examine the long-lasting impact of CRS participation on psychological wellbeing. Findings indicated that the underlying psychosocial meaning of leisure (i.e., the beliefs to abilities and skills in face of challenges) resulted from greater CRS participation helped students protect their environmental mastery and self-acceptance during the pandemic. However, the present research was limited to only behavioral involvement of students to CRS activities (i.e., the participation frequency). For future research, it is suggested to study students' internal psychological processes (i.e., self-concept, needs, and values) that stimulate them to participate in CRS activities to find why some students attach more to specific activities? What is the reason that some students identify themselves through some specific CRS activities? Havitz and Dimanche (1997) called such unobservable state of interest and motivation toward a recreational activity as "ego involvement" and argued that through ego involvement, researchers can understand how an individual defines their leisure activity and how this leisure activity influences their behavior. Studying students' psychological involvement in CRS activities

can open a pathway to examine their values, goals, standards, and norms for participation, therefore CRS services can be enhanced to meet students' needs and criteria.

This study also has implications for applying positive psychology in CRS studies. Psychology has long been applied in recreation and leisure studies to understand individuals' personalities through analyzing the activities they choose for their free time to find whether individuals' behaviours are different in their leisure from their other domains of lives, and how leisure choices influence their wellbeing (Kleiber et al., 2011; Neulinger, 1974). This association between leisure or individuals' functioning and wellbeing is the significant link between leisure studies and positive psychology (Mock et al, 2016). Positive psychologists argue that engaging in meaningful activities can significantly enhance personal strengths which in turn contribute to achieving optimal positive functioning through positive emotions (e.g., pleasant emotions such as joy, pride, excitement), engagement (i.e., the experience of flow), relationships (i.e., having someone to share both the positive and the negative experiences), meaning (i.e., being part of something that is bigger than yourself), and achievement (i.e., accomplishment for its own sake, not as a means to an end; PERMA; Seligman, 2011). In the field of leisure studies, Iwasaki et al., (2018) also identified five key roles of leisure in promoting meaningful engagement in life and listed them as: 1) leisure can help individuals maintain a joyful life through enhancing positive emotions, 2) leisure can promote a connected life through increasing sense of belonging through interpersonal relationships, or connections to nature, culture, and religion, 3) leisure can enhance a discovered life through demonstrating the significant strength of the character of each individual leading to learn more about their personal and social identity, 4) leisure has the potential to help individuals maintain a composed life through experiencing more flexible and liberating opportunities to adjust the pace of life, and 5) leisure can promote an empowered life either through

experiencing flow and the resulting transformation in positive moments or through coping with stresses in the time of adversity. The similarity of what Iwasaki and colleagues found about the role of leisure in maintaining a meaningful life and Seligman's (2011) components of wellbeing can be a good start to integrate positive psychology and leisure studies through analyzing CRS outcomes with Seligman's model of happiness and wellbeing (i.e., PERMA) perspective to predict if CRS participation can lead to flourishing.

Overall, it is not possible to eliminate anxiety, fears, or stress from students' daily life, however, it is possible to help them cultivate their mindsets to go beyond their baseline functioning and build qualities lead to thrive.

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Appendices

Appendix A

Survey Instrument (Time One) *Information Email*

Dear Athletes,

You are invited to participate in a research study about exploring how participation in campus recreational sport activities can be a resource for improving mental wellbeing among university students.

As you may know students' mental wellbeing is an ongoing issue of interest and your participation is important to this study. We are looking for athletes at recreational level to fill out an online survey. Because we are interested in measuring changes over time, your participation would involve two phases whereby you will be asked to fill out the same online survey twice: once in January and once in end of March. Each survey will take approximately 15 minutes of your time.

If you would like to volunteer as a participant in this study, please follow the link you received via this email for more details about what participation involves and to access the first survey.

In appreciation of your time, you will have the chance to be entered into a draw to win 1 of 15 \$10 Amazon gift cards for each survey you participate in. This means that if you choose to participate in both surveys, you will have 2 opportunities to win a gift card. Your odds of winning one of the prizes is based on the number of individuals who participate in the study. We expect that approximately 300 individuals will take part in the study.

Participation in this study is voluntary. You may decline to answer any questions that you do not wish to answer, and you may end your participation at any time by simply exiting your browser. If you choose to end your participation early, you may still enter the draw by clicking through to the end of the survey and entering your e-mail address when prompted. Information collected to draw for the prizes will not be linked to the study data in any way, and this identifying information will be stored separately, then destroyed after the prizes have been provided.

Thank you,
Narges Abdeahad

Study Information (provided at the beginning of the online questionnaire)

Dear Athletes,

My name is Narges Abdeahad, and I am a 4th year PhD candidate in the Department of Recreation and Leisure Studies. I am currently studying about the association between campus recreational sport participation and mental wellbeing enhancement among Canadian university students. For this research, I am looking to recruit members of campus recreational sport programs at the university. This study focuses on factors that are associated with mental health among university students and whether campus recreation participation can enhance personal growth, effective coping strategies, and psychological wellbeing. This study is being conducted as a PhD dissertation through the Department of Recreation and Leisure Studies under the supervision of Dr. Steve Mock.

Survey questions will focus on your recreational experiences on campus, your frequent factors of stress at school, how you manage your stress, your wellbeing, and some demographic questions such as your age, gender, academic year, faculty, and GPA. At the end of the survey, you will also be asked to provide your e-mail address for the purposes of inviting you to participate in the follow-up survey and to link your responses from both surveys together.

Additionally, because some of the questions will prompt you to reflect on topics such as how you deal with stress and how often you feel particular emotions, it's possible that some of the questions may cause you to feel upset. Please remember that you may skip any questions you do not want to answer. Below, you can also find a list of relevant resources on campus that you can access if you do feel upset anytime.

On-campus contacts:

UW Police- 519-888-4567 ext.22222 (*for emergency services on campus 24/7*)

Counselling Services- 519-888-4567 ext.32655 (*offers same day appointments for emergencies and can be found in the Needles Hall addition on the 2nd Floor*)

Health Services- Student Medical Clinic- 519-888-4096 (*offers walk-in appointments for urgent concerns and can be found in Health Services building*)

Your participation will be considered confidential and identifying information (e.g., your e-mail address) will be removed from the data that is collected and stored separately. Collected data will be securely stored for a minimum of seven years on a password protected computer. You can withdraw your consent and request that your data be removed from the study by contacting the researchers within this time period. Please note that it is not possible to withdraw your data

once findings have been submitted for publication. Further, if you would like to receive a copy of the results of this study, please contact Narges Abdeahad. Thank you for considering participation in this study. This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee.

ONLINE CONSENT

By providing your consent, you are not waiving your legal rights or releasing the investigator(s) or involved institution(s) from their legal and professional responsibilities.

I agree to participate in a study being conducted by Narges Abdeahad, a PhD Candidate at the Department of Recreation and Leisure Studies at University of Waterloo. I have made this decision based on the study information I have just read. I have been made aware of the opportunity to ask questions and request any additional details I wanted about this study. As a participant in this study, I realize that I will be asked to take part in a 15-minute online survey and answer survey questions. As a participant in this study, I am aware that I may decline to answer any question that I prefer not to answer. I am also aware that I will not be identified by name in any papers or publications resulting from this study and that I may end my participation at any time by exiting my browser.

By choosing the “YES” radio button below, I agree to participate in this study

- Yes
- No

Questionnaire (Time One)

Q1. Please select from the list below how many times per week you are participating in each of the following activities this semester. (Check all that apply).

	0	1	2	3	4	5	6	7 or more
Warrior Recreation Drop in/Open rec sports (e.g., Basketball, squash, swimming, etc.)	<input type="radio"/>							
Warrior Recreation Intramurals	<input type="radio"/>							
Warrior Recreation Lessons and Workshops (e.g., Dance, skating, squash, martial arts, swimming, first aid, strength & conditioning)	<input type="radio"/>							
Warrior Recreation Clubs (e.g., Archery, Badminton, Muay Thai, Quidditch, etc.)	<input type="radio"/>							
Warrior Recreation Shoe Tag/Group Fitness	<input type="radio"/>							
Warrior Recreation Fitness Centres (PAC Weight Room, CIF Fitness Centre)	<input type="radio"/>							
Other (Specify) _____ _____	<input type="radio"/>							

Q2. Imagine yourself facing setbacks and difficulties related to your student life. How do you interpret setbacks? Please rate how you interpret setbacks by coloring in the option that is the closest to what you think/feel is true for you.

	1= Strongly disagree	2	3	4	5	6	7= Strongly agree
I feel like I'm constantly trying to prove that I'm as competent as the students around me.	<input type="radio"/>						
When I'm faced with a difficult or stressful life situation, I'm likely to view it as an opportunity to learn and grow.	<input type="radio"/>						
My main motive for doing many of the things I do is to prove my basic self-worth, competence, or likeability.	<input type="radio"/>						
When I approach new or difficult situations, I'm less concerned with the possibility of failure than with how I can grow from the experience.	<input type="radio"/>						
In situations that I would end in failure or rejection, it's natural for me to focus on how I can grow or what I can learn from the experience.	<input type="radio"/>						
I feel like my worth, competence, & likeability are things I'm constantly struggling to prove to myself and others.	<input type="radio"/>						

Q3. As you know, there are lots of ways to try to deal with stress during student life.

Obviously, different events bring out somewhat different responses. Please, think about stressful events related to your academic life. Rate what you usually do when you are under stress by coloring in the option that is the closest to what you think/feel is true for you.

	1= I haven't been doing this at all	2	3= I've been doing this a lot
I learn something from the stressful experience.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I sleep more than usual or watch TV to think about it less.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel a lot of emotional distress and I find myself expressing those feelings a lot.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to get advice from an expert about what to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I concentrate my efforts on doing something about it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I act as though it hasn't even happened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to find comfort in my religion.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make jokes about it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I admit to myself that I can't deal with it, and I quit trying.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I start blaming myself for things that happened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to get emotional support from friends or relatives.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to lose myself for a while by drinking alcohol or taking drugs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I accept the reality of the fact that it happened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to come up with a strategy about what to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I've been taking action to "try to make the situation better".	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been thinking hard about what steps to take.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been giving up the attempt to cope.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been trying to see it in a different light, to make it seem more positive.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been learning to live with it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been making fun of the situation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been praying or meditating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been getting emotional comfort and understanding from a friend or a relative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been getting help and advice from people with related knowledge.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been turning to work or other activities to take my mind off things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been saying to myself "This isn't real".	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been expressing my negative feelings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been using alcohol or other drugs to help me get through it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been criticizing myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q4. The following statements ask you about your interpretation of your life. Please rate how you see different aspects of yourself by coloring in the option that is the closest to what you think/feel is true for you.

	1=Strongly disagree	2	3	4	5	6= Strongly agree
I have confidence in my own opinions, even if they are different from the way most other people think.	<input type="radio"/>					

In general, I feel I am in charge of the situation in which I live.	<input type="radio"/>					
I live life one day at a time and don't really think about the future.	<input type="radio"/>					
People would describe me as a giving person, willing to share my time with others	<input type="radio"/>					
I tend to be influenced by people with strong opinion.	<input type="radio"/>					
When I look at the story of my life, I am pleased with how things have turned out.	<input type="radio"/>					
I'm quite good at managing the many responsibilities of my daily life.	<input type="radio"/>					
Some people wander aimlessly through life, but I am not one of them.	<input type="radio"/>					
I judge myself by what I think is important, not by the values of what others think is important.	<input type="radio"/>					
The demands of everyday life often get me down.	<input type="radio"/>					
Maintaining close relationships has been difficult and frustrating for me.	<input type="radio"/>					
I have not experienced many warm and trusting relationships with others.	<input type="radio"/>					
I like most parts of my personality.	<input type="radio"/>					
I sometimes feel as if I've done all there is to do in life	<input type="radio"/>					
In many ways, I feel disappointed about my achievements in life.	<input type="radio"/>					

Q5. What's your age?

Q6. What gender do you identify with?	
<input type="checkbox"/>	Male
<input type="checkbox"/>	Female
<input type="checkbox"/>	Other

Q7. Are you an undergraduate or graduate student?	
<input type="checkbox"/>	Undergraduate
<input type="checkbox"/>	Graduate

Q8. What academic year are you in?	
<input type="checkbox"/>	First Year
<input type="checkbox"/>	Second Year
<input type="checkbox"/>	Third Year
<input type="checkbox"/>	Last Year

Q9. What faculty are you in?	
<input type="checkbox"/>	Engineering
<input type="checkbox"/>	Math
<input type="checkbox"/>	Arts
<input type="checkbox"/>	Science
<input type="checkbox"/>	Environment
<input type="checkbox"/>	Applied Health Sciences
<input type="checkbox"/>	University Colleges

Q10. Are you an international student?

Yes

No

Q11. What was your GPA last year?

Q12. If you are interested in participating at the second phase of this study (end of March 2020), please enter your email address

Q13. If you are interested in participating in the draw, please enter your email address

Survey Instrument (Time Two)
Information Email

Dear Athletes,

I would like in the first place thank you for participating in the first phase of this study. Since you dedicated an interest in participating in the second phase of this study, the link to the follow-up survey is sent to you via this email. As you may remember, this study focuses on factors that are associated with enhancing mental health among university students and whether campus recreational sport participation may augment it through promoting personal growth and effective coping strategies. This study is being conducted as a PhD dissertation through the Department of Recreation and Leisure Studies under the supervision of Dr. Steve Mock.

Considering the pandemic and growing of mental health challenges, your participation for the follow-up survey is very important to this study. Because we are interested in measuring changes over time, you will be asked to fill out the previous online survey with some additional questions about your physical activity status during the pandemic and whether you participated in virtual campus recreational sport activities in the spring semester. The survey will take about 12 minutes of your time.

If you would like to volunteer as a participant in this follow-up study, please follow the link sent to you via this email for more details about what participation involves and to access the survey. In appreciation of your time, you will receive a \$10 Amazon gift card within 2 business days of submitting the survey (please, enter your email address in the survey).

I would like to assure you this study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee. However, the final decision about participation is yours. Thank you for the given time. I really appreciate it.

Bests,
Narges Abdeahad

Study Information (provided at the beginning of the online questionnaire)

Dear Athletes,

My name is Narges Abdeahad, and I am a 4th year PhD candidate in the Department of Recreation and Leisure Studies.

I would like in the first place thank you for participating in the first phase of this study related to mental health among university students, and since you dedicated an interest in participating in the second phase of this study, the link to the follow-up survey was sent to you via this email.

Survey questions will focus on your campus recreational sport participation *during the campus lockdown*, your new physical activities *during the pandemic*, how you interpret and manage your stress *during the pandemic*.

Additionally, because some of the questions will prompt you to reflect on topics such as how you deal with stress and how often you feel particular emotions, it's possible that some of the questions may cause you to feel upset. Please remember that you may skip any questions you do not want to answer. Below, you can also find a list of relevant resources on campus that you can access if you do feel upset anytime.

On-campus contacts:

UW Police- 519-888-4567 ext.22222 (for emergency services on campus 24/7)

Counselling Services- 519-888-4567 ext.32655 (offers same day appointments for emergencies and can be found in the Needles Hall addition on the 2nd Floor)

Health Services- Student Medical Clinic- 519-888-4096 (offers walk-in appointments for urgent concerns and can be found in Health Services building)

Your participation will be considered confidential and identifying information (e.g., your e-mail address) will be removed from the data that is collected and stored separately. Collected data will be securely stored for a minimum of seven years on a password protected computer. You can withdraw your consent and request that your data be removed from the study by contacting the researchers within this time period. Please note that it is not possible to withdraw your data once findings have been submitted for publication. Further, if you would like to receive a copy of the results of this study, please contact Narges Abdeahad. Thank you for considering participation in this study. This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee.

ONLINE CONSENT

By providing your consent, you are not waiving your legal rights or releasing the investigator(s) or involved institution(s) from their legal and professional responsibilities.

I agree to participate in the follow-up study being conducted by Narges Abdeahad, a PhD Candidate in University of Waterloo's Department of Recreation and Leisure Studies. I have made this decision based on the study information I have just read. I have been made aware of the opportunity to ask questions and request any additional details I wanted about this study. As a participant in this study, I realize that I will be asked to take part in a 12-minute online survey and answer survey questions. As a participant in this study, I am aware that I may decline to answer any question that I prefer not to answer. I am also aware that I will not be identified by name in any papers or publications resulting from this study and that I may end my participation at any time by exiting my browser.

By choosing the “YES” radio button below, I agree to participate in this follow-up study

- Yes
- No

Questionnaire (Time Two)

Q1. Select from the list below how many times per week you are participating in each of the following virtual activities this semester. (Check all that apply).

	0	1	2	3	4	5	6	7 or more
Warrior intramural e-sport	<input type="radio"/>							
Warrior Health Webinars	<input type="radio"/>							
Warrior Personalized nutrition	<input type="radio"/>							
Warrior Online fitness classes	<input type="radio"/>							
Warrior Home workout program	<input type="radio"/>							
Other (Specify) _____	<input type="radio"/>							

Q2. Considering Covid-19 restrictions, select from the list below how many times per week you are participating in each of the following activities. (Check all that apply).

	0	1	2	3	4	5	6	7 or more
Running/jogging	<input type="radio"/>							
Home workout	<input type="radio"/>							
Brisk walking/ Nature walk	<input type="radio"/>							

Bicycling/ Scootering	<input type="radio"/>							
Skateboarding/longboarding	<input type="radio"/>							
Roller skating/ Rollerblading	<input type="radio"/>							
Yoga/meditation	<input type="radio"/>							
Outdoor sports (e.g., volleyball, basketball, tennis, badminton, etc.)	<input type="radio"/>							

Q3. Imagine yourself facing Covid-19 related setbacks and difficulties related to your student life during the pandemic. How do you interpret setbacks? Please rate how you interpret setbacks by coloring in the option that is the closest to what you think/feel is true for you.

	1 Strongly disagree	2	3	4	5	6	7 Strongly agree
I feel like I'm constantly trying to prove that I'm as competent as the students around me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I'm faced with a difficult or stressful life situation, I'm likely to view it as an opportunity to learn and grow.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My main motive for doing many of the things I do is to prove my basic self-worth, competence, or likeability.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I approach new or difficult situations, I'm less concerned with the possibility of failure than with how I can grow from the experience.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In situations that I would end in failure or rejection, it's natural for me to focus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

on how I can grow or what I can learn from the experience.							
I feel like my worth, competence, & likeability are things I'm constantly struggling to prove to myself and others.	<input type="radio"/>						

Q4. As you know, there are lots of ways to try to deal with stress during the pandemic. Obviously, different events bring out somewhat different responses. Please, think about Covid-19 related stresses in your academic life during the pandemic. Rate what you usually do when you are under a lot of stresses because of Covid-19 pandemic by coloring in the option that is the closest to what you think/feel is true for you.

	1= I haven't been doing this at all	2	3= I've been doing this a lot
I learn something from the stressful experience.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I sleep more than usual or watch TV to think about it less.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel a lot of emotional distress and I find myself expressing those feelings a lot.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to get advice from an expert about what to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I concentrate my efforts on doing something about it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I act as though it hasn't even happened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to find comfort in my religion.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make jokes about it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I admit to myself that I can't deal with it, and I quit trying.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I start blaming myself for things that happened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I try to get emotional support from friends or relatives.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to lose myself for a while by drinking alcohol or taking drugs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I accept the reality of the fact that it happened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to come up with a strategy about what to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been taking action to "try to make the situation better".	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been thinking hard about what steps to take.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been giving up the attempt to cope.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been trying to see it in a different light, to make it seem more positive.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been learning to live with it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been making fun of the situation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been praying or meditating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been getting emotional comfort and understanding from a friend or a relative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been getting help and advice from people with related knowledge.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been turning to work or other activities to take my mind off things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been saying to myself "This isn't real".	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been expressing my negative feelings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been using alcohol or other drugs to help me get through it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been criticizing myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q5. The following statements ask you about your interpretation of your life. Please rate how you see different aspects of yourself by coloring in the option that is the closest to what you think/feel is true for you.

	1= Strongly disagree	2	3	4	5	6=Strongly agree
I have confidence in my own opinions, even if they are different from the way most other people think.	<input type="radio"/>					
In general, I feel I am in charge of the situation in which I live.	<input type="radio"/>					
I live life one day at a time and don't really think about the future.	<input type="radio"/>					
People would describe me as a giving person, willing to share my time with others	<input type="radio"/>					
I tend to be influenced by people with strong opinion.	<input type="radio"/>					
When I look at the story of my life, I am pleased with how things have turned out.	<input type="radio"/>					
I'm quite good at managing the many responsibilities of my daily life.	<input type="radio"/>					
Some people wander aimlessly through life, but I am not one of them.	<input type="radio"/>					
I judge myself by what I think is important, not by the values of what others think is important.	<input type="radio"/>					
The demands of everyday life often get me down.	<input type="radio"/>					

Maintaining close relationships has been difficult and frustrating for me.	<input type="radio"/>					
I have not experienced many warm and trusting relationships with others.	<input type="radio"/>					
I like most parts of my personality.	<input type="radio"/>					
I sometimes feel as if I've done all there is to do in life	<input type="radio"/>					
In many ways, I feel disappointed about my achievements in life.	<input type="radio"/>					

Q6. Please enter your email address to receive the \$10 Amazon Gift Card

Q7. If you are interested in participating in the draw, please enter your email address

Appendix B

Goal Orientation Inventory (GOI) Scale (Dykman, 1998, p. 144)

Item	Item Wording
	<i>Factor 1: Validation-Seeking</i>
1.	Instead of just enjoying activities and social interactions, most situations to me feel like a major test of my basic worth, competence, or likeability.
4.	Relative to other people, I tend to approach stressful situations as if my basic self-worth, competence, or likeability was "at stake."
6.	Whether it be in sports, social interactions, or job/school activities, I feel like I'm still trying to prove that I'm a worthwhile, competent, or likeable person.
7.	My interactions with people often feel like a test of whether or not I'm a likeable person.
9.	I feel like I'm constantly trying to prove that I'm as competent as the people around me.
12.	My approach to situations is one of always needing to prove my basic worth, competence, or likeability.
15.	One of the main things I know I'm striving for is to prove that I'm really "good enough."
16.	How well I perform in social and achievement situations is a direct measure of my basic self-worth, competence, or likeability as a person.
18.	I feel as though my basic worth, competence, and likeability are "on the line" in many situations I find myself in.
21.	It seems like I'm constantly trying to prove that I'm "okay" as a person.
22.	So much of what I do feels to me like a major test of my basic worth, competence, and likeability as a person.
24.	I feel like my worth, competence, and likeability are things I'm constantly struggling to prove to myself and others.
26.	Relative to other people, there are a lot of things I do just to prove my basic adequacy as a person.
29.	Whereas other people see themselves as competent in the things they do, that's something I'm still trying to prove to myself.
30.	I feel like I'm always testing out whether or not I really "measure up."
32.	In many things I do, I'm trying to find out whether or not I'm a competent, worthy, or likeable person.
34.	I tend to view difficult or stressful situations as all-or-none tests of my basic worth as a person.

36. My main motive for doing many of the things I do is to prove my basic self-worth, competence, or likeability.

Factor 2: Growth-Seeking

2. I look upon potential problems in life as opportunities for growth rather than as threats to my self-esteem.

3. I have a knack for viewing difficult or stressful situations as opportunities to learn and grow.

5. Personal growth is more important to me than protecting myself from my fears.

8. When I'm faced with a difficult or stressful life situation, I'm likely to view it as an opportunity to learn and grow.

10. When I approach new or difficult situations, I'm less concerned with the possibility of failure than with how I can grow from the experience.

11. I look upon possible setbacks and rejection as part of life since I know that such experiences will help me grow as a person in the long run.

13. I'm the type who is willing to risk the possibility of failure or rejection in order to reach my fullest potential as a person.

14. My attitude toward possible failure or rejection is that such experiences will turn out to be opportunities for growth and self-improvement.

17. In situations that could end in failure or rejection, it's natural for me to focus on how I can grow or what I can learn from the experience.

19. The attitude I take toward possible setbacks and disappointments is that they'll end up being good learning experiences.

20. As I see it, the rewards of personal growth and learning something new outweigh the disappointment of failure or rejection.

23. My natural tendency is to view problem situations as providing opportunities for growth and self-improvement.

25. I approach difficult life situations welcoming the opportunity to learn from my mistakes.

27. My approach to challenging life situations is that I'd rather make a mistake and learn from the experience than sit back and never try.

28. I approach stressful situations knowing that the important thing is for me to learn and grow from these experiences.

31. I look upon potential disappointments in life as opportunities to improve and grow as a person.

33. I approach difficult life situations knowing that I can accept failure or rejection as long as I learn and grow from the experience.

35. Realizing my fullest potential in life is more important to me than protecting myself from the possibility of failure.

Appendix C

Items of the brief COPE (Carver, 1997)

1. Active Coping (*initiating direct action to remove the stressor or decreasing its effects*)

I've been concentrating my efforts on doing something about the situation I'm in.

I've been taking action to "try to make the situation better".

2. Planning (*thinking about the action strategies to handle the problem*)

I've been trying to come up with a strategy about what to do.

I've been thinking hard about what steps to take.

3. Positive Reframing or positive reappraisal (*trying to manage distress emotions rather than dealing with the stress*)

I've been trying to see it in a different light, to make it seem more positive.

I've been looking for something good in what is happening.

4. Acceptance (*can be analyzed from two perspective; at the primary appraisal, an individual can accept the reality of the stressor and try to deal with it, i.e., the opposite of denial, whereas, at the secondary appraisal, one may accept the absence of an active coping strategy.*)

I've been accepting the reality of the fact that it has happened.

I've been learning to live with it.

5. Humor (*making jokes about the situation*)

I've been making jokes about it.

I've been making fun of the situation.

6. Religion (*for some individuals, religion is considered as a source of emotional support, a means of positive reinterpretation, and growth or even a strategy for active coping.*)

I've been trying to find comfort in my religion or spiritual beliefs.

I've been praying or meditating.

7. Using Instrumental Support (*looking for advice, information, and assistance*)

I've been trying to get advice or help from other people about what to do.

I've been getting help and advice from other people.

8. Using Emotional Support (*looking for moral support, sympathy, and understanding; It should be noted that although instrumental and emotional supports are conceptually different, in practice they usually co-occur, Carver et al., 1989).*)

I've been getting emotional support from others.

I've been getting comfort and understanding from someone.

9. Self Distraction (*the escape activities which distract an individual from thinking about the stressor, such as daydreaming, sleeping, watching TV.*)

I've been turning to work or other activities to take my mind off things.

I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.

10. Denial (*Although it may be useful to minimize distress, denying the reality of the stress can make additional problems, making the situation more difficult to cope effectively later.*)

I've been saying to myself "this isn't real."

I've been refusing to believe that it has happened.

11. Venting (*to let the emotional distress out. This strategy prevents from adjustment in the long run.*)

I've been saying things to let my unpleasant feelings escape.

I've been expressing my negative feelings.

12. Substance Use (*drinking alcohol or taking drugs in order to think about the stressor less*)

I've been using alcohol or other drugs to make myself feel better.

I've been using alcohol or other drugs to help me get through it.

13. Behavioral Disengagement (*or helplessness: reducing effort to deal with the stressor and even give up from the task*)

I've been giving up trying to deal with it.

I've been giving up the attempt to cope.

14. Self-Blame (*criticizing oneself for responsibility in the situation*)

I've been criticizing myself.

I've been blaming myself for things that happened.

Appendix D

Scales of Psychological well-being (short form; Ryff, 1989)

Autonomy

“I tend to be influenced by people with strong opinions.” (reverse-coded)

“I have confidence in my opinions, even if they are contrary to the general consensus.”

“I judge myself by what I think is important, not by the values of what others think is important.”

Environmental Mastery

“In general, I feel I am in charge of the situation in which I live.”

“The demands of everyday life often get me down.” (reverse-coded)

“I am quite good at managing the many responsibilities of my daily life.”

Positive Relations with Others

“Maintaining close relationships has been difficult and frustrating for me.” (reverse-coded)

“People would describe me as a giving person, willing to share my time with others.”

“I have not experienced many warm and trusting relationships with others.” (reverse-coded)

Purpose in Life

“I live life one day at a time and don't really think about the future.” (reverse-coded)

“Some people wander aimlessly through life, but I am not one of them.”

“I sometimes feel as if I've done all there is to do in life.” (reverse-coded)

Self-Acceptance

“When I look at the story of my life, I am pleased with how things have turned out.”

“I like most parts of my personality.”

“In many ways I feel disappointed about my achievements in life.” (reverse-coded)